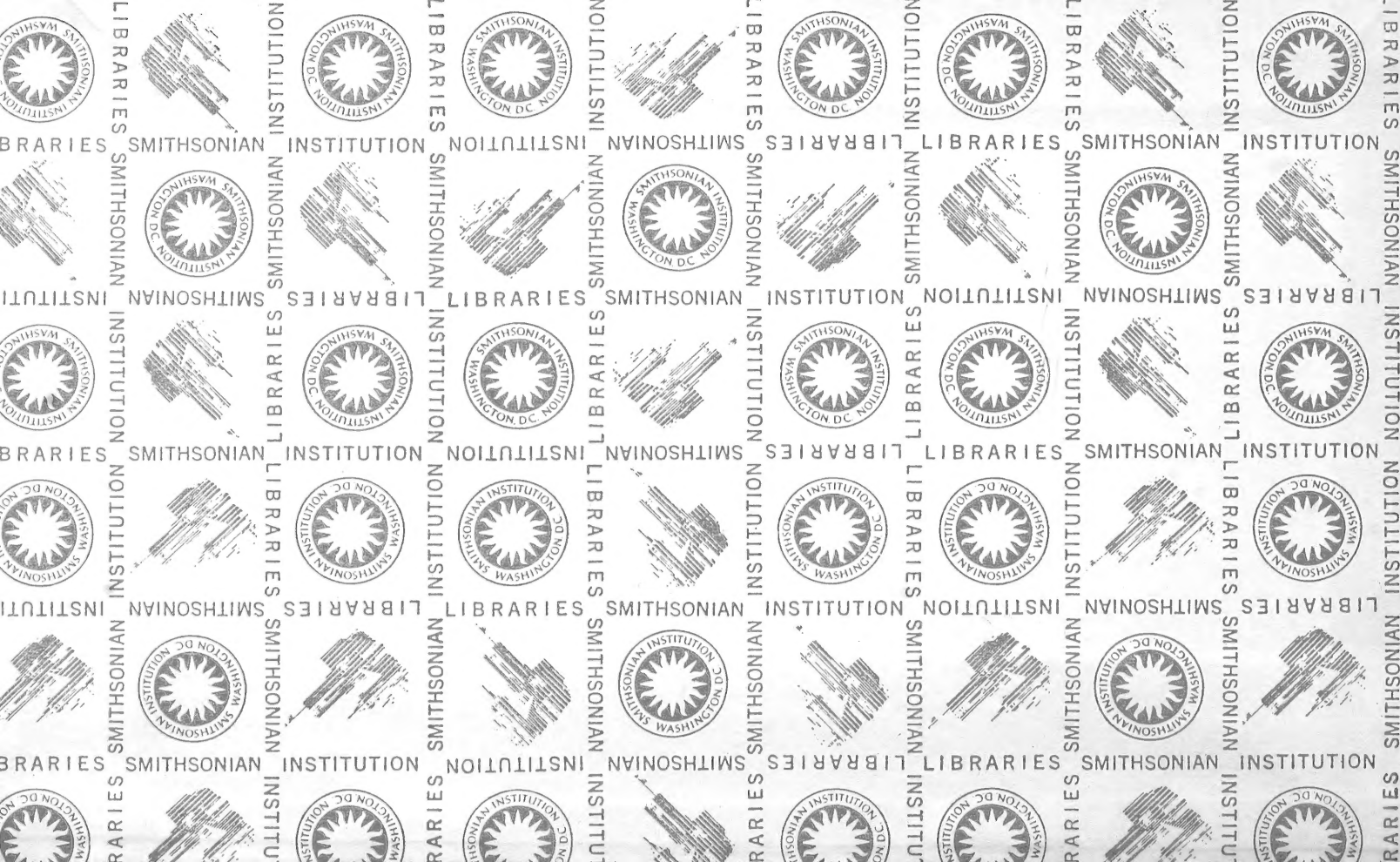
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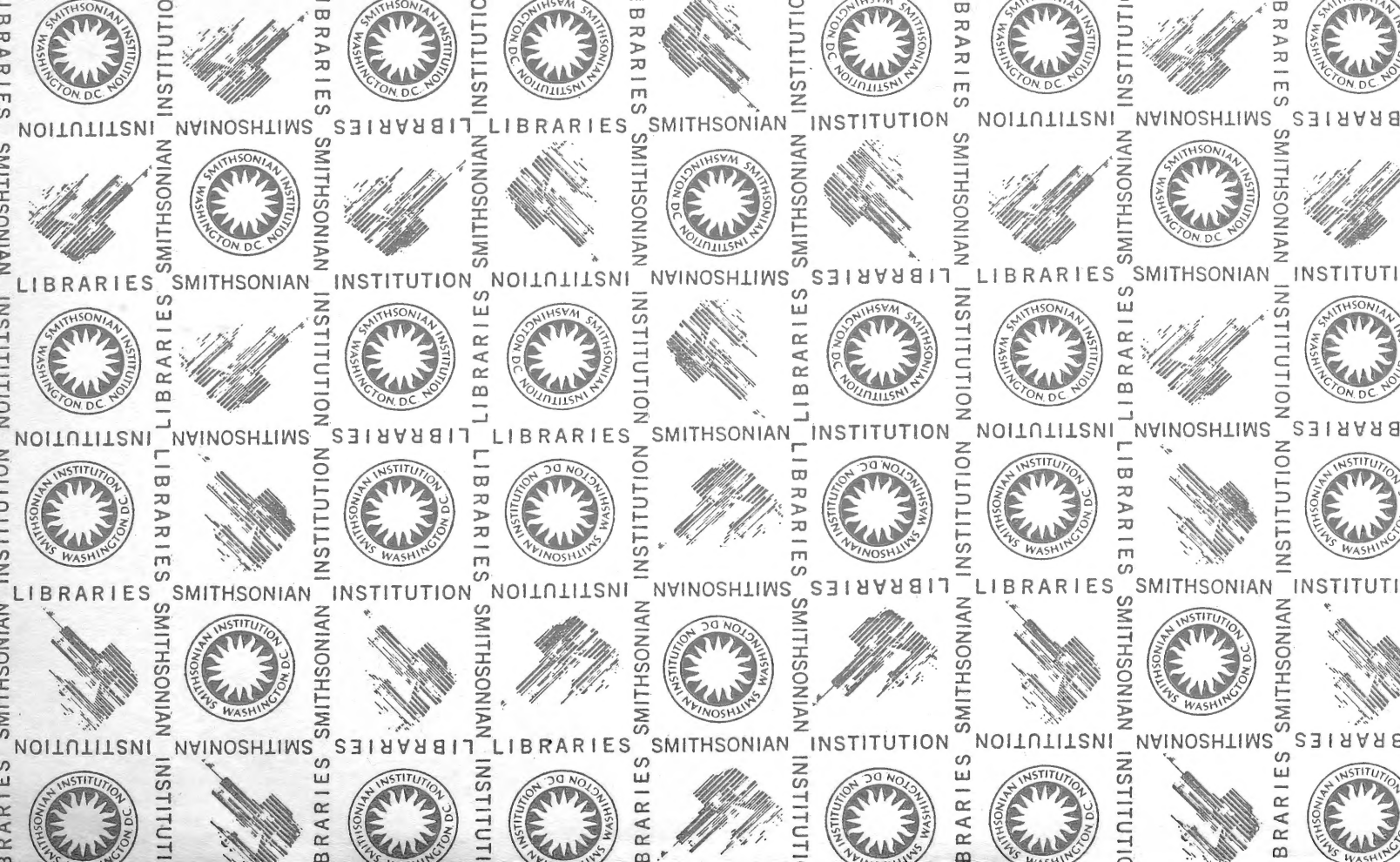
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Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
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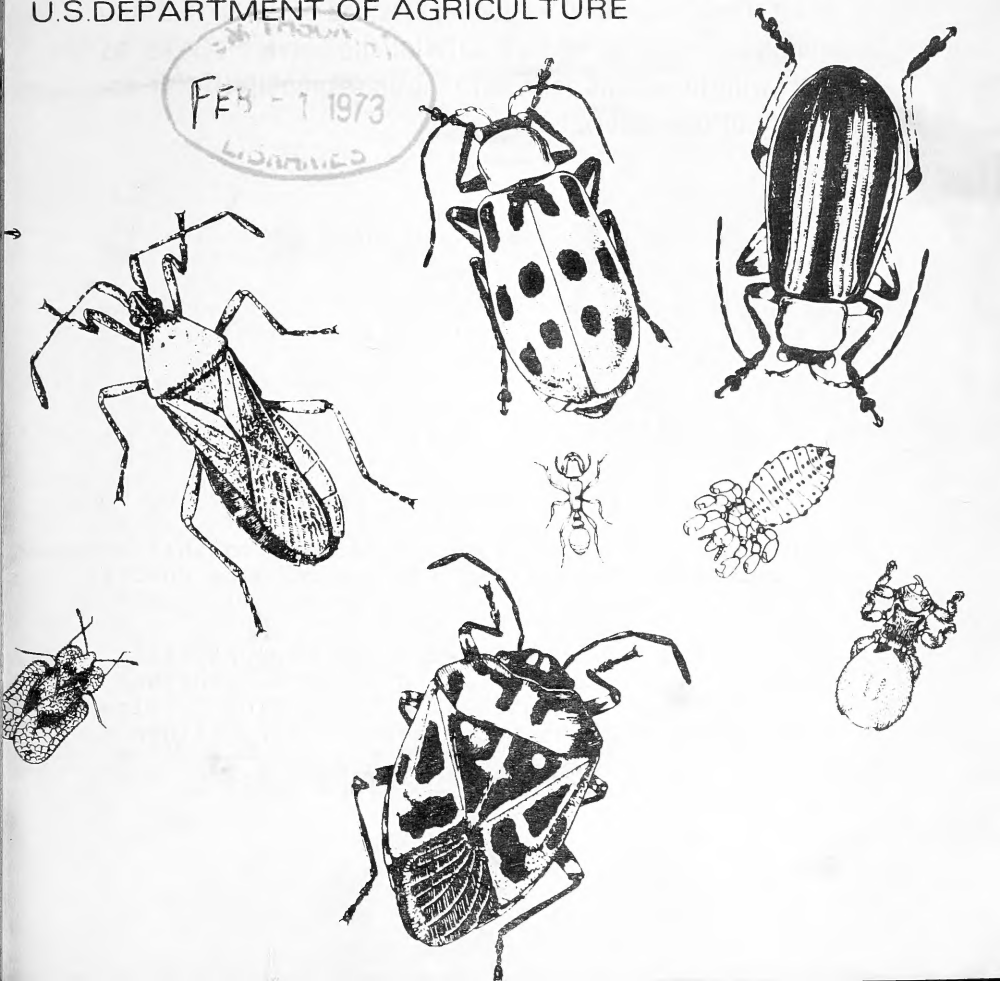

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 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

Volume 23 January 26, 1973 Numbers 1-4

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

Losses due to TOBACCO HORNWORM and TOMATO HORNWORM on flue cured tobacco in North Carolina lower in 1972 than in 1971. (p. 3).

CALIFORNIA FIVESPINED IPS and MOUNTAIN PINE BEETLE damaged pines in California. (p. 4).

Detection

- An APHID reported for first time in the United States. (p. 8).

A HARD TICK reported for first time from New Hampshire. (p. 5).

For new county and parish records see page 8.

Special Reports

The 1973 outlook for GRASSHOPPERS based on the 1972 adult survey. See centerfold map.

- Insect Detection in the United States. Eleven new United States records reported. (pp. 9-15).

State Survey Coordinators. (pp. 16-19).

Cooperative Survey Entomologists. (pp. 20-22).

Insects Not Known to Occur in the United States.
Stone Fruit Weevil (Furcipus rectirostris (L.)). (pp. 23-24).

NOTE: An Annotated Host Catalog of the Fruit Flies of America North of Mexico (Diptera: Tephritidae) by M.S. Wasbauer is available upon request without charge from Laboratory Services/Entomology, California Department of Agriculture, Sacramento, California 95814. Ask for Occasional Papers No. 19.

Reports in this issue are for weeks ending December 29, 1972, through January 19, 1973, unless otherwise indicated.

CONTENTS

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-JANUARY TO MID-FEBRUARY 1973

The National Weather Service's 30-day outlook for mid-January to mid-February is for temperatures to average above seasonal normals in the Pacific Northwest and over the northern half of the Nation east of the Divide except for near normal in the middle and north Atlantic Coast States. Below normal temperatures are expected across the South and also in the Great Basin. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal over the gulf and south Atlantic coast regions as well as the north Pacific coast. Subnormal totals are indicated for the northern Plains and the Midwest. Elsewhere near normal precipitation 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

GREENBUG (Schizaphis graminum) - TEXAS - Populations on wheat below economic levels in Panhandle, Rolling Plains, and north-central areas week ending January 12. Very cold weather responsible for inactivity. (Green). OKLAHOMA - Averaged 2 per linear foot in wheat checked in Mayes County. (Okla. Coop. Sur.). KANSAS - Averaged 0.4 per drill row foot in early planted wheat (5-inch) field near Sedan, Chautauqua County. (Bell).

CORN, SORGHUM, SUGARCANE

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Soil samples collected in September 1972 indicated State average of 1.45 eggs per pint of soil. Average counts per pint of soil by district: West-central 2.7, southwest 1.7, south-central 1.5, southeast 1.8, and east-central, central, north-central, and northwest zero. Counts of 0-5 eggs per pint noneconomic; 6-15 eggs per pint moderate; 16+ eggs per pint heavy or potentially damaging. (Wis. Ins. Sur.).

TURF, PASTURES, RANGELAND

RANGE CRANE FLY (Tipula simplex) - CALIFORNIA - Infestations in foothill areas of Tulare County heavy; treatment being applied to cattle ranges. Several thousand acres of rangeland severely damaged in 1972. Current infestation extends into Fresno County. (Cal. Coop. Rpt.).

FIRE ANT (Solenopsis geminata) - TEXAS - Reported from Brazos and Leon Counties week ending January 12. Heavy infestations seen in pastureland near Jewett, Leon County. (Green, Cole).

AN ARMORED SCALE (Odonaspis saccharicaulis) - FLORIDA - Taken on pangolagrass (Digitaria decumbens) at Fort Drum, Okeechobee County, November 21, 1972, by W.E. Wynn and H.L. Gillis. This is a new county record. (Fla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Activity much reduced in Brazos and Burleson Counties during week ending January 19. Eggs averaged 100 per square foot, adults 1 per square foot. First larvae noted. (Latham). OKLAHOMA - Egg counts in Payne County increased to 25 per square foot in samples collected January 4. (Okla. Coop. Sur.).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Averaged 55 per 100 sweeps of alfalfa in Maricopa County. Decrease expected due to unfavorable weather latter part of period. (Ariz. Coop. Sur.).

TOBACCO

HORNWORMS (Manduca spp.) - NORTH CAROLINA - Losses due to M. sexta and M. quinquemaculata on flue cured tobacco about 57 percent less in 1972 than in 1971. Some 340,000 acres of flue cured tobacco grown in 1972. (Robertson).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - This species and Myzus persicae (green peach aphid) required controls in lettuce fields at Yuma, Yuma County, despite cool weather. Wind and rain caused difficulty in scheduling treatments. (Ariz. Coop. Sur.).

CITRUS

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Taken on Hamlin orange (Citrus sinensis) at Okeechobee, Okeechobee County, November 20, 1972, by W.E. Wynn and H.L. Gillis. This is a new county record. (Fla. Coop. Sur.).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Averaged 10 scales per stem on grapefruit trees at Bonita, San Diego County. (Cal. Coop. Rpt.).

ORNAMENTALS

TEA SCALE (Fiorinia theae) - ALABAMA - All stages occurring on several hundred plants examined in Lee County during the week ending January 12. This scale continues to be the most important insect affecting camellia throughout State. (McQueen).

AN ARMORED SCALE (Pseudaonidia paeoniae) - SOUTH CAROLINA - Light on azaleas at residence in Newberry County. Determined by D.K. Pollet. This is a new county record. (McCaskill).

EUONYMUS SCALE (Unaspis euonymi) - SOUTH CAROLINA - Specimens taken from euonymus in Williamsburg County November 29, 1972, by L.B. Harrington. Determined by D.K. Pollet. This is a new county record. (McCaskill).

FOREST AND SHADE TREES

CALIFORNIA FIVESPINED IPS (Ips confusus) - CALIFORNIA - Hundreds of ornamental Monterey pine trees killed around bay area and into Santa Clara County. Some very large, old trees are dead or dying. (Cal. Coop. Rpt.).

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) - CALIFORNIA - Epidemic infestations killed hundreds of lodgepole pines on south end of Lake Tahoe. About 150 acres of private land involved. (Cal. Coop. Rpt.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - One to 4 pupae per tip on 15-50 percent of all 6 to 8-foot pine trees along highway planting in Macon County. (McQueen).

FOREST AND SHADE TREES

WALKINGSTICK (Diapheromera femorata) - TEXAS - Taken October 27, 1972, at Lufkin, Angelina County. Collected and determined by D. Kucera. This is a new county record. (Pierce).

A GALL MIDGE (Taxodiomyia cupressiananassa) - INDIANA - Galls of this species found under bald cypress trees (Taxodium distichum) in Warrick, Spencer, and Perry Counties December 7, 1972, by B. Cummings and V. Knapp. These are new county records. (Cummings, Knapp).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 128 confirmed cases reported in continental U.S. during period December 17 to January 13. Three of these were in Arizona, the rest in Texas. Number of sterile flies released in U.S. this period totaled 376,751,600 all in Texas. There were 788 confirmed cases and a total of 409,652,500 sterile flies released in Mexico this period. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 10-20 per head on 5 young cows in Wagoner County. Counts averaged 9 per mature cow in Oklahoma County stockyard. Averaged 17 (maximum 42) per head on mature cows in Noble County. Heavy in Pawnee County, light in Payne and Johnston Counties. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - FLORIDA - Averaged about 200 adults per beef animal at Gainesville, Alachua County, January 9, 1973. Expected to decrease due to recent cool weather. (Fla. Coop. Sur.).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Very heavy on one herd of cattle in Major County. Heavy populations building up in Pawnee County. Reported moderate in Johnston, McCurtain, and Lincoln Counties. Light on dairy and stocker cattle in Payne, Noble, and Pottawatomie Counties. (Okla. Coop. Sur.).

A HARD TICK (Amblyomma dissimile) - NEW HAMPSHIRE - Nymph taken from snake, Constrictor constrictor, in laboratory at Durham, Strafford County, November 29, 1972, by J.S. Trumbull. Determined by J.E. Keirans. This is a new State record. This species common on reptiles and amphibians in South and Central America and has been taken on snakes in Florida. (Blickle).

HOUSEHOLDS AND STRUCTURES

A POWDERPOST BEETLE (Lyctus brunneus) - ALABAMA - Larvae and adults found heavy and damaging window trim of home at Orange Beach, Baldwin County, October 10, 1972. Building material was imported banak (Virola sp.) wood. (McQueen). See CEIR 22(49-52): 781 for additional report of L. brunneus in State. (PP).

STORED PRODUCTS

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Larvae damaged almond nuts in many locations. An estimated 10-percent loss of 1972 crop occurred in commercial almonds. (Cal. Coop. Rpt.).

PECAN WEEVIL (Curculio caryae) - NEW MEXICO - Total of 233 pounds of weevil-infested pecans condemned at retail outlets in Albuquerque, Bernalillo County. (Heninger).

BENEFICIAL INSECTS

ICHNEUMON WASPS - MISSOURI - Bathyplectis curculionis, a parasite of Hypera postica (alfalfa weevil), taken from alfalfa litter samples in Cass and Cedar Counties December 28 and 29, 1972; Barton County January 4, Cooper and Moniteau Counties January 16, and in Cole and Miller Counties January 18, 1973, by J.L. Huggans. These are new county records. (Munson). VIRGINIA - Diplazon laetatorius emerged from syrphid pupa on alfalfa September 26, 1972, in Botetourt County. Collected by W.A. Allen. Determined by R.W. Carlson. This is a new county record. (Allen).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANTS (Solenopsis spp.) - ALABAMA - Mound building by established broods of S. richteri very active throughout State. Many mounds in pastures, woods, fields, and along roadsides now 10-18 inches high. (McQueen). FLORIDA - S. invicta taken from roadside of U.S. Highway 27 in Lafayette County February 22, 1972, by Wilson and Gilliard. GEORGIA - S. invicta taken from roadside of Highway 78 at Tallapoosa, Haralson County, by W.C. Stewart January 29, 1972. Also collected from road shoulder of Old River Road in Jenkins County by H.L. Quattlebaum April 20, 1972. TEXAS - S. invicta collected from city of East Mountain, Upshur County, November 9, 1972; also taken in Marion County March 27, 1972. Both collections by B.J. Tapscott. Determined by D.R. Smith. These are all new county records. (PP).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Taken from green cotton bolls November 1, 1972, in Archer County; from lint cleaner in Baylor and Knox Counties November 9 and 10, 1972, respectively; also taken from lint cleaner in Childress County December 7, 1972, and in Hall County December 8, 1972. Collections made by F. Presston. Determined by D.M. Weisman. These are new county records. (PP).

WHITEFRINGED BEETLES (Graphognathus spp.) - LOUISIANA - G. peregrinus light on po-joe and crabgrass at Fort Polk Army Base in Vernon Parish July 21, 1972. G. leucoloma fecundus taken from goldenrod in Winn Parish August 8, 1972. G. peregrinus light on po-joe in Red River Parish August 29, 1972. G. peregrinus collected from roadside in Natchitoches Parish November 7, 1972. All collections by L. Sandov. TEXAS - G. peregrinus taken from po-joe weed along railroad tracks in Hardin County August 29, 1972, by B.D. Green. GEORGIA - Graphognathus sp. observed on goldenrod in Pierce County July 27, 1972. Collected by M.T. Wetherington. KENTUCKY - G. leucoloma striatus collected by R.B. Owens from weed field in McCracken County July 13, 1972. SOUTH CAROLINA - G. leucoloma striatus taken from aster in parking area at Barnwell, Barnwell County, August 3, 1972. Collected by P.W. Langford. All determined by R.E. Warner. These are new parish and county records. (PP).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - State Personnel treated 815 trees on 8 infested properties in new infestation at Fallbrook, San Diego County. (Cal. Coop. Sur.).

Corn - CORN EARWORM (Heliothis zea) in sweet corn on Oahu, trace in 3 acres at Pupukea week ending December 29, 1972, (Kawamura), and heavy in 0.5 acre at Waimanalo week ending January 19, 1973, (Otsuka).

General Vegetables - Oviposition scars of MELON FLY (Dacus cucurbitae) on about 100 percent of fruits in one acre of cucumber and young fruits in adjacent 0.5 acre of sweet pepper at Pupukea, week ending December 29, 1972. All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) very heavy in 0.6 acre of bitter melon and adjacent 0.2 acre of see-qua at Pupukea during same period. Adults trace in 0.3 acre of bitter melon at Haleiwa. (Kawamura). BEET ARMYWORM (Spodoptera exigua) and LEAFMINER FLIES (Liriomyza spp.) light to moderate in 0.75 acre of ready-to-harvest green onions at Waianae, Oahu. S. exigua larvae light, damage moderate, in 5,000 square feet of horenso (Spinacia oleracea) at Waimanalo; 30 percent of leaves damaged. CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate to heavy in snap beans at Waianae. All during week ending January 5. (Ikehara, Kawamura). These pests light in 0.5 acre of same host at Pearl City week ending January 12, with about 15 percent of leaves affected. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) spotty, colonies moderate mostly on older leaves of 20 percent of plants in small banana planting at Pearl City, Oahu, week ending January 12. Nymphs and adults of Telsimia nitida and Lindorus lophanthae (lady beetles) moderate on scale infested leaves. (Kawamura).

Forest and Shade Trees - An ADELGID (Pineus pini) moderate on 12 of 40 Pinus sp. saplings at Ulupalakula, Maui, week ending January 12. This is new area of infestation. Eradication efforts continue at all infested areas on island. (Miyahira). During same period, larvae of CERAMBICID BEETLES (Plagithymus perrottetiae and P. diana) severely damaged and killed native forest plants, olomea (Perrottetia sandwicensis) and alani (Pelea sp.), along Kaluapuki and Pihea Trails on Kauai. (Davis). FULLER ROSE BEETLE (Pantomorus cervinus) adults trace on terminals of 50+ Acacia confusa trees at Pupukea, Oahu, week ending January 19. Larvae of a NOCTUID MOTH (Melipotis indomita) light on monkeypod and kiawe trees throughout Oahu same period. Light trap catches indicate adults at moderate levels past 3 months. (Kumashiro, Kahale).

Man and Animals - Total of 306 Aedes vexans nocturnus and 2,792 Culex pipiens quinquefasciatus collected in 58 light traps operated on Oahu during December 1972. (Mosquito Control Branch, Hawaii Dept. Health).

Beneficial Insects - PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) larvae heavy on roadside Tribulus terrestris at Puunene, Maui, week ending December 29, 1972. (Miyahira). Nymphs and adults of a TINGID BUG (Leptobyrsa decora) moderate in 30 square yards of roadside lantana at Kokee, Kauai, same period. (Sugawa). Field examination of Melastoma malubathricum at Hilo, Hawaii, during week ending January 12 showed 38 and 22 percent infestations of fruits and terminals, respectively, by larvae of an ARCTIID MOTH (Selca brunella). Percent infestation on Kauai, 54

at Hanahanapuni and 18 at Knudsen Gap. (Yoshioka, Sugawa). Various larval stages of Plutella xylostella (diamondback moth) taken from daikon planting at Monoa week ending January 12, 57 percent parasitized by an ICHNEUMON WASP (Diadegma insularis). (Otsuka).

Miscellaneous Pests - During December 1972, 548 GIANT AFRICAN SNAIL (Achatina fulica) specimens found dead or dying at Poipu, Kauai; none found at Wahiawa. On Hawaii, 188 specimens of a CARNIVORUS SNAIL (Gonaxis quadrilateris) released along perimeter of A. fulica infestation of Kahaluu. (Sugawa, Yoshioka).

DETECTION

New United States Record - AN APHID (Muscaphis musci) UTAH - Taken from moss (placed in Berlese funnel) collected by G.F. Knowlton in Logan Canyon, Cache County, on October 8, 1971. Determined by C.S. Wood-Baker. (Knowlton).

New State Record - A HARD TICK (Amblyomma dissimile) NEW HAMPSHIRE - Strafford County. (p. 5).

New County and Parish Records - ARMORED SCALES - Pseudaonidia paeoniae - SOUTH CAROLINA - Newberry (p. 4). Odonaspis saccharicaulis - FLORIDA - Okeechobee (p. 3). EUONYMUS SCALE (Unaspis euonymi) SOUTH CAROLINA - Williamsburg (p. 4). A GALL MIDGE (Taxodiomyia cupressiananassa) INDIANA - Warrick, Spencer, Perry (p. 4). ICHNEUMON WASPS - Bathyplectis curculionis - MISSOURI - Cass, Cedar, Barton, Cooper, Moniteau, Cole, Miller. Diplazon laetatorius - VIRGINIA - Botetourt (p. 6). IMPORTED FIRE ANTS (Solenopsis spp.) FLORIDA - Lafayette. GEORGIA - Haralson, Jenkins. TEXAS - Upshur, Marion (p. 6). PINK BOLLWORM (Pectinophora gossypiella) TEXAS - Archer, Baylor, Knox, Childress, Hall (p. 6). PURPLE SCALE (Lepidosaphes beckii) FLORIDA - Okeechobee (p. 4). WALKINGSTICK (Diapheromera femorata) TEXAS - Angelina (p. 4). WHITEFRINGED BEETLES (Graphognathus spp.) LOUISIANA - Vernon, Winn, Red River, Natchitoches. TEXAS - Hardin. GEORGIA - Pierce. KENTUCKY - McCracken. SOUTH CAROLINA - Barnwell (p. 6).

CORRECTIONS

CEIR 22(49-52):783 - Turf and Pastures - Line 7: "..., Meteorus laphygma ...," should read "..., Meteorus laphygmae ...,"

CEIR 22(49-52):784 - Beneficial Insects - Line 12: "BEETLE (Octotoma scaloripennis) ..." should read "BEETLE (Octotoma scabripennis) ..."

CEIR 22(49-52):787 - In A Method of determining the relative importance of economically important insects - Under Japanese beetle the 2 lines of figures should be for apples and peaches. No figures were given for ornamentals and turf. Footnote symbol for Turf should read "f."

CEIR 22(46-48):761 and 22(49-52):777 - Small Grains - "APPLE GRAIN APHID (Rhopalosiphum fitchii) ..." should read "AN APHID (Rhopalosiphum padi) ..." (Bell).

INSECT DETECTION IN THE UNITED STATES - 1972

There were 11 new United States records reported in the Cooperative Economic Insect Report during the year. These include four species reported for the first time on the North American Continent - one each in California, Florida, Maryland, and Tennessee. Of the four species reported from Hawaii, none is known to occur in the continental United States. Sixty-eight new State distribution records of pests already found in the United States were reported.

NEW UNITED STATES RECORDS

Species	State	County	Probable Origin	Collected on	CEIR Page	Economic Importance
Cardiophorus stolatus 2/ an elaterid beetle	Hawaii	Oahu Island	Asia	Under kiawe tree bark	644	Probably noneconomic
Decrosiphon corynothris 1/ an aphid	Tennessee	Carter	Europe	*Polytrichum* spp.	231	Unknown
Ectomocoris biguttulus 2/ a reduviid bug	Hawaii	Oahu Island	Southeast Asia	Light traps	567	Unknown
Eysarcoris ventralis 2/ a pentatomid bug	Hawaii	Oahu Island	Asia	Weedy areas	323	Economic
Hypoaspis nidicorva 2/ a mesostigmatic mite	Hawaii	Hawaii Island	England	Rats	310	Unknown
Larinus carlinae 1/ a weevil	Maryland	Washington	Europe	Thistle	418	Could be beneficial
Lemophagus curtus an ichneumon wasp	Michigan	Berrien	Introduced from France	Larvae of *Oulema melanopus*	337	Beneficial
Nicentrus saccharinus a sugarcane weevil	Florida	Dade	Panama	Puncture-vine	431	Could be serious on sugarcane

Species	State	County	Probable Origin	Collected on	CEIR Page	Economic Importance
Olesicoccus coccidivora 1/ a cecidomyiid midge	Florida	Dade	South America	Reared from Barbados cherry	5	Could be beneficial
Ricoseius loxocheles a phytoseiid mite	Florida	Dade	Puerto Rico or Brazil	Seagrape	193	Unknown
Scirtothrips inermis 1/ a thrips	California	Los Angeles	Spain or Canary Is.	Liquidamber trees	483	Could be serious on citrus

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

NEW STATE RECORDS - 1972

Species	State	County	Collected on	CEIR Page
Agromyza frontella alfalfa leaf blotch-miner	Maine	York	Alfalfa	616
	New Hampshire	Rockingham	Alfalfa	383
	Vermont	Windsor	Alfalfa	478
Anthrenus coloratus a dermestid beetle	New York	Herkimer	---	740
	North Carolina	Wake	In apartment	766
	Ohio	Hamilton	In house	740
Aphycus fumipennis an encyrtid wasp	Arizona	Yavapai	*Eriococcus euphorbiae*	781
Apion longirostre hollyhock weevil	Oklahoma	Mayes	Hollyhock seed	60
Asteromyia modesta a cecidomyiid midge	Florida	Dade	Reared from daisy fleabane	4
Bathyplectes anura an ichneumon wasp	Ohio	Warren, Wayne	Larvae of *Hypera postica*	337
Bathyplectes stenostigma an ichneumon wasp	Ohio	Wayne	Larvae of *Hypera postica*	528
Berytinus minor a stilt bug	Pennsylvania	Dauphin	Juniper	685
Caliroa lineata a sawfly	West Virginia	Fayette	White oak	544
Carneocephala sagittifera a cicadellid	Hawaii	Hawaii Island	Grasses	585
Caulocampus acericaulis maple petiole borer	Alabama	Limestone	Maple	427
Chortinaspis subchortina an armored scale	Florida	Escambia	Centipede grass	498

Species	State	County	Collected on	CEIR Page
Cinara canadensis a conifer aphid	Virginia	Montgomery	Juniper	712
Coccygomimus pedalis an ichneumon wasp	North Dakota	Benson	Malacosoma disstria	282
Diabrotica virgifera western corn rootworm	Idaho	Franklin	Corn	574
Empicoris orthoneuron a reduviid bug	Oklahoma	Texas	Corn	781
Eotetranychus multidigituli a spider mite	Pennsylvania	Monroe	Honeylocust	321
Eurytetranychus buxi a spider mite	Pennsylvania	Dauphin	Buxus sp.	604
Euxoa auxiliaris army cutworm	Michigan	Kalamazoo	Bentgrass	453
Forcipomyia fusicornis a ceratopogonid fly	Hawaii	Oahu Island	A damsel fly (Megalagrion sp.)	283
Galeruca rudis a chrysomelid beetle	South Dakota	Harding	Lupine	599
Gnothobleda litigiosa a reduviid bug	Oklahoma	McCurtain	At lights	741
Graphocephala cythura a cicadellid	Hawaii	Oahu Island	Eugenia malaccensis	339
Heterodera glycines soybean cyst nematode	Alabama	Escambia	Soybeans	531
Hyposoter frugitivus an ichneumon wasp	North Dakota	Benson	Malacosoma disstria	282
Itoplectis conquisitor an ichneumon wasp	North Dakota	Benson	Malacosoma disstria	282
Labops hesperius a grass bug	Nevada	Elko	Crested wheatgrass	6

vs made during the late summer and fall of 1972. The survey reveals erity of infestations for 1973. Nymphal surveys, made in the spring, essary in 1973.

vith technical assistance from Plant Protection & Quarantine and State Midwestern States. Areas on the map are diagrammatic. Within these

R INFESTATIONS
S, FALL 1972

red)

REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL ACRES
	PRIVATE & STATE	PUBLIC DOMAIN	
Utah	9,172	7,400	16,572
Washington	964,460	80,320	1,044,780
Wyoming	182,940	30,820	213,760
UTH STERN			
Kansas	350,000	—	350,000
Nebraska	501,000	—	501,000
New Mexico	4,637,491	717,429	5,354,920
Oklahoma	1,485,000	—	1,485,000
Texas	1,261,060	—	1,261,060

personnel in cooperation with various State Agencies concerned.

☆ GPO 793-110


GRASSHOPPE
3 TO 7 GRASSHOPPERS PER SQUARE YARD
(USUALLY NON-ECONOMIC)
8 OR MORE GRASSHOPPERS PER SQUARE YARD
(MAY REQUIRE TREATMENT)
NECESSITY FOR CONTROL ON CROP OR RANGELAND NEXT SEASON
MAY DEPEND UPON TYPE OF HABITAT, 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.

DULT SURVEY

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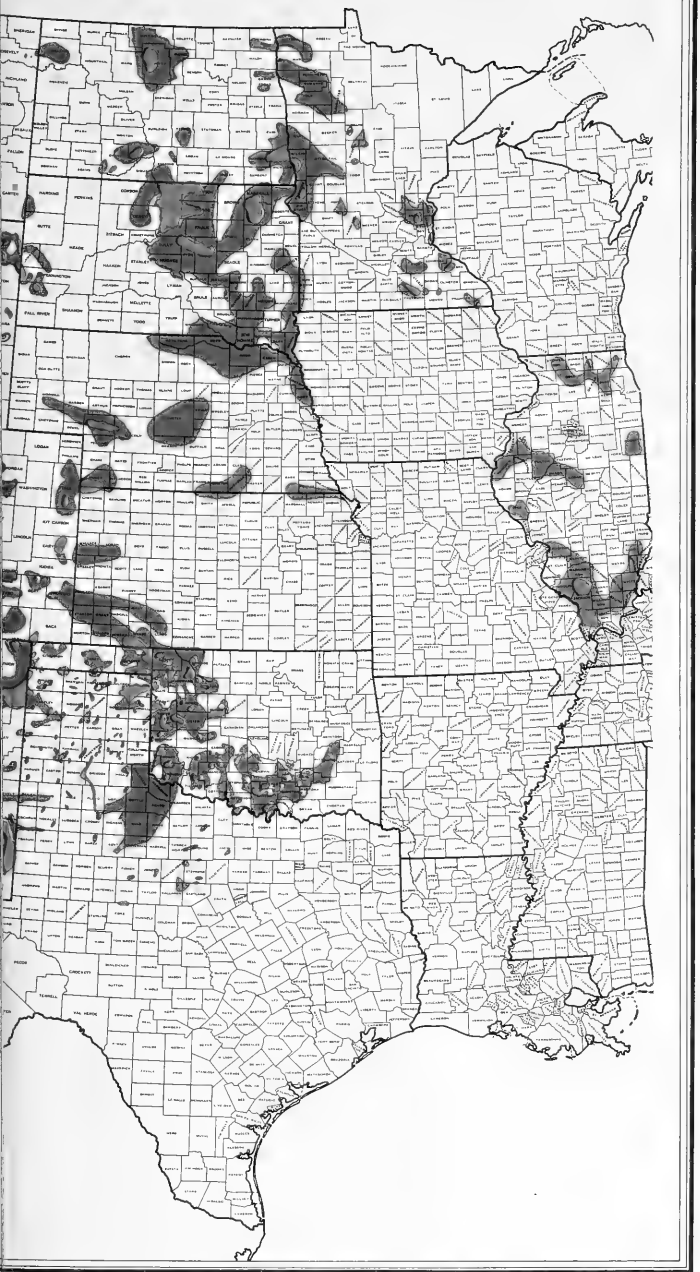

UNITED STATES DEPA
ANIMAL AND PLANT H
Plant Protection

TO COOPERATORS:

This map is based upon the results of cooperative grasshopper ac
where and how many grasshoppers infest an area, and indicates the pot
determine population densities, and indicate those areas where control m

Control on grasshopper infested croplands will be handled by the
personnel. The infested rangeland areas total 15,337,582 acres in 17 We
areas, infestations may be solid or spotted.

RANGELAND GRAS
ACREAGE BY F

(Areas

REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL ACRES
	PRIVATE & STATE	PUBLIC DOMAIN	
WESTERN			
Arizona	14,500	2,500	17,000
California	81,920	2,780	84,700
Colorado	503,120	77,000	580,120
Idaho	749,160	1,381,500	2,130,660
Montana	88,450	94,000	182,450
Nevada	5,100	3,200	8,300
N. Dakota	–	15,900	15,900
Oregon	1,378,740	687,220	2,065,960
S. Dakota	10,200	15,200	25,400

The survey was planned and performed by Plant Protection and Qu

Species	State	County	Collected on	CEIR Page
Parlatoria oleae olive scale	Delaware	Sussex	Cherry-leaf laurel	751
Patapius spinosus a leptopodid bug	Nevada	Washoe	Under boards and cardboard	43
Patasson luna a mymarid wasp	Indiana	Harrison	Hypera postica eggs	781
Pealius hibisci 3/ a whitefly	Florida	Volusia	Cassava in nursery	4
Petrobia latens brown wheat mite	Pennsylvania	Mifflin	Sweet-potato vine	320
Phanaeus vindex a scarab	South Dakota	Fall River	In hospital	411
Phyllobius oblongus a weevil	Maine	Penobscot	Norway maple	192
Pissodes strobi white pine weevil	California	Del Norte	Sitka spruce	763
Platytetranychus thujae a spider mite	Pennsylvania	Cumberland	Arborvitae	358
Protocalliphora hirudo a calliphorid fly	Virginia	Roanoke	House wren	766
Sanbornia juniperi an aphid	Missouri	Jasper	Juniper	779
Scambus tecumseh an ichneumon wasp	North Dakota	Benson	Malacosoma disstria	282
Sceptrothelys grandiclava a pteromalid wasp	Indiana	Knox	Coccoon of Bathyplectes curculionis	781
Scyphophorus acupunctatus a weevil	Mississippi	Harrison	Century plant	230
Takecallis arundinariae a bamboo aphid	Maryland	Montgomery	Dwarf bamboo	409

3/ Occurs in Hawaii. This is first record for continental U.S.

Species	State	County	Collected on	CEIR Page
Leucophaea maderae Madeira cockroach	California	Los Angeles	In residence	782
Loxosceles rufescens a scytotid spider	Kansas	Riley	In building	464
Lyctus brunneus a powderpost beetle	Mississippi	Jackson	Mahogany door frames	167
Metrioptera roeselli a grasshopper	Maine	York	---	579
	New Hampshire	Strafford	---	481
Microlarinus lypriformis a puncturevine stem weevil	Florida	Dade	Puncturevine	337
Monarthrum fasciatum a bark beetle	Michigan	Wayne	Pine window-sills in home	411
Monocternus melliceps a juniper sawfly	Delaware	Sussex	Juniper	463
Neolasioptera nodulosa a cecidomyiid midge	Pennsylvania	York	Blackberry	409
Oligonychus aceris a spider mite	Pennsylvania	Dauphin	Silver maple	321
Oligonychus bicolor a spider mite	Pennsylvania	Allegheny	Pin oak	387
Oligonychus ilicis southern red mite	Pennsylvania	Monroe	Buxus sempervirens	387
Ooencyrtus kuwanai an encyrtid wasp	Maryland	Cecil	Porthetria dispar eggs	643
Orgyia rindgei a liparid moth	Arizona	Coconino	Pupal cases and females on several tree varieties	779
Oulema melanopus cereal leaf beetle	Missouri	St. Charles	Oats	337
	Tennessee	Pickett	Oats	309

Species	State	County	Collected on	CEIR Page
Taxodiomyia cupressiananassa a gall midge	Indiana	Vanderburgh	Bald cypress	147
Tetrastichus julis an ichneumon wasp	Indiana	Kosciusko	Field insectary	411
Theronia atalantae fulvescens an ichneumon wasp	North Dakota	Benson	*Malacosoma disstria*	282
Utabaenetes tanneri a camel cricket	Arizona	Coconino	---	331
Vertigo rugosula a land snail	South Carolina	Charleston	---	148
Xylosandrus germanus a scolytid beetle	Virginia	Pittsylvania	Redbud	640

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23(1-4):20-22, 1973

STONE FRUIT WEEVIL (Furcipus rectirostris (L.))*

Economic Importance - This weevil is a pest of stone fruit, its primary host being Prunus padus, the European Birdcherry. Wild cherries are a serious source of infestation to edible cherries. The worst damage is caused by adult maturation feeding and oviposition in young fruit. This causes some of the fruit to fall, turn moldy, or fail to mature. Losses in Switzerland have ranged from 7-81 percent of the crop with some cherries having up to 10 punctures each. Damage has reached 85 percent in other areas of Europe.

Interceptions - Since 1918, there have been 52 interceptions of this pest at U.S. ports of entry. The majority of the carriers originated in Austria but others have come from such places as France, Denmark, southern Manchuria, and Japan.

Host - Cherries are the primary host but it has also been recorded on prunes and peaches in western Russia.

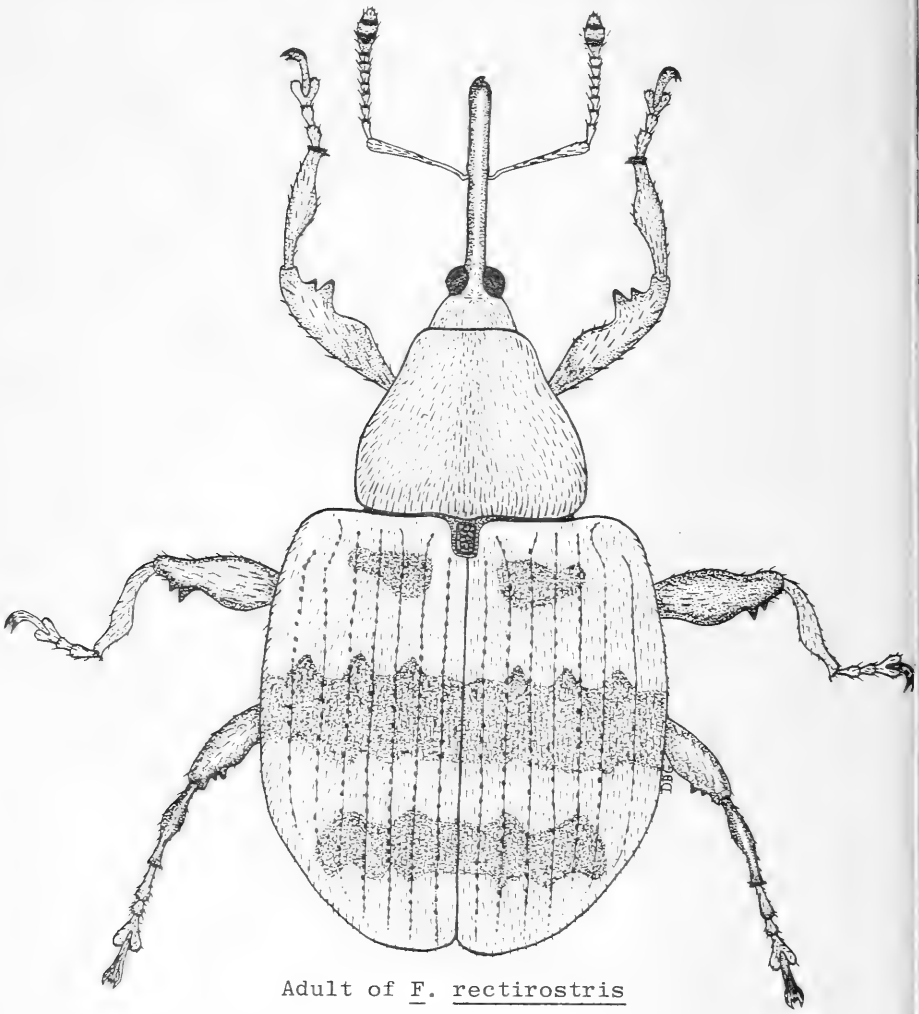
Distribution - Northern and central Europe, U.S.S.R., and Japan.

General Distribution of Stone Fruit Weevil

Life History and Habits - The adults overwinter in ground trash and emerge in the spring to begin maturation feeding. They feed on the flowers of the host, damaging the corollas, then riddle the leaves. Feeding on small shoots is occasionally dangerous to young plants. This maturation feeding lasts from 3-4 weeks but the worst damage occurs when the adults begin to feed on the young fruit and oviposit in the pits. The females lay from 12-14 eggs each, usually depositing only one egg per fruit. The larvae feed inside the stone and this often causes the fruit to fail to develop properly. As the larvae mature they gnaw a circular hole in the hardening stone which is later used for adult emergence. Pupation occurs in mid-July and the adults emerge in about 2 weeks. The young adults feed externally on the host for a short time and then go into hibernation.

*Formerly Anthonomus rectirostris. Coleoptera: Curculionidae

Description - The adults measure 4.0-4.5 mm in length and are oblong-oval. The head, legs, and abdominal sterna are reddish brown with the thorax slightly darker. The elytra vary from reddish brown to light tan. There are several alternating bands of light and dark, moderately dense setae across the elytra. One or more of the dark bands may be concentrated into a smaller area on each elytron. Other distinguishing characteristics of this monotypic genus are a very prominant, roughened scutellum and bidentate metafemora. Members of all other closely related genera have a punctate scutellum and either unidentate or unarmed metafemora. (Prepared in Pest Survey and Technical Support in cooperation with other agencies). USDA, CEIR 23(1-4):23-24, 1973



Adult of F. rectirostris

Major references: Balachowsky, A. and L. Mesnil. 1935. Les Insects Nuisibles aux Plantes Cultivees. Vol. 1:48. Paris. Burke, H.R. and Monawar Ahmad. 1967. Taxonomic status and relationships of Coccotorus LeConte and Furcipus Desbrochers (Coleoptera: Curculionidae). Ann. Entomol. Soc. Am. 60(6):1152.

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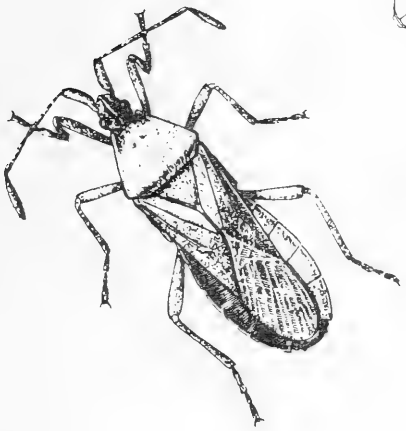

VOL. 23 NO. 5 February 2, 1973

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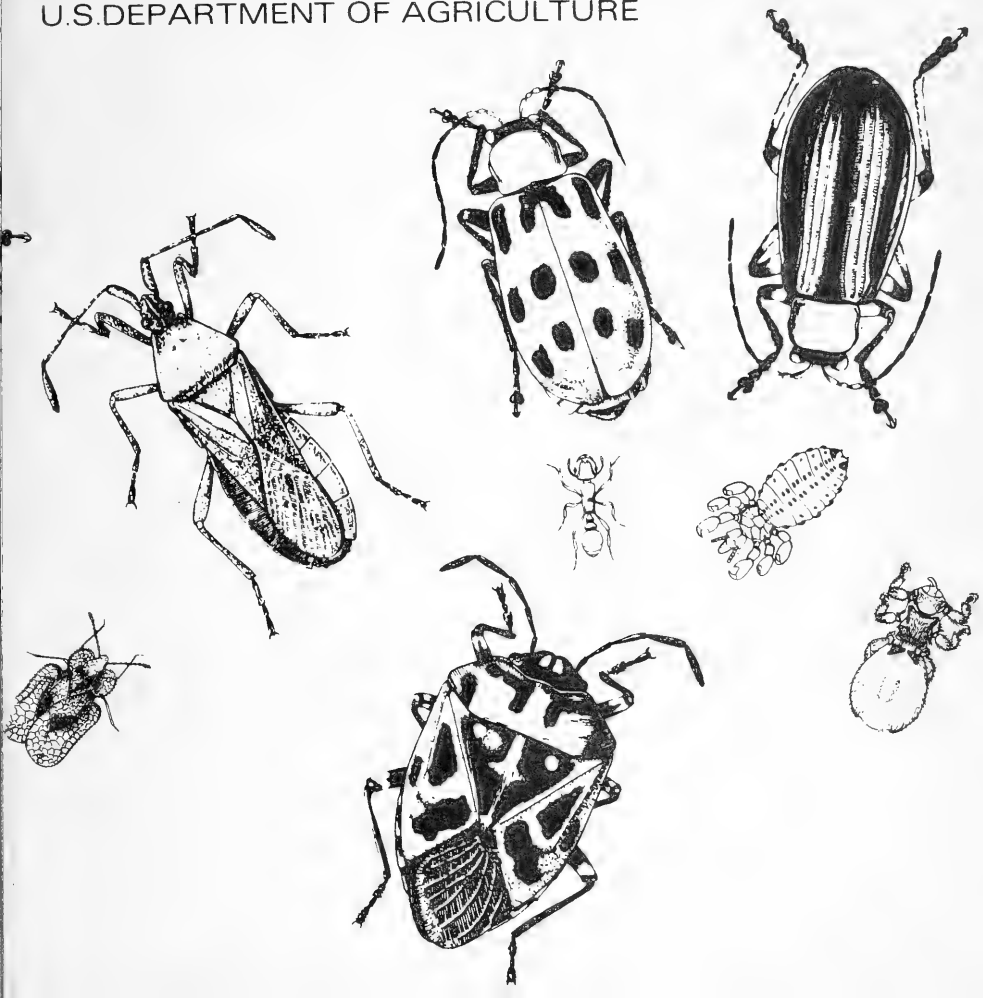
Cooperative Economic Insect Report

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:

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Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service
United States Department of Agriculture
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Volume 23 February 2, 1973 Number 5

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

Barley yellow dwarf virus, transmitted by CORN LEAF APHID and ENGLISH GRAIN APHID, may be major small grain problem in Alabama next few months. (p. 27).

ALFALFA WEEVIL active in Texas, Oklahoma, and Missouri. (p. 27).

Detection

New State records include a SCARAB from North Carolina (p. 28) and a PTEROMALID WASP from South Carolina. (p. 28).

Special Reports

Survey Methods. Selected References 1971. Part XXXVI. (pp. 29-47).

Golden Nematode Quarantines. Map. Centerfold.

Reports in this issue are for week ending January 26 unless otherwise indicated.

CONTENTS

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

FEBRUARY 1973

The National Weather Service's 30-day outlook for February is for temperatures to average below seasonal normals in the gulf and south Atlantic coast regions. Above normal temperatures are indicated for the West Coast States as well as the northern intermountain region, the northern and central Plains and the upper Mississippi Valley. In unspecified areas near normal temperatures are expected. Precipitation is expected to exceed normal over the Atlantic Coast States, the gulf coast region, the southern Plains and the north Pacific coast. Subnormal totals are indicated for most of the Plateau region as well as the northern Plains and the northern Mississippi Valley. Elsewhere near normal precipitation is in prospect.

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

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment for overwintering adults started in canyons near Coalinga and in Warthan Canyon, Fresno County. Counts on southern exposures ranged 6-30 (average 14) per 10 sweeps throughout most of the Coalinga canyons. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - TEXAS - Light throughout Rolling and High Plains areas. Populations in Wilbarger and Knox Counties ranged 15-26 per linear foot. Surveys in 26 Panhandle counties showed maximum counts per row foot in wheat as follows: Parmer 150, Castro 50, Carson 15. (Daniels). MISSOURI - Very light on wheat in southwest area; ranged from less than 1 to 5 per row foot. (Munson).

SMALL GRAINS

CORN LEAF APHID (Rhopalosiphum maidis) - ALABAMA - This aphid and Macrosiphum avenae (English grain aphid), vectors of barley yellow dwarf virus, found on all oat and barley samples taken in Dallas, Montgomery, and Autauga Counties. Virus widespread in 1971 and 1972. Many susceptable varieties planted in fall of 1972 and virus expected to become major small grain problem next 2-4 months. (Farrar).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light on small grains in Rolling Plains. Ranged 9-21 per row foot in Wilbarger, Foard, and Haskell Counties. (Green).

TURF, PASTURES, RANGELAND

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Egg clusters light to heavy on native grass in Chaves and Lincoln Counties. (N.M. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Generally light in Brazos and Burleson Counties. Egg and larval counts averaged 112 and 26 per square foot, respectively. (Latham). OKLAHOMA - Average egg counts per square foot by county: Payne 21, Stephens 229, Grady 68, McClain 6, Pottawatomie 24, Garvin 29. No hatching noted. (Okla. Coop. Sur.). MISSOURI - Adults active in the west-central and southwest areas. Counts averaged 6 and 14 per sweep, respectively, in these areas. (Munson).

GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Treatments required on lettuce fields at Salt River Valley, Maricopa County, and Yuma, Yuma County. (Ariz. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 3 confirmed cases reported in continental U.S. during period January 14-20; all from Texas. Total shows 50 percent decrease in confirmed cases below previous week. Total of 112 cases confirmed in Mexico this period. Number of sterile flies released in U.S. this period total 46,824,000; all in Texas. Total of 187,420,000 sterile flies released in Mexico. (Anim. Health).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Reported heavy on several herds of dairy cattle in Payne County; light in Johnston County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

A PTEROMALID WASP (Cheiropachus colon) - SOUTH CAROLINA - This parasite reared from infestation of Scolytus rugulosus (shothole borer) on a tree in Edgefield County. Collected December 10, 1972, by D.K. Pollet. Determined by R.H. Foote. This is a new State record. (Thomas).

DETECTION

New State Records - A SCARAB BEETLE (Ataenius erratus) - NORTH CAROLINA - Collected by Frank Bowen from light trap at county airport, New Hanover County, on July 1, 1970. Determined by O.L. Cartwright. (Green). A PTEROMALID WASP (Cheiropachus colon) - SOUTH CAROLINA - Edgefield County. (p. 28).

CORRECTIONS

CEIR 23(1-4):6 - WHITEFRINGED BEETLES (Graphognathus spp.) - LOUISIANA - G. peregrinus should read G. peregrinus.

HAWAII INSECT REPORT

General Vegetables - TARO LEAFHOPPER (Tarophagus proserpina) light in 2 acres of taro at Kahaluu, Oahu; 3-9 nymphs and/or adults per leaf. Cyrtorhinus fulvus (a mirid bug), predacious on T. proserpina eggs, trace. WATERLILY APHID (Rhopalosiphum nymphaeae) adults and nymphs moderate on new leaves in this planting. CORN EARWORM (Heliothis zea) and MELON FLY (Dacus cucurbitae) damaged or infested about 8 percent of fruits in 0.25 acre of sweet pepper at Anahola, Kauai. LEAFMINER FLIES (Liriomyza spp.) light in 0.3 acre of snap beans at Hanapepe, Kauai; larval mines heavy in some older leaves. Mines light to moderate in 3,000 square feet of young tomato plants at Wailua. GREEN PEACH APHID (Myzus persicae) nymphs and adults light in 4 acres of eggplant at Hanalei; moderate in some leaves. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) trace in snap beans and eggplant. (Kawamura). Larvae of DIAMONDBACK MOTH (Plutella xylostella) light to moderate in small daikon planting at Waimanalo, Oahu. (Otsuka).

Fruits and Nuts - Larvae of a NOCTUID MOTH (Phlegetonia delatrix) heavily damaged foliage of roadside Java plum trees at Kipahulu, Maui. (Ah Sam). All stages of THREELINED POTATO BEETLE (Lema trilineata) heavy in small yard planting of poha (Physalis peruviana) at Hanalei, Kauai; about 100 percent of leaves damaged. (Kawamura).

General Pests - CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy in 2 acres of eggplant at Anini, Kauai, despite intensive control applications. Generally light in 150 acres of passionfruit at Kahuluai, Maui; moderate in spots. BROAD MITE (Polyphagotarsonemus latus) moderate on terminals of this passionfruit. Controls maintained to keep these pests at low levels. (Miyahira).

SURVEY METHODS

Selected References 1971

Part XXXVI

Additional copies of Parts I through XXXVI of this bibliography are available from Pest Survey and Technical Support Staff.

POPULATION MEASUREMENT

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11. Used farm tools.
    Used farm tools, are **exempt**** if cleaned free of soil.

12. Used mechanized cultivating and used harvesting equipment.

13. Used mechanized soil-moving equipment.

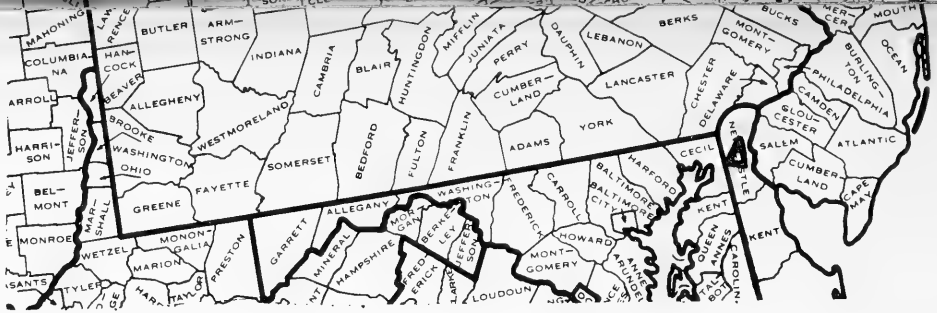
14. Any other products, articles, or means of conveyance, of any character whatsoever, not covered by the above when it is determined by an inspector that they present a hazard of spread of golden nematode and the person in possession thereof has been so notified.

*Information as to approved laboratories may be obtained from an inspector.

**Exempt if not exposed to infestation after cleaning or other prescribed handling.

GOLDEN NEMATODE QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
COOPERATING WITH AFFECTED STATES



REVISED SEPTEMBER 30, 1972

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.

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED
COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED

GENERALLY INFESTED AREA — STATE AND FEDERAL REGULATIONS.

SUPPRESSIVE AREA — STATE AND FEDERAL REGULATIONS.

△ ERADICATED — REGULATIONS REMOVED.

RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN OR WHITE.
2. GREEN INTO OR THROUGH WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN.

*WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES.

THE FOLLOWING REGULATED ARTICLES REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND AS INDICATED:

1. Soil, compost, humus, muck, peat, and decomposed manure, separately or with other things.

   Soil samples shipped to approved laboratories do not require attachment of a certificate or permit.*

2. Plants with roots, **except** soil-free aquatic plants.

3. Grass sod.

4. Plant crowns and roots for propagation.

5. True bulbs, corms, rhizomes, and tubers, of ornamental plants.

6. Irish potatoes and other root crops.

   Irish potatoes (other than for seed) are **exempt**** if graded at an approved grader or washed free of soil, and packaged in approved containers, unless otherwise notified by an inspector. Potatoes from noninfested fields may be shipped to Puerto Rico in new burlap bags.

   Root crops (other than Irish potatoes and sugar beets) are **exempt**** if moved in approved containers, unless otherwise notified by an inspector.

7. Small grains and soybeans.

   Small grains are **exempt**** if harvested in bulk or directly into approved containers, and if the small grains and containers thereof have not come into contact with the soil; or, if they have been cleaned to meet State seed sales requirements.

   Soybeans (other than for seed) are **exempt**** if harvested in bulk or directly into approved containers, and if the soybeans and containers thereof have not come into contact with the soil.

8. Hay, straw, fodder, and plant litter of any kind.

   Hay, straw, fodder, and plant litter are **exempt**** if moved in approved containers, unless otherwise notified by an inspector.

9. Ear corn **except**, shucked ear corn.

   Unshucked ear corn is **exempt**** if harvested in bulk or directly into approved con-

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Prepared by Pest Survey and Technical Support Staff

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WEATHER OF THE WEEK ENDING JANUARY 26, 1973

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

PRECIPITATION: A storm centered over the middle Mississippi River Valley moved northeastward across Upper Michigan early in the week. Snow fell from this storm over the middle and lower Missouri River Valley and rain fell in the warm sector from the Ohio River Valley to New York. Light rain fell along the Texas coast. Numerous showers fell in the Florida Peninsula and several inches of snow fell in parts of New Mexico. A Pacific front moved into the Far West Wednesday. It spread clouds and rain along the coast and snow in nearby hills and mountains. Snow also fell at midweek from the Ohio River across the northern Appalachians to New England. Shortly after midweek a Low developed in the western portion of the Gulf of Mexico. It caused snow from the Pecos River to the hill country Thursday forenoon. In some areas snow was mixed with freezing rain. Snow accumulated to 4 inches at San Angelo and vicinity. Cold rain fell from southern Oklahoma and east Texas to the lower Mississippi River Valley. As the weekend approached, warm moist gulf air streamed northward. Moderate to heavy rains fell from eastern Texas across the southern Great Plains. Light snow continued in parts of central Texas. The snow, combined in some areas with freezing rain, slicked highways and made travel hazardous. The precipitation area spread northward and eastward and by Sunday most of the eastern half of the Nation received rain or snow. Snow fell in the Northeast, rain fell south of the snow belt. Freezing rain slicked roads in some spots south of the snow belt. The Pacific coast received precipitation at midweek, rain along the coast and snow at higher elevations. Blizzards, cold temperatures, howling winds, and blowing snow with near zero visibility occurred in the Great Plains Saturday. In some spots, snow drifts became several feet deep. Some roads became impassable. A number of tornadoes struck central Florida Sunday.

TEMPERATURE: Winter temperatures prevailed over much of the Nation early in the week. The mercury at Fraser, Colorado, tumbled to 28 degrees below zero Tuesday morning, January 23. Mild temperatures continued in the extreme Southeast early in the week with maximums reaching the 80's over southern Florida. By midweek, morning chill reached northern Florida where on Thursday Tallahassee and Jacksonville recorded 35 degrees. Afternoon temperatures remained below freezing in the Great Lakes region Thursday. A warming trend occurred over the Great Plains at midweek. Thursday was especially mild with temperatures over the northern Great Plains climbing to the 40's and 50's. Rapid City, South Dakota, registered 67 degrees Monday and Imperial, Nebraska, warmed to 61 degrees Thursday afternoon. Cold weather returned to mid-America Friday and temperatures over the northern Great Plains remained near or below freezing over the weekend. Cool weather spread eastward and southward. By Sunday afternoon maximums in the 40's were common. Lafayette, Louisiana, registered only 47 degrees Sunday afternoon. Temperatures over the Far West remained fairly uniform and averaged slightly cooler than normal. Temperatures averaged 6 degrees to 12 degrees below normal over much of the Great Basin. The temperature from the northern Great Plains to New England averaged from 10 degrees to 20 degrees above normal in spite of a weak cooling trend.

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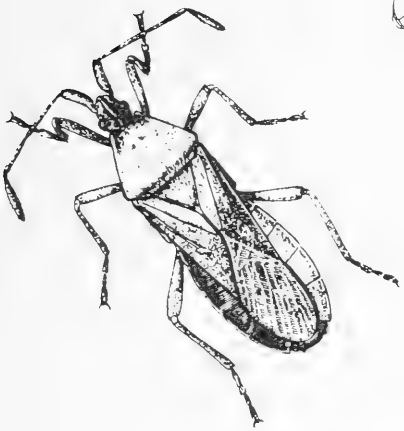

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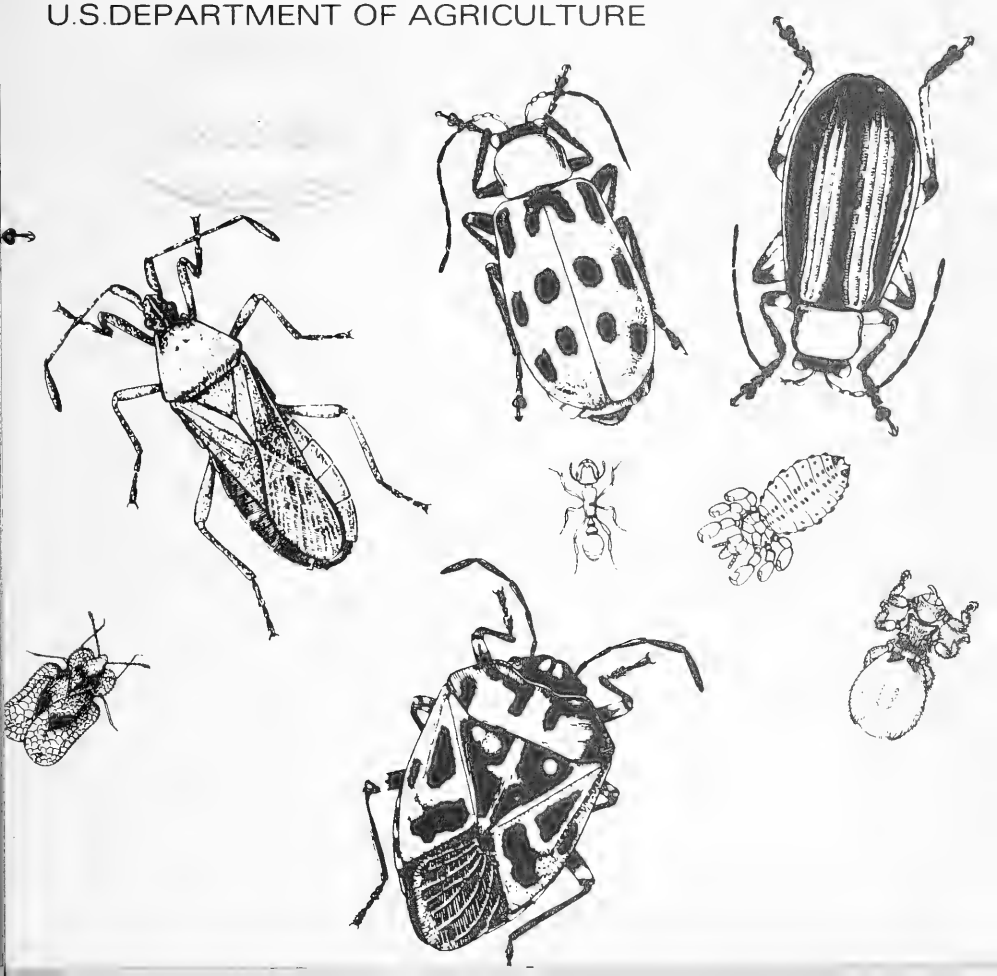

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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.

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

Volume 23 February 9, 1973 Number 6

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

HESSIAN FLY survey of winter wheat in west-central and southwest Kansas showed flaxseed infestations in 10-50 percent of plants in some counties. (p. 51).

CATTLE LICE heavy on some cattle in southeast Oklahoma. (p. 52).

Detection

For new county records see page 52.

Changes in Scientific Names

Otiorhynchus versus Brachyrhinus. (p. 54).

Special Reports

EUROPEAN CORN BORER fall 1972 populations decreased in 11 of 14 States reporting. The population in southeast North Dakota increased, while populations in Maryland and Kentucky remained at same levels recorded for 1971. (pp. 55-62).

Alfalfa Weevil. Selected References 1926-1964. (pp. 63-67).

Cereal Leaf Beetle Quarantines. Map. Centerfold.

Reports in this issue are for week ending February 2 unless otherwise indicated.

CONTENTS

WEATHER OF THE WEEK ENDING FEBRUARY 5

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

PRECIPITATION: An intense winter storm moved northeastward along the Atlantic coast early in the week. It caused moderate to heavy snow accompanied in some places by strong blustery winds in the northern sector from the Ohio and Tennessee River Valleys to New England and rain and a few thunderstorms in the warm sector from the middle Atlantic coast to southern New England. In the West a cold front pushed across the Great Basin. It caused rain along the Pacific coast and snow in nearby hills and mountains. Cloudiness increased in the vicinity of the Great Lakes and squalls occurred in western New York. A Low developed over the western edge of the central Great Plains about midweek. As it moved toward the Great Lakes it caused snow from the White Mountains in Arizona across the central Great Plains to Upper Michigan. Seven inches of snow fell at Las Vegas and 5 inches at Albuquerque both in New Mexico Wednesday afternoon. Strong winds raised clouds of dust in west-central Texas Wednesday afternoon and tornadoes caused light damage in northeastern Texas. Several cities in Arkansas and Louisiana suffered wind damage Wednesday evening. A storm off the Pacific coast caused gales in the vicinity of Cape Blanco, Oregon. A variety of winter weather covered the eastern half of the Nation as the weekend approached. One to five inches of snow fell from western Oklahoma to eastern Iowa Thursday morning and spread across southeastern Minnesota and Wisconsin to Upper Michigan in the afternoon. Freezing rain was mixed with snow in parts of Wisconsin and Michigan. Weather of the week continued on page 68.

SMALL GRAINS

HESSIAN FLY (Mayetiola destructor) - KANSAS - Partially completed statewide winter wheat survey showed substantial infestations in some west-central and southwest counties. Flaxseed infestations involving 10-50 percent of plants common in Trego, Lane, Ness, Finney, Hodgeman, Gray, Ford, Seward, and Meade Counties. Heaviest infestation found in a Ford County field, 75 percent infested plants. Zero to trace in wheat in west-central and southwest counties and in Pottawatomie, Jackson, Wabaunsee, and Shawnee Counties. (Bell).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Activity generally light with some heavy infestations. Heaviest infestation reported past week in Haskell County wheat field with average of 109 mites per row foot; leaf tips beginning to appear burnt. (Boring).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - First-instar larvae observed in Red Oak, Charlotte County, January 29, 1973, by R. Blakeslee. Larval feeding on 50+ percent of tips in field; heavy numbers unusual this time of year. Controls not recommended. (Allen).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Counts per 100 sweeps of alfalfa as follows: Yuma Valley, Yuma County, 1,200; Dome Valley, Yuma County, 300; and Phoenix, Maricopa County, 566. (Ariz. Coop. Sur.).

SUGAR BEETS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Colonies building up in many fields at Salt River Valley, Maricopa County; no damage evident to fast growing plants. Weeds main source of infestations. (Ariz. Coop. Sur.).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Comprised 90 percent of insect population that severely damaged cabbage in unsprayed check plots at Belle Glade, Palm Beach County. (Fla. Coop. Sur.).

GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy on Cheese weed (Malva parviflora) in areas near lettuce fields in Maricopa County. Commercial fieldmen alert for migration into lettuce. (Ariz. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Single confirmed case in Texas only report from continental U.S. for period January 21-27. Total of 44,278,000 sterile flies released in U.S. this period, all in Texas. Total of 411 confirmed cases reported in Mexico with 182,710,000 sterile flies released there this period. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 2.2 on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - Moderate on cattle in Comanche and Hughes Counties. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), heavy on cattle in Atoka County, moderate in Comanche County, and light in Hughes County. (Okla. Coop. Sur.).

HOUSE MOUSE MITE (Allodermanyssus sanguineus) - MARYLAND - Heavy in 2 College Park apartments in Prince Georges County. Much annoyance and biting reported. Controls applied. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

A LADY BEETLE (Coleomegilla maculata) - MISSISSIPPI - Thousands of adults taken from bases of cottonwood trees in many Delta counties; confirmed from Washington, Sunflower, and Bolivar Counties. Also taken from ground trash surrounding fields in Oktibbeha County. (Robinson).

AN ICHNEUMON WASP (Bathyplectes curculionis) - MISSOURI - Recovered from alfalfa fields in Bates and Jasper Counties December 28, 1972, by R.E. Munson. These are new county records. (Munson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GYPSY MOTH (Porthetria dispar) - MARYLAND - Five egg masses recovered near Hagerstown, Washington County, November 24, 1972, by C. Staines. Egg masses also recovered near Darlington, Harford County, by M. Williams December 6, 1972. Determined by D.M. Weisman. These are new county records. (U. Md., Ent. Dept.).

DETECTION

New County Records - GYPSY MOTH (Porthetria dispar) MARYLAND - Washington, Harford (p. 52). AN ICHNEUMON WASP (Bathyplectes curculionis) MISSOURI - Bates, Jasper (p. 52).

Corn - CORN PLANTHOPPER (Peregrinus maidis) trace on 12-inch sweet corn at Waimanalo, Oahu. Counts ranged 0-3 nymphs and/or adults per whorl. (Kawamura).

General Vegetables - SOUTHERN GREEN STINK BUG (Nezara viridula) light on soybeans at Waimanalo. Two of 14 adults bore eggs of Trichopoda pennipes (a tachina fly). Young larvae of BEET ARMYWORM (Spodoptera exigua) light on lettuce ready to harvest at Koko Head, Oahu; damage light to 1-3 older leaves on 2 percent of heads. Larvae heavy in green onions in same area; 20-30 percent of leaves damaged or infested. Trace in green onions at Pearl City. Beet armyworm, CABBAGE WEBWORM (Hellula rogatalis), and IMPORTED CABBAGEWORM (Pieris rapae) light on daikon at Koko Head. Damage light to moderate on 30 percent of leaves. All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and LEAFMINER FLIES (Liriomyza spp.) light to moderate in snap beans at Waimanalo, Oahu; heavy in planting of cucumber seedlings in same area. Liriomyza spp. light on both crops; larval mines moderate on some older snap bean leaves. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) remained light on 100+ coconut trees at Hawaii Kai, Oahu; light colonies on 10-30 percent of pinnae on many young fronds. Lindorus lophanthae, Telsimia nitida, and Pseudoscymnus anomolus (lady beetles) light on infested pinnae. (Kawamura).

Forest and Shade Trees - An ADELGID (Pineus pini) light on 6 acres of Pinus spp. at Waikii, Hawaii; moderate on 30+ trees. (Matayoshi).

CORRECTIONS

CEIR 23(1-4):6 - ICHNEUMON WASPS - MISSOURI - Bathyplectis curculionis should read Bathyplectes curculionis.

CEIR 23(1-4):6 - IMPORTED FIRE ANTS (Solenopsis spp.) - GEORGIA - S. invicta in Haralson County should read: "Determined by V.H. Owens, confirmed by D.R. Smith."

CEIR 23(1-4):6 - WHITEFRINGED BEETLES (Graphognathus spp.) - All determinations except Natchitoches Parish, Louisiana should read: "Determined by V.H. Owens, confirmed by R.E. Warner." Natchitoches Parish determined by R.E. Warner.

CEIR 23(1-4):8 - New County and Parish Records - Line 6: ICHNEUMON WASPS - Bathyplectis curculionis should read Bathyplectes curculionis.

Otiorhynchus versus Brachyrhinus

(Coleoptera:Curculionidae)

The following recent ruling of the International Commission on Zoological Nomenclature concerning the genus which in North America has been known as Brachyrhinus should be noted (Bulletin of Zoological Nomenclature, Vol. 29, Part 1, May 1972:19).

The generic name Brachyrhinus Latreille, 1802, is suppressed and placed on the Official Index of Rejected and Invalid Generic Names in Zoology. The generic name Otiorhynchus Germar, 1824, is placed on the Official List of Generic Names in Zoology.

According to the ruling the name to be used for the species in North America is the generic name, Otiorhynchus. The species should be cited as follows:

Otiorhynchus cribricollis Gyllenhal
Otiorhynchus desertus Rosenhauer
Otiorhynchus ligustici (Linnaeus)
Otiorhynchus ligneus (Olivier)
Otiorhynchus meridionalis Gyllenhal
Otiorhynchus ovatus (Linnaeus)
Otiorhynchus porcatus (Herbst)
Otiorhynchus raucus (Fabricius)
Otiorhynchus rugifrons (Gyllenhal)
Otiorhynchus rugosostriatus (Goeze)
Otiorhynchus scaber (Linnaeus)
Otiorhynchus singularis (Linnaeus)
Otiorhynchus sulcatus (Fabricius)

Three of the above named species are listed in the Common Names of Insects Approved by the Entomological Society of America, December 1970. They are Brachyrhinus ligustici (L.), Brachyrhinus ovatus (L.), and Brachyrhinus sulcatus (F.). These species should now be listed as:

Otiorhynchus ligustici (Linnaeus) .... alfalfa snout beetle
Otiorhynchus ovatus (Linnaeus) .... strawberry root weevil
Otiorhynchus sulcatus (Fabricius) .... black vine weevil

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Coop. Econ. Ins. Rpt.
23(6):54, 1973

Status of the European Corn Borer in 1972 [1/]

Introduction: Surveys to determine the abundance of European corn borer (Ostrinia nubilalis (Hübner)) in the fall of 1972 were conducted by cooperating agencies in 14 States. All survey data, summaries, or records of field observations were processed by the Pest Survey and Technical Support Staff in Hyattsville, Maryland.

The 1972 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 whenever possible in 1972. 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 in 8 west-central counties in Kansas. There was no new distribution reported in any of the other States already known to be infested.

Abundance: Fall populations of European corn borer decreased in 9 of the 10 North Central States reporting in the survey. The population in southeast North Dakota increased. Decreases also were recorded in Delaware and Michigan, while populations in Maryland and Kentucky remained at the same levels recorded in the fall of 1971.

The fall European corn borer survey in Illinois indicated the lowest second-generation population since the survey was begun in the State in 1943. In only one county, Henderson in the west district, was the average more than 100 borers per 100 plants. In Jasper County, in east-southeast Illinois, where the average was 388 borers per 100 plants in 1971, the average for 1972 was 9.6 borers per 100 plants. The decrease in Indiana is not as significant as it appears. A comparison with the averages for the past 10 years shows that the 1972 population is not much lower than normal. The 1971 State average for Indiana was high. In Iowa, not only was there a marked decrease in the European corn borer population, but the number of infested plants decreased nearly 50 percent. These decreases in Iowa can be attributed primarily to unfavorable weather during periods of egg laying for the first and second larval generations.

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.

The fall European corn borer populations in Kansas showed decreases in the percent of plants infested and in the number of borers per 100 plants. The western districts of Kansas were included for the first time in 1972, making the survey statewide in scope. Fall population average increased in southeast North Dakota. Decreases were noted in Cass, Dickey, and Sargent Counties, but increases were recorded in Richland and Ransom Counties. The European corn borer fall population in Michigan was heaviest in the southwest district (District 3) in 1972 compared to the southeast district (District 2) in 1971.

The European corn borer population in Delaware decreased from 358 borers per 100 plants in 1971 to 186 in 1972, but remained the same in Maryland.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1972, Compared with Data for 1971

States	1971			1972			Comparable Districts or Counties Surveyed Both Years		
	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	Number	Borers Per 100 Plants 1971	Borers Per 100 Plants 1972
Eastern									
Delaware	1	358	3	1	186	3	1	358	186
Maryland	3	102	16	3	101	12	3	102	101
Total	4		19	4		15	4		
Average 1/								230	144
North Central									
Illinois	9	128	46	9	33	45	9	128	33
Indiana	12	100	92	12	27	92	12	100	27
Iowa	12	321	99	12	54	99	12	321	54
Kansas	6	54	30	9	30	50	6	54	23
Minnesota	7	99	34	7	52	34	7	99	52
Missouri	7	131	38	7	105	43	7	131	105
Nebraska	5	401	25	5	66	25	5	401	66
North Dakota	1	130	5	1	140	5	1	130	140
Ohio	5	73	33	5	33	24	5	73	24
Wisconsin	9	57	52	9	25	54	9	57	25
Total	73		454	76		471	73		
Average 1/								149	55
Southern									
Kentucky	1	35	8	1	36	4	-	35	36
Other									
Michigan	5	104	22	5	85	20	5	104	85

1/ Weighted averages based on districts surveyed.

Table 2 - European Corn Borer Abundance in Corn Fall of 1972, Compared with Data for 1971

State (Districts or Counties)	Average Number of Borers Per 100 Plants	
	1971	1972
Delaware (Agr. Expt. Sta.)		
New Castle	157	91
Kent	427	223
Sussex	489	245
Average	358	186
Illinois (Natural History Survey, Ext. Ser.)		
Northwest	169	55
Northeast	89	14
West	108	84
Central	67	17
East	109	25
West-southwest	112	10
East-southeast	135	11
Southwest	178	47
Southeast	239	9
Average	128 1/	33 1/
Indiana (Ext. Ser., Expt. Sta.)		
North-northwest	180	44
North-northcentral	102	20
North-northeast	117	63
Northwest	106	18
North Central	107	24
Northeast	108	38
Southwest	78	9
South Central	88	10
Southeast	101	13
South-southwest	91	25
South-southcentral	74	18
South-southeast	47	41
Average	100	27
Iowa (State Dept. Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ., PESS, ARS, USDA).		
District I	319	50
District II	436	33
District III	155	43
District IV	413	47
District V	564	56
District VI	180	45
District VII	443	35
District VIII	426	55
District IX	340	34
District X	209	55
District XI	217	80
District XII	153	109
Average	321	54
Kansas (Ins. Sur.)		
Northeast	70	50
North Central	70	40
East Central	111	30
Central	32	8
Southeast	34	23
South Central	4	trace
Northwest 2/	-	30
West Central 2/	-	20
Southwest 2/	-	6
Average	54	23
Kentucky (Ins. Sur.).		
Surveyed counties	35	36

1/ Average based on comparable counties surveyed in 1971 and 1972, rather than districts.

2/ Surveyed for first time in 1972.

Scotch, red, and Austrian Pine Christmas Trees (4)	Year-round

(1) Small grains (except oats and barley), grass and forage seed, and soybeans cleaned to meet State or Canadian seed sales requirements are exempt from certification and permit requirements.

(2) Pelletized hay is exempt from certification and permit requirements.

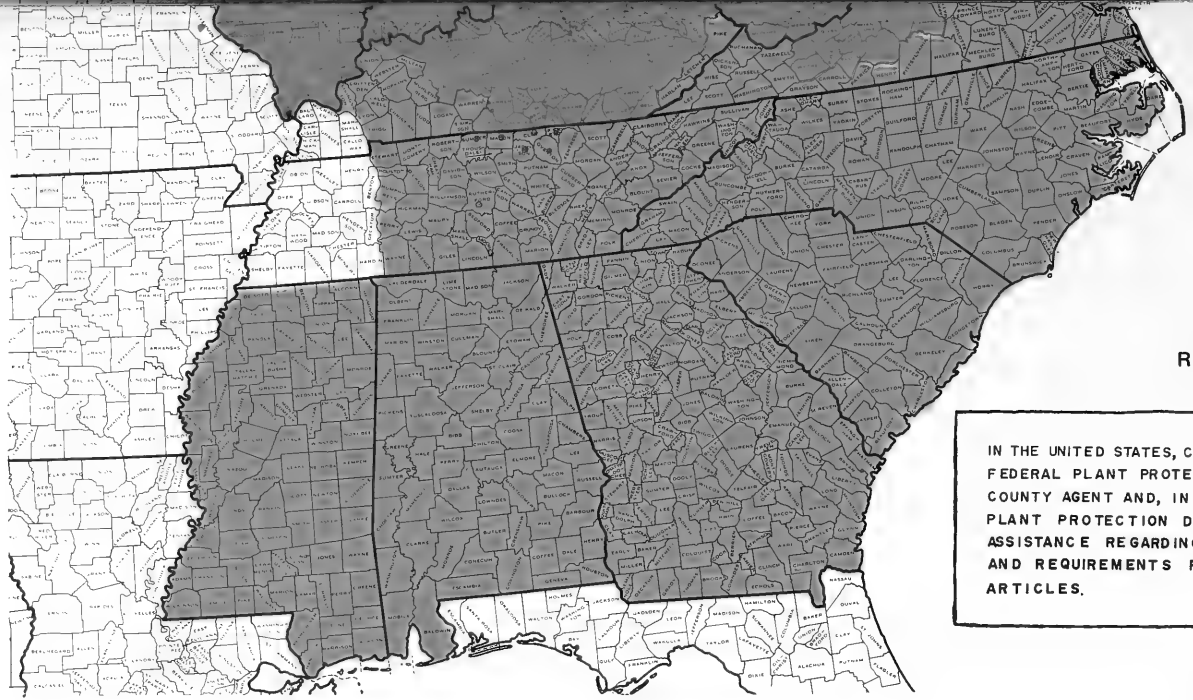
(3) Soybeans if transported in covered vehicles and moved to designated plants are exempt from certification and permit requirements.

(4) All regulated articles are exempt from certification and permit requirements if moved to yellow areas.

☆ US GPO 1972 - 709-291/156

CEREAL LEAF BEETLE QUARANTINES

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
AND CANADA DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES



REVISED OCTOBER 20, 1972

IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT AND, IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

STATE, FEDERAL, AND CANADIAN REGULATIONS.

NECESSARY REGULATORY SERVICES PROVIDED

1. RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED ARTICLES FROM RED INTO OR THROUGH WHITE, EXCEPT DURING CERTAIN PERIODS (SEE REVERSE).

2. NO RESTRICTIONS IMPOSED ON MOVEMENT OF REGULATED ARTICLES FROM RED INTO YELLOW.

REGULATED ARTICLES AND THEIR CERTIFICATION PERIODS ARE AS FOLLOWS:

Crop or Article	Certification Period
Small Grains such as Barley, Oats, and Wheat (1),(4)	June 1-November 30
Corn (Shelled corn is NOT regulated)	
Fresh Market (sweet corn) (4)	Year-round
Ear Corn, other than sweet corn (4)	August 1-March 31
Grass and Forage Seed (1),(4)	Year-round
Hay (except marsh hay) (2),(4)	May 1-January 15
Straw and Marsh Hay (4)	June 1-February 28
Sod (4)	Year-round
Used Harvesting Machinery (4)	Year-round
Fodder and Plant Litter (4)	Year-round

Table 2 (Continued)

State (Districts or Counties)	Average Number of Borers Per 100 Plants 1971	1972
Maryland (Agr. Ext. Ser.; Ins. Sur.)		
Eastern Shore	104	120
Southern area	58	22
Central and Western areas	112	101
Average	102 3/	101 3/
Michigan (Ins. Sur.)		
District 1	98	98
District 2	150	86
District 3	100	117
District 4	89	78
District 5	80	57
Average	106 4/	85 4/
Minnesota (State Dept. Agr.)		
Southwest	102	67
South Central	171	22
Southeast	95	30
West Central	179	131
Central	61	42
East Central	40	44
Northwest	44	29
Average	99	52
Missouri (Ext. Ser., Ins. Sur.).		
District I	151	129
District II	165	166
District III	147	114
District IV	123	58
District V	129	83
District VI	98	99
District VII	78	59
District IX	157	132
Average	131	105
Nebraska (Agr. Expt. Sta.; Ext. Ser., Ins. Sur.).		
Northeast	215	79
East	459	44
Southeast	297	55
Central	527	72
South	509	82
Average	401	66
North Dakota (State Dept. Agr.)		
Southeast	130	140
Ohio (Ext. Ser.; ARS, USDA)		
Northwestern	117	43
West Central	55	17
Central	28	11
Southwestern	51	13
Northeastern	77	4
Average	67	18
	73 5/	24 5/

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

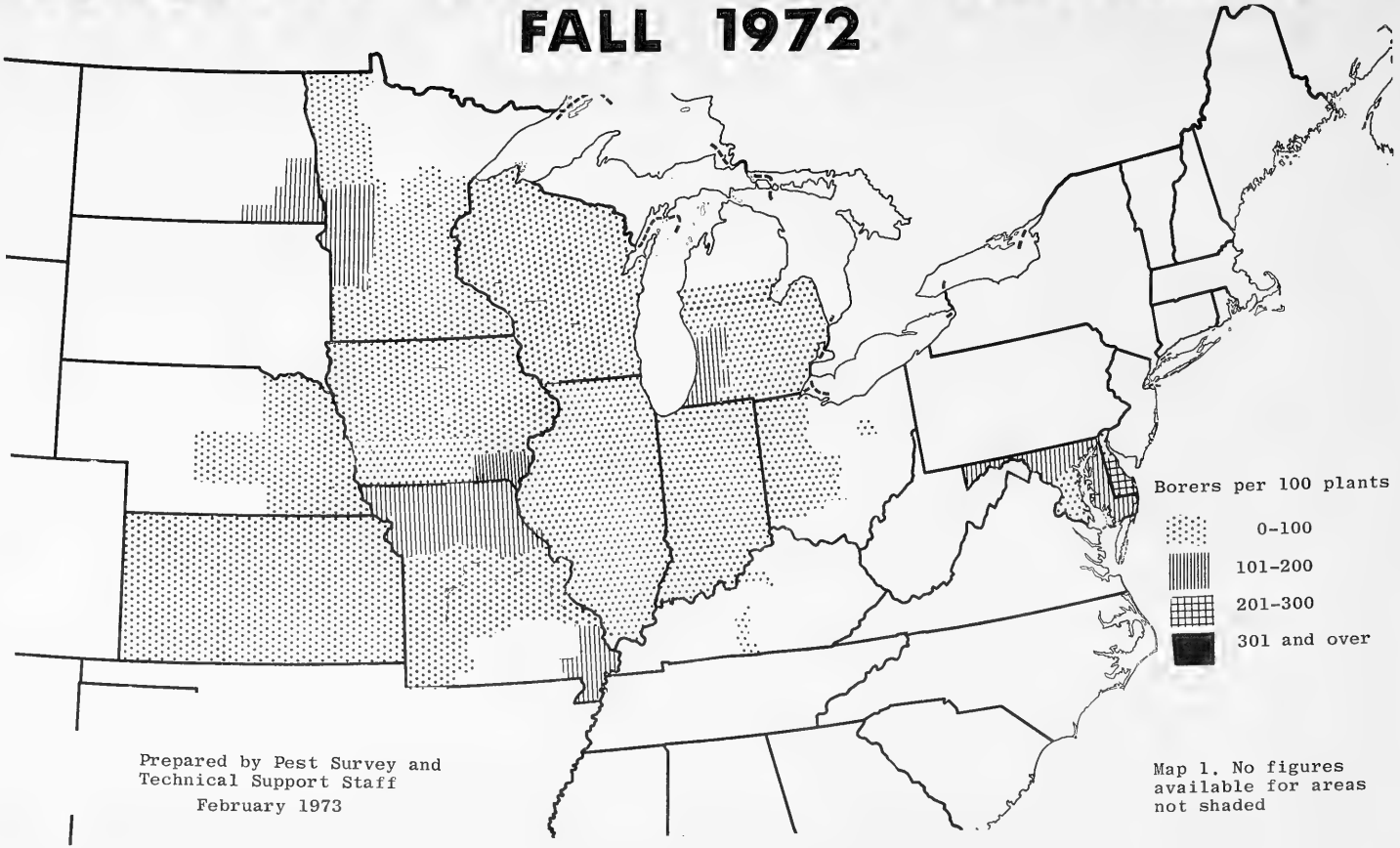
4/ Averages based on field averages rather than district averages.

5/ Average based on counties surveyed.

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	
	1971	1972		1971	1972
Wisconsin (State Dept. Agr.).			Wisconsin (Continued)		
Northwest	59	33	South Central	42	30
North Central	16	24	Southeast	83	50
West Central	129	25	East Central	26	26
Central	39	13	Northeast	15	6
Southwest	105	20			
			Average	57	25

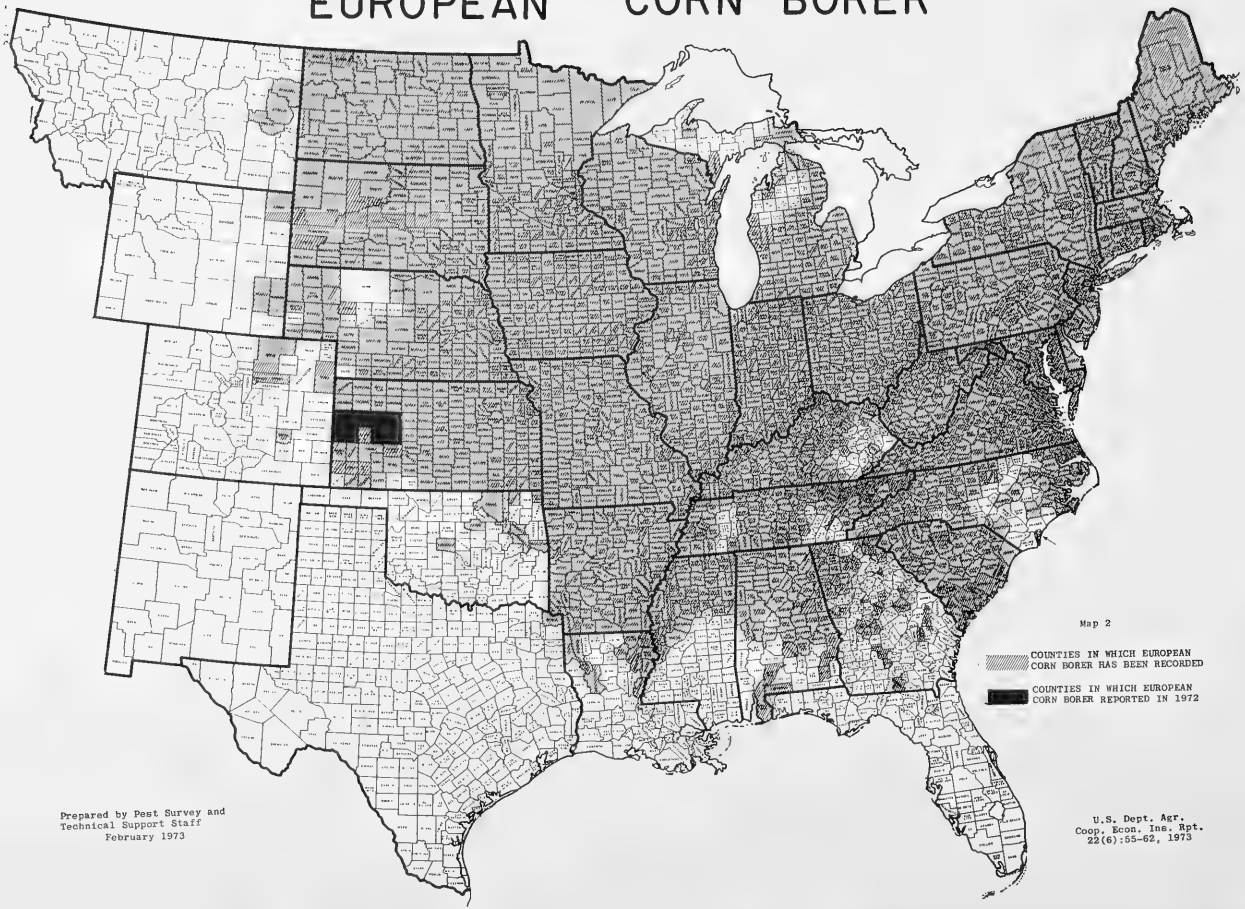
EUROPEAN CORN BORER ABUNDANCE
FALL 1972



Prepared by Pest Survey and
Technical Support Staff
February 1973

Map 1. No figures
available for areas
not shaded

EUROPEAN CORN BORER



Prepared by Pest Survey and
Technical Support Staff
February 1973

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(6):55-62, 1973

ALFALFA WEEVIL
Hypera postica (Gyllenhal)

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Prepared by Pest Survey and Technical Support Staff

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
22(44):742-746, 1973

Weather of the week continued from page 49.

Thundershowers occurred over the Southeast. Winds over the Great Plains gusted to 45 m.p.h. Weekend rains fell in California and the intermountain region. Also over much of the area east of the Mississippi River.

TEMPERATURE: Cold Canadian air pushed into the Southern States early in the week. Blustery winds made the chill seem more severe. San Antonio, Texas, registered 20 degrees Monday morning January 29. It was also cold in the West. Evenston, Wyoming, and Alamosa, Colorado, recorded 18 degrees below zero Monday morning. As Canadian air continued to pour across our northern border temperatures continued to tumble. The mercury at Duluth, Minnesota, reached 10 degrees Tuesday morning and Lebanon, New Hampshire, recorded -14 degrees. Jack Frost visited central Florida Tuesday and Wednesday mornings. Jacksonville registered 27 degrees Tuesday and 30 degrees Wednesday. Strong southerly winds warmed the Great Plains and the Mississippi River Valley. The temperature Tuesday afternoon reached 61 degrees at Rapid City, South Dakota, and 60 degrees at Springfield, Missouri, the cold continued in the Northeast. Saranac Lake, New York, registered 27 degrees below zero Wednesday morning. Cold weather invaded the Southeast over the weekend. Minimums at Macon, Georgia, were 63 degrees on February 2 and 30 degrees on the fourth. The central Rocky Mountains also turned colder. Alamosa, Colorado, registered -24 degrees Saturday morning. Temperatures averaged warmer than normal except in the Southeast. Most of the northern Great Plains averaged more than 15 degrees warmer than normal.

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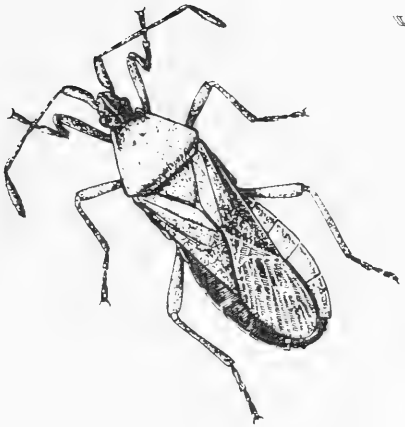

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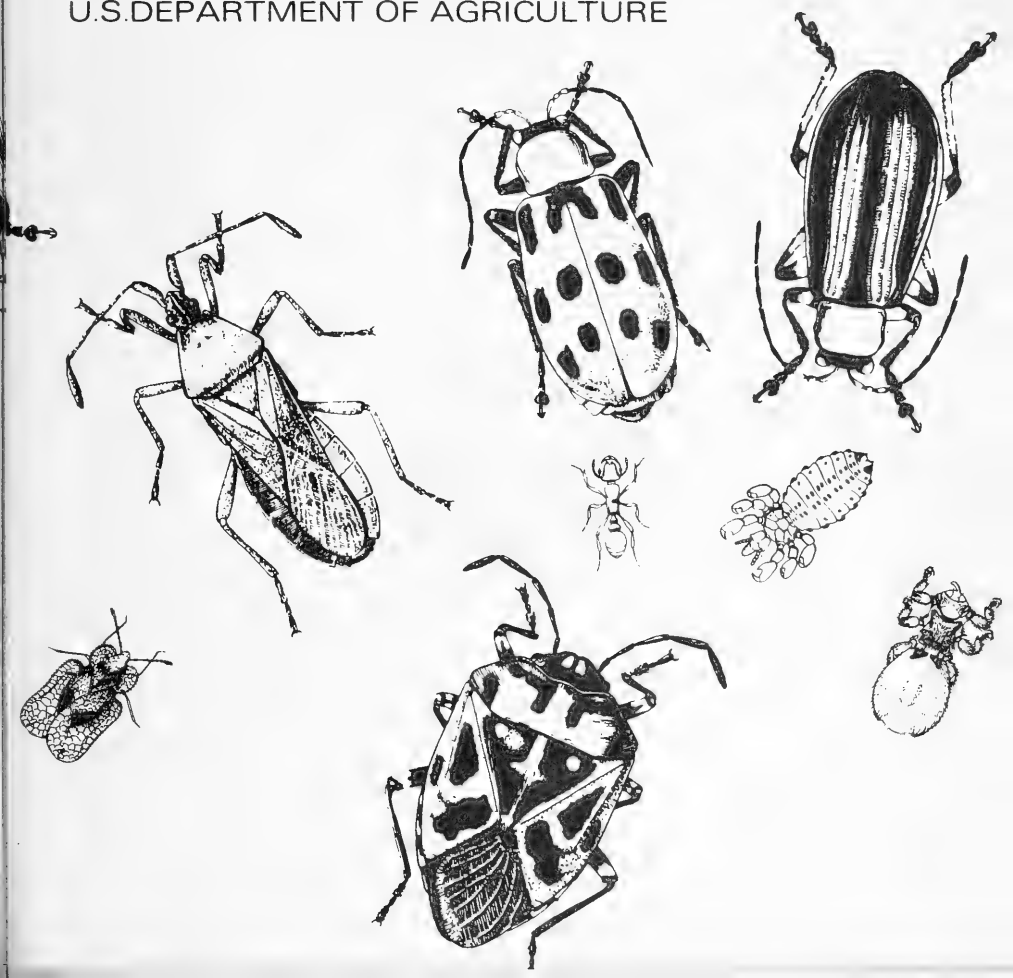

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG active, but light, in small grains in Texas and Oklahoma. WINTER GRAIN MITE caused some damage to small grains in Texas, some controls applied. (p. 71).

ALFALFA WEEVIL active in Oklahoma, EGYPTIAN ALFALFA WEEVIL active in Arizona. (p. 71).

GREEN PEACH APHID building up on lettuce in Salt River Valley of Arizona. CABBAGE LOOPER egg laying increased in same area. (p. 71).

During period January 29 through February 3, no laboratory confirmed cases of SCREWWORM reported in continental U.S. This is first week in more than 12 months in which no cases have been reported in the Southwest. (p. 73).

Prediction

BAGWORM expected to be heavy in Tennessee during 1973. (p. 72).

Detection

An ADELGID reported for first time in Maryland. (p. 72).

For new county records see page 74.

Special Reports

BOLL WEEVIL hibernation survey for fall 1972 shows average number of weevils entering hibernation was lower than in fall 1971 in all areas surveyed in Mississippi, Louisiana, and Texas. (pp. 75-78).

Summary of Insect Conditions in Hawaii - 1972. (pp. 79-82).

Japanese Beetle Quarantines. Map. Centerfold.

Reports in this issue are for week ending February 9 unless otherwise indicated.

CONTENTS

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1973

The National Weather Service's 30-day outlook for mid-February to mid-March is for temperatures to average below seasonal normals over the gulf coast region as well as the middle and south Atlantic Coast States. Above normal averages are indicated for the northern and central Plains, the northern Mississippi Valley, the Pacific coast, and the southern Plateau. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the Atlantic Coast States, the east gulf coast region, and central and southern portions of both the West Coast States and the Plateau region. Subnormal totals are indicated for eastern portions of the northern and central Plains, the upper Mississippi Valley and the Rio Grande Valley. In unspecified areas near normal precipitation 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

GREENBUG (Schizaphis graminum) - TEXAS - Ranged 2-10 per row foot in Wilbarger, Foard, Archer, and Wichita Counties. Increased, but still light, in some fields in Motley, Knox, Haskell, and Throckmorton Counties. (Boring). OKLAHOMA - Averaged 1 per 10 linear feet in scattered wheatfields in southern Cotton and Tillman Counties. (Okla. Coop. Sur.).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light in Rolling Plains area. Populations in some Haskell County small grain fields ranged 5-100 per row foot with light to moderate leaf damage noted. Light in Knox, Throckmorton, Wilbarger, Foard, and Archer Counties; ranged 2-8 mites per drilled row foot. Scattered oat fields infested in north-central area near Denton County. Some controls applied before last rains; treatments ceased due to unfavorable weather. (Boring, Turney).

FORAGE LEGUMES

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Ranged 2-6 per square foot on established alfalfa. Ranged 25-30 per square foot in new alfalfa field in Carlsbad, Eddy County. (N.M. Coop. Rpt.). ARIZONA - Counts per 100 sweeps of alfalfa averaged as follows: Yuma County - Dome Valley 2,600, Gila Valley 1,200, Yuma Valley 1,400, Roll Valley 300, Wellton Valley 300, Yuma Mesa 400; Maricopa County 500. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County averaged as follows: Dome Valley 25, Gila Valley 20, Yuma Valley 15, Roll Valley zero, Wellton Valley 35, Yuma Mesa 50. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Egg counts per square foot by county: January 26 - Mayes 118; Nowata 154; Washington (3 fields) 171, 274, and 308; Osage 43. January 31 - Payne 43. February 2 - Stephens, ranged 22-239. Some active adults seen in Payne and Tulsa Counties February 3 and 4. (Okla. Coop. Sur.). MISSOURI - Fall egg counts averaged 44 per square foot in Perry County and 22 per square foot in Cape Girardeau County, in southeast area; ranged 11-35 per square foot in central area. (Huggans).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County averaged as follows: Dome Valley 20, Gila Valley 20, Yuma Valley 30, Roll Valley 30, Wellton Valley zero, Yuma Mesa 80. Eggs found in alfalfa stems in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Building up on lettuce in Salt River Valley, Maricopa County. Some fields treated in Yuma County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Egg laying increased on lettuce in Salt River Valley of Maricopa County. Treatment of lettuce continued in Yuma County. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - OREGON - Prespray counts ranged 6-8 per tap in Meford area pear orchards in Jackson County; indicates slightly heavier than usual overwintering population. Spraying began February 3, by midweek 1,000-1,500 acres treated. (Berry). Eggs developing in the Hood River area of Hood River County; no oviposition noted. Population levels normal. (Zwick).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - TENNESSEE - Random sampling for overwintering eggs in Davidson County showed heavy egg laying in fall 1972. Heavy population expected in 1973. Unusual finds of overwintering pupae noted during sampling. Only eggs of this pest previously known to overwinter. A male moth was reared from an overwintered pupa in Knox County April 1972. If pupae overwintered in State, spring mating may result, causing additional problems in future control of this pest. (Williams et al.).

A PSYLLID (Gyropsylla ilicis) - ALABAMA - Nymphs heavy in leaf galls and damaging Yaupon holly at Mobile Municipal Auditorium, Mobile County. Collected by F.J. Subirats and determined by L.M. Russell. This is first report from Mobile County since 1879. (Munson).

AN ADELGID (Adelges tsugae) - MARYLAND - Established infestation found on 25-foot ornamental hemlock near Sunderland, Calvert County. Aphids appeared to be all immatures. Specimens collected February 9, 1973, by W. Gaiser. Determined by L.M. Russell. This is a new State record. (U. Md., Ent. Dept.).

CAMELLIA SCALE (Lepidosaphes camelliae) - FLORIDA - All stages collected from Burford holly at Punta Gorda, Charlotte County, January 30, 1973, by G.P. Lamb. This is a new county record. (Fla. Coop. Sur.).

ARMORED SCALES - FLORIDA - All stages of Lepidosaphes maskelli collected from 10 of 100 juniper plants checked at Punta Gorda January 30, 1973. All stages of Carulaspis minima collected from arborvitae at nursery in Port Charlotte, January 20, 1973. All stages of Phenacaspis cockerelli light on 3 of 6 Magnolia grandifolora in nursery at Punta Gorda January 30, 1973. All collections by G.P. Lamb. These are 3 new county records for Charlotte County. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Estimates for 1972 indicate loss of 25.6 thousand cords of pulp wood and 5.6 million board feet of saw timber. With stumpage value of 5 dollars per cord for pulp wood and 35 dollars per million board feet, represents loss of $324,000. Much of killed timber salvageable. (Hunt).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - NORTH CAROLINA - Estimates for 1972 indicate loss of 2,200 trees valued at stumpage figure of five dollars per cord for pulp wood; an estimated $8,000 loss. Figure very conservative, since much loss occurred in urban areas. (Hunt).

DEODAR WEEVIL (Pissodes nemorensis) - MISSISSIPPI - Leader damage evident to 15-foot loblolly pines in Oktibbeha, Winston, and Noxubee Counties. Larvae active under bark. (Robinson).

NORTHERN PINE WEEVIL (Pissodes approximatus) - KENTUCKY - Heavy in Scotch pines in Fayette County. (Barnett).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Eggs and first-instar larvae collected on wild plum and wild cherry at Gainesville, Alachua County, February 6 by L.A. Hetrick. First report of egg hatch for season. (Fla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - During period January 29 through February 3, there were no laboratory confirmed cases reported in the continental U.S. This is the first week in over 12 months in which no cases have been reported in the Southwest. Total of 84 confirmed cases reported in Mexico. Number of sterile flies released in U.S. this period totaled 41,008,000, all in Texas. Total of 172,192,500 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Numbers in backs of cattle at packing plants in Oklahoma County decreased sharply past 14 days. Indicates most larvae full grown and dropped from cattle to pupate. Grubs heavy in Pawnee County, moderate in Comanche County, light to moderate in Roger Mills County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Some active adults seen in Payne County February 4. (Okla. Coop. Sur.).

MOSQUITOES - ARKANSAS - Adult Anopheles spp. and Culex spp. active on warm nights past 14 days in southeast area. (Boyer).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), moderate to heavy on cattle in Nowata, Pawnee, Hughes, and Comanche Counties. Numbers increased rapidly in Comanche County. Light to moderate, but increasing, in Roger Mills County; light in Oklahoma County. (Okla. Coop. Sur.). TEXAS - Linognathus vituli (longnosed cattle louse) and H. eurysternus increased in north-central area near Denton and Dallas Counties. Treatments applied. (Turney).

A SCAB MITE (Chorioptes bovis) - OREGON - Found in 2 small cattle herds in Warren area, Columbia County. Treatment planned for the 21 calves found infested. (Henkel).

A HARDBACKED TICK (Ixodes pacificus) - CALIFORNIA - Unusually prevalent this season in most foothill areas in northern part of State. (Cal. Coop. Rpt.).

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

EAR TICK (Otobius megnini) - OKLAHOMA - Moderate in ears of cattle in most areas of Roger Mills County. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

AN ICHNEUMON WASP (Bathyplectes curculionis) - MISSOURI - This parasite of Hypera postica (alfalfa weevil) recovered from alfalfa field in Grundy County February 1, 1973, by J.L. Huggans. This is a new county record. (Munson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

RED IMPORTED FIRE ANT (Solenopsis invicta) - GEORGIA - Thirty adult workers taken from mound in pasture at Cedartown, Polk County, during October 1972 by J. Stowe. Adults (25) taken in Echols County by K. Davenport November 2, 1972, at location of timber company in southwest Howell. Determined by V.H. Owens. Confirmed by D.R. Smith. These are new county records. (PP).

HAWAII INSECT REPORT

Sorghum - Larvae of a PYRALID MOTH (Cryptoblabes pnidiella) moderate on mature heads in experimental sorghum planting at Ewa, Oahu. (Kawamura).

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy on mature snap beans at Waianae, Oahu. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and LEAFMINER FLIES (Liriomyza spp.) light on same crop. Liriomyza spp. larval mines moderate in tomato seedlings, adults moderate. Greenhouse whitefly trace in young sweet pepper plants. At Waimanalo, Oahu, greenhouse whitefly increased in several snap bean plantings; ranged moderate to heavy despite repeated control applications. (Kawamura).

Miscellaneous Pests - Total of 238 GIANT AFRICAN SNAIL (Achatina fulica) specimens collected during January at Poipu, Kauai; none at Wahiawa. Surveillance and baiting continued. Aerial snail bait drops planned at Kahaluu, Hawaii, in attempt to contain this pest. (Sugawa, Yoshioka).

DETECTION

New State Record - AN ADELGID (Adelges tsugae) MARYLAND - Calvert County. (p. 72).

New County Records - ARMORED SCALES - Lepidosaphes, Carulaspis minima, Phenacaspis cockerelli - FLORIDA - Charlotte (p. 72). CAMELLIA SCALE (Lepidosaphes camelliae) FLORIDA - Charlotte (p. 72). AN ICHNEUMON WASP (Bathyplectes curculionis) MISSOURI - Grundy (p. 74). RED IMPORTED FIRE ANT (Solenopsis invicta) GEORGIA - Polk, Echols (p. 74).

CORRECTIONS

CEIR 23(1-4):7 - Forest and Shade Trees - Last line should read: " ... levels past 2 months." (Kawamura).

CEIR 23(6):67 - Credit in lower right corner should read: 23(6):63-67, 1973.

Boll Weevil Hibernation Survey

Fall 1972

The fall collections of surface ground (woods) trash samples (two square yards per sample) were completed in three Southern States by State and Federal agencies to determine the number of boll weevil (Anthonomus grandis) adults that went into hibernation. Three samples were taken at each location in Mississippi, Louisiana, and Texas. In Mississippi, 45 samples were collected from 15 locations in each of 4 areas; each area was composed of 2 counties. Tate County replaced Monroe County in the Hill Section of Mississippi in 1970. Samples were collected at 45 locations in northeastern Louisiana: 20 locations in Madison Parish, 10 in Tensas Parish, and 5 each in East Carroll, West Carroll, and Richland Parishes. This is the fourth year trash samples have been collected in Richland Parish. In Texas, 75 samples were taken from 25 locations in 4 counties, with either 6 or 7 locations sampled in each county.

The average number of boll weevils entering hibernation in the fall of 1972 was lower than in the fall of 1971 in all areas surveyed in Mississippi as well as in northeastern Louisiana and central Texas.

Live boll weevils averaged 1,498 per acre of ground trash in Mississippi. This State average compares with 4,901 weevils per acre in 1971, 2,902 in 1970, 3,105 in 1969, 2,768 in 1968, and 6,304 in 1967. The previous low for the State was 2,091 weevils per acre in the fall of 1956, the year the present system of sampling for overwintering boll weevils was begun. Collections of wood trash in Mississippi were begun December 4 and completed December 13. Temperatures were high until late November. The first killing frost at Stoneville occurred November 23 when the temperature was 30 degrees. A total of 10.01 inches of rain was recorded at Stoneville during November. Most collections were made December 4, 5, and 6 and were reasonably dry. More rain prevented completion of collections until December 11 and 13. Part of Tate County and all but one location in Coahoma County were collected December 11 and 13 and were very wet.

In the five-parish area surveyed in northeast Louisiana, live boll weevils averaged 2,510 per acre. Average counts per acre by parish were: Madison 3,670; Tensas 2,098; East Carroll 806; West Carroll 1,775; and Richland 1,128. In Madison Parish, where these records have been maintained for the past 37 years and the average number of weevils entering hibernation is 3,898, there are 18 years when the number of weevils was higher than in the fall of 1972 and 18 years when the number was less than in 1972. Collections have been made for 17 years in Tensas Parish. In only two years has the number of weevils entering hibernation in the fall been less than the 2,098 weevils found in 1972. In East Carroll Parish where collections have been made for the past 16 years, the number of weevils entering hibernation has never been less than the 806 weevils found in fall 1972. Collections have been made in West Carroll Parish for the past five years. The average of 1,775 weevils found in 1972 compares with 8,551 weevils found per acre in 1971. Trash collections have been made in Richland

Parish for the past four years. The average of 7,905 weevils per acre in this parish compares with 1,128 weevils in the fall of 1972 and 6,292 weevils per acre in the fall of 1971.

Collections of woods trash were made in northeast Louisiana from December 4 through December 8. Temperatures remained high in the area throughout November. The first killing frost occurred December 1, when the temperature reached a low of 30 degrees. The average minimum temperature during the collection period was 42 degrees with a low of 30 degrees recorded December 7. The average maximum temperature was 64 degrees. Only 0.17 was recorded in the area during this period, but a total of 9.80 inches was recorded from October 9 through December 4.

Boll weevils averaged 743 per acre in Central Texas in the fall of 1972 compared with averages of 4,167 in 1971, 3,392 in 1970, 1,647 in 1969, 4,070 in 1968, and 4,942 in 1967. Fewer boll weevils entered hibernation in fall 1972 in Falls and McLennan Counties than in any year except 1963. In Limestone and Hill Counties, fewer weevils were found than in any of the previous 13 years. The area average was lower in fall 1972 than in any previous year except 1963. Favorable weather permitted an early harvest, stalk destruction, and farm cleanup. Collections of woods trash were made in Falls, Hill, Limestone, and McLennan Counties, Texas, between November 29 and December 19. The first killing frost occurred November 22. Cotton that had not been previously destroyed was killed by this freeze. (Pfrimmer, Cleveland et al., and C.B. Cowan).

See table and map on following pages.

2. Used mechanized soil-moving equipment.

   Used mechanized soil-moving equipment is exempt*** if cleaned and repainted.

3. 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 Japanese beetle and the person in possession thereof has been so notified.

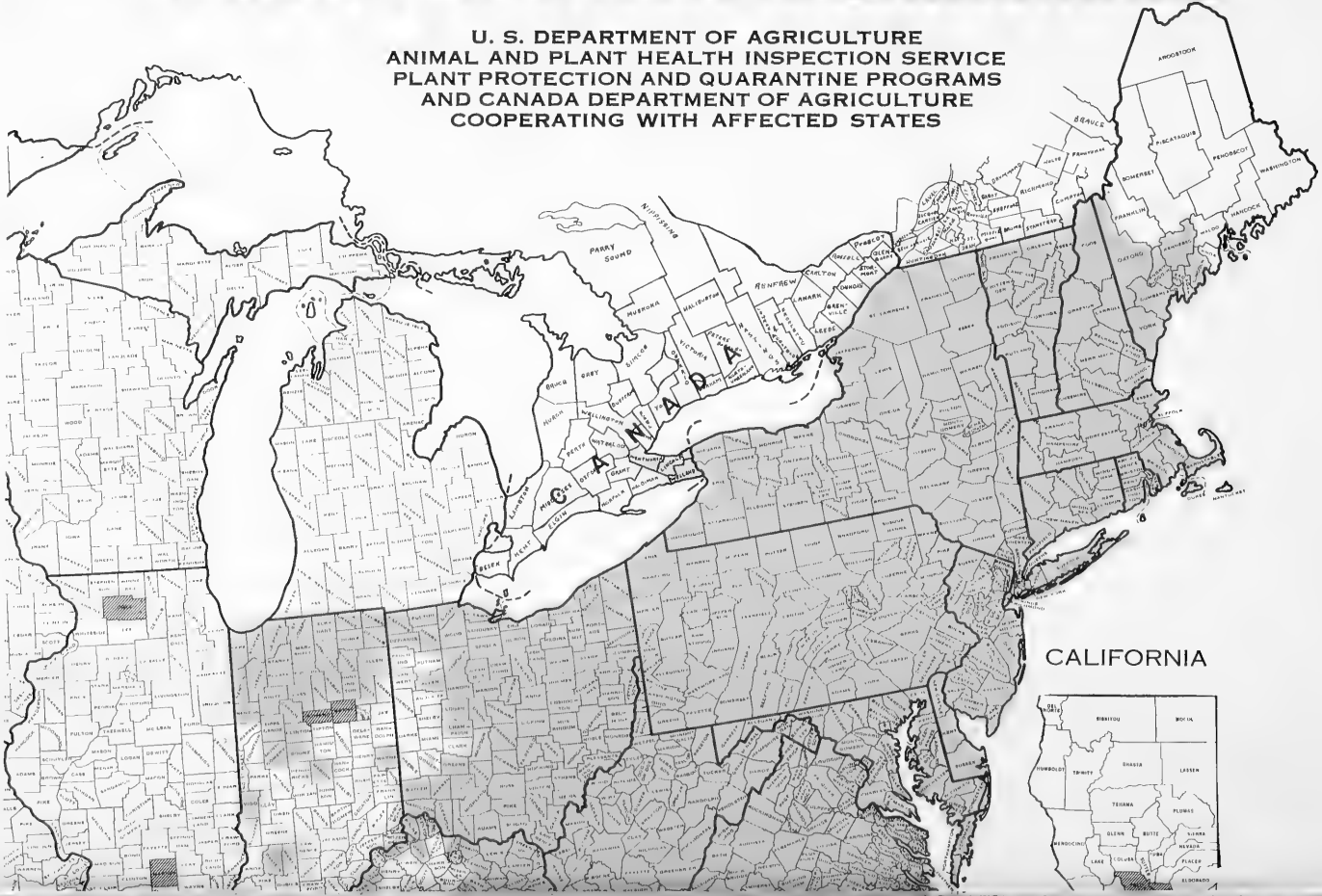
* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

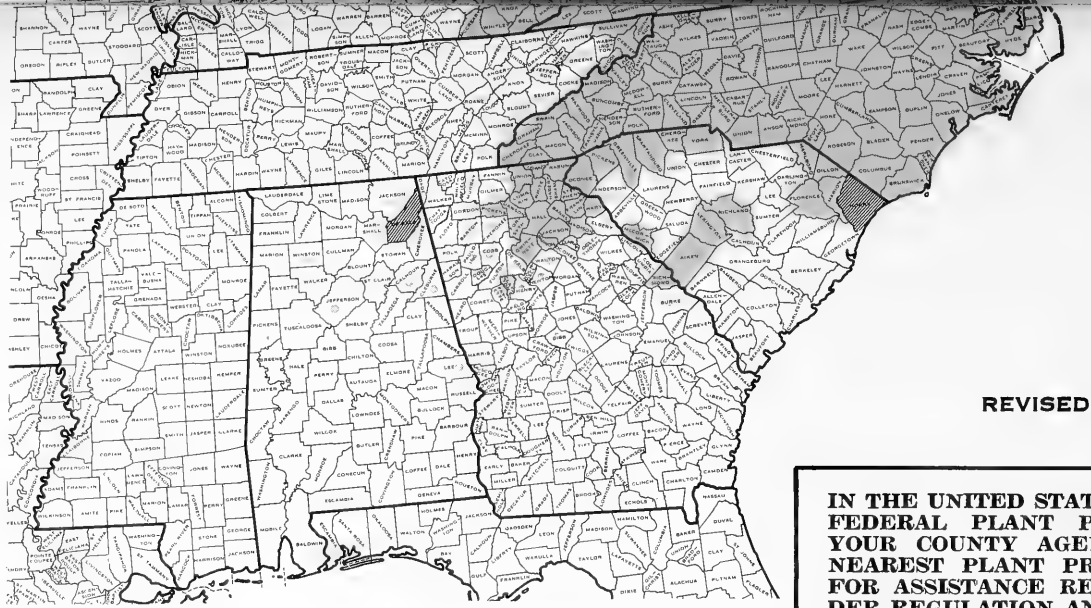
** Information as to approved laboratories may be obtained from an inspector.

*** Exempt if not exposed to infestation after cleaning or other prescribed handling.

JAPANESE BEETLE QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
AND CANADA DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES





REVISED OCTOBER 20, 1972

IN THE UNITED STATES CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT AND, IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED:
COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

GENERALLY INFESTED AREA-STATE AND FEDERAL REGULATIONS.
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED.)

SUPPRESSIVE AREA-STATE, FEDERAL, AND CANADIAN REGULATIONS.

RESTRICTIONS ARE IMPOSED ON THE 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. GREEN WITHIN GREEN*.
5. BLUE INTO ANY OTHER AREA**.

*WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD

THE FOLLOWING REGULATED ARTICLES MOVED FROM GENERALLY INFESTED AREAS (RED) REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:*

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.

   Soil samples shipped to approved laboratories do not require attachment of certificate or permit.**

   Compost, decomposed manure, humus, and peat are exempt*** if dehydrated, ground, pulverized, or compressed.

2. Plants with roots, **except** soil-free aquatic plants, moss, and Lycopodium (clubmoss or ground-pine or running pine).
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.

   True bulbs, corms, rhizomes, and tubers (other than clumps of dahlia tubers) of ornamental plants are exempt*** if free of soil.

6. Used mechanized soil-moving equipment.

   Used mechanized soil-moving equipment is exempt*** if cleaned and repainted.

7. 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 Japanese beetle and the person in possession thereof has been so notified.

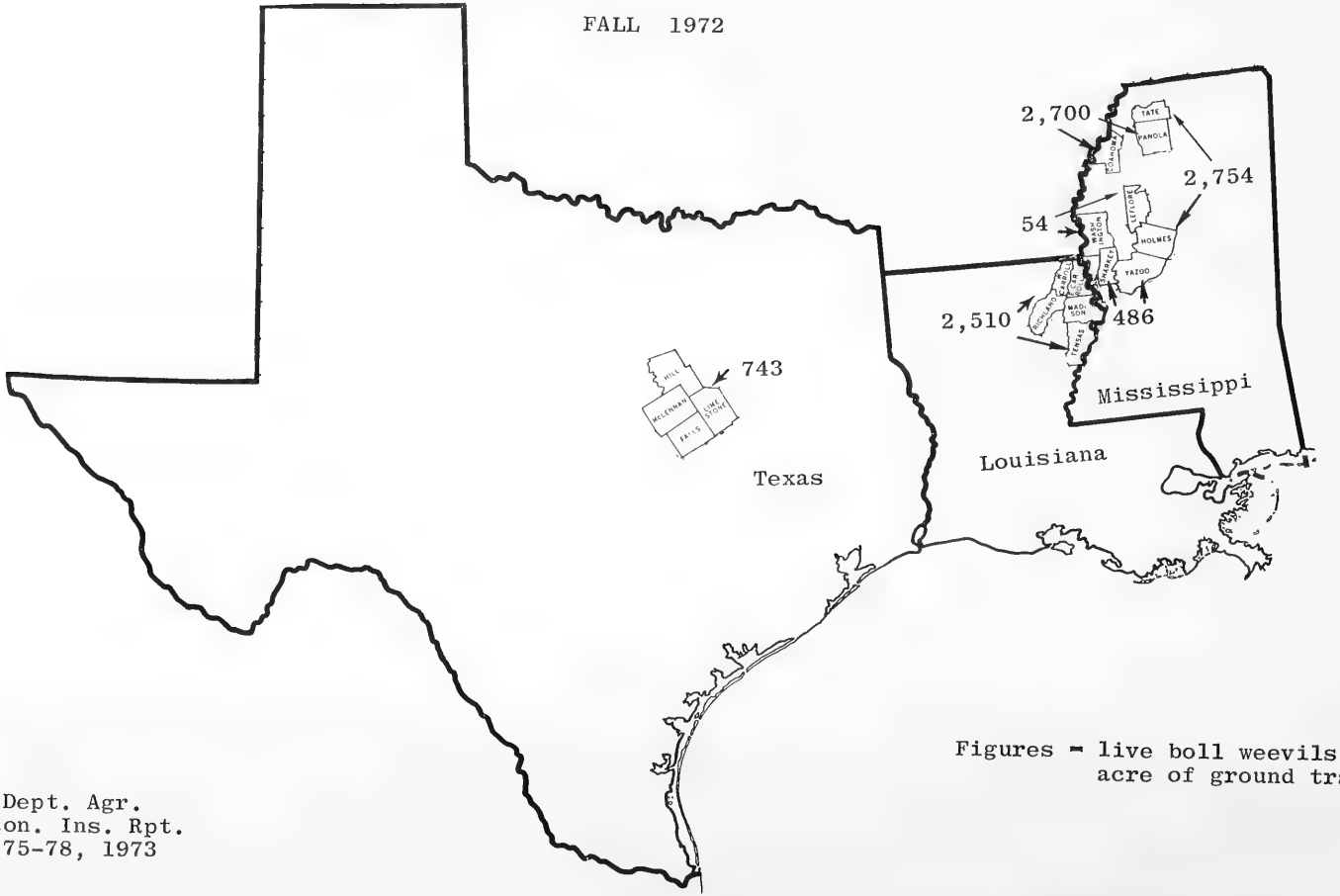
THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR

BOLL WEEVIL HIBERNATION SURVEY - FALL 1972

Area (State and County)	Number of Weevils per Acre	
	1971	1972
MISSISSIPPI		
South Delta (Sharkey and Yazoo Counties (area 1)).	2,970	486
Central Delta (Washington and Leflore Counties (area 2)).	1,296	54
North Delta (Coahoma and Panola Counties (area 3)).	6,534	2,700
Hill Section (Holmes and Tate Counties (area 4)).	8,802	2,754
LOUISIANA		
Northeastern (Madison, Tensas, East Carroll, West Carroll, and Richland Parishes).	6,131	2,510
TEXAS		
Central (Falls, Hill, Limestone, and McLennan Counties).	4,167	743

BOLL WEEVIL HIBERNATION SURVEY

FALL 1972



Figures = live boll weevils per acre of ground trash

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
23(7):75-78, 1973

Detection

Four species were reported as new to the United States. These were an ELATERID (Cardiophorus stolatus) on Oahu, a MESOSTIGMATID MITE (Hypoaspis nidicorva) on Hawaii, a PENTATOMID BUG (Eysarcoris ventralis) on Oahu, and a REDUVIID BUG (Ectomocoris biguttulus) on Oahu.

DAYLILY THRIPS (Frankliniella hemerocallis) nymphs and adults were originally collected from Hemerocallis spp. at Honolulu, Oahu, in September 1969 by K. Sakimura. This thrips is primarily a leaf feeder, but also feeds under stipules and bracts on flower stalks. Its origin is believed to be Eurasian and is known to occur in Japan. Since 1948 it has been collected in Wisconsin, Florida, Maryland, and New York. Determined by K. Sakimura. This is a new State record.

Other species recorded for the first time in Hawaii during 1972 were two CICADELLIDS (Carniocephala sagittifera and Graphocephala cythura) and a CERATOPOGONID MIDGE (Forcipomyia fusicornis), all collected on Hawaii Island.

Corn

CORN LEAF APHID (Rhopalosiphum maidis) nymphs and adults were light in sweet and field corn plantings on Oahu during most of the year, and in 350 acres of corn and sorghum at Kilauea, Kauai, during June. Parasitism by Lysiphlebius testaceipes (a braconid wasp) and Aphelinus maidis (an aphelinid wasp) ranged 5-20 percent in all host situations.

Turf, Pasutre, Rangeland

GRASS WEBWORM (Herpetogramma licarsisalis) larval activity was heavy during June and October in the Hana and Kipahulu areas on Maui, otherwise activity in the State remained generally trace and negligible in pastures, fairways, and other host situations.

General Vegetables

BLACK CUTWORM (Agrotis ipsilon) larvae were heavy in lettuce beds at Hawaii Kai, Oahu, and in bulb onion plantings at Palaau, Molokai, during summer months. Subsequent incorportation of granular preplant insecticides in these fields apparently alleviated the problem. SWEETPOTATO LEAFMINER (Bedellia orchilella) larval mining was heavy in sweetpotato fields at Hoolehua, Molokai, during spring. Activity on Oahu was generally trace to light. Biological control by Apanteles bedelliae (a braconid wasp), introduced from Kansas in 1945 and 1947, is probably the major factor. TOMATO PINWORM (Keiferia lycopersicella) caused heavy losses for the second consecutive year in tomato fields on Maui. It was first reported on this island in February 1971 and continued to be a problem despite intensive chemical control. Heavy larval incidences were also reported at Pearl City, Oahu, and Wailua, Kauai.

BEAN FLY (Melanagromyza phaseoli) on Oahu, where approximately 50 percent of the snap bean crop in the State is produced, was generally light in commercial plantings of this crop, soybeans and yardlong beans. Several reports of heavy infestations of snap bean and longbean yard plantings on Kauai and Maui were received, but in general were effectively controlled by Opius spp. (braconid wasps) and Halticoptera patellana (a pteromalid wasp). BEET ARMYWORM (Spodoptera exigua) infestations in green onions on Oahu varied from light to heavy and, combined with leafminer damage, caused extensive losses. CARMINE SPIDER MITE (Tetranychus cinnabarinus) was moderate to heavy in eggplant fields on Oahu, especially during summer months. Snap bean plantings were generally not as heavily infested as in previous years. ONION THRIPS (Thrips tabaci) increased in fields of green and bulb onions on Molokai and Maui. Numbers had been generally light throughout the State in previous years.

Fruits and Nuts

CLOUDYWINGED WHITEFLY (Dialeurodes citrifolii) was collected from citrus foliage at Nawiliwili, Kauai, in December 1971, for a new island record. D. citrifolii was first reported in the State in 1966, and also occurs on Oahu and Hawaii. At Kahuku, Oahu, about 1,000 coconut trees damaged by heavy larval infestations of COCONUT LEAFROLLER (Hedylepta blackburni) during spring remained shoddy for the remainder of the year. Parasites were noticeably absent throughout periods of heavy populations. Heavy activity during June caused the same effect on 200+ trees at Kahe Point, Oahu, but these trees appear to be recovering. Larval activity on Kauai and Maui was generally light compared to 1971. First reports of adult CITRUS SWALLOWTAIL (Papilio xuthus) sightings began in early February following 3 months of purported diapause. Larval activity and adult sightings increased steadily and peaked in late summer and early fall. By early November, marked inactivity indicated that this pest may have again gone into diapause. An adult specimen was taken in June from a lime tree at Poipu, Kauai, for a new island record, and by early fall had disseminated over most of the island.

Forest and Shade Trees

Infestation of a CONIFER APHID (Cinara carolina) was heavy in 20 acres of Pinus taeda at Olinda, Maui, during March and light on 1.5 acres of this host during June. Larvae of a NOCTUID MOTH (Melipotis indomita) ranged light to heavy under loose bark and debris of kiawe and monkeypod trees. Light trap collections on Oahu indicated sharp peaks in adult populations during March, June, and October.

General Pests

CHINESE ROSE BEETLE (Adoretus sinicus) heavily damaged foliage of 30 roadside Erythrina sp. trees at Hana, Maui, during summer and caused moderate damage to Terminalia catappa saplings at Maunalei, Lanai, during early fall. Only isolated, moderate to heavy damage to sweet corn, broccoli, and edible ginger plantings on Oahu occurred during the year. COCONUT SCALE (Aspidiotus destructor) infestations on coconut trees throughout Oahu ranged light to moderate, with colonies confined mostly to older fronds.

Colonies remained light and spotty on commercial plantings of papaya and banana. Nymphs and adults of Lindorus lophanthae and Telsimia nitida (lady beetles) occurred in most host situations, contributing directly to the limited activity of A. destructor. Pseudoscymnus anomolus (a lady beetle) purposely introduced from Guam in February 1970 to aid in the control of coconut scale, was recovered at Hawaii Kai during September. Light to heavy feeding by larvae of a NOCTUID MOTH (Chrysodeixis chalcites) during summer affected the marketability of ti leaves (Cordyline terminalis) at several areas on Hawaii. Damage was 40 percent in a 1.5-acre planting.

CORN EARWORM (Heliothis zea) larvae ranged light to severe in corn fields throughout Oahu, with increased incidence of heavy infestation in mature ears. Sporadic infestation and damage of buds in a commercial rose garden at Waianae, Oahu, an experimental plot of snap dragons at Kula, Maui, and occasional light infestation of tomato and sweet pepper fruits occurred during the year. GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) was heavy in the Laupahoehoe Forest Reserve, Hawaii, during October, resulting in heavy foliar damage to Acacia koa saplings. Nymphs and adults were moderate in 200 acres of passion fruit at Kahalui, Maui, during this period. Infestations ranged light to heavy on Pinus sp. at Kula, Maui, and Kamuela, Hawaii, during the year. SOUTHERN GREEN STINK BUG (Nezara viridula) was light in most vegetable fields and fruit orchards on all islands. About 60-70 percent of all adults noted under field conditions bore eggs of Trichopoda pennipes pilipes (a tachina fly). Several lots of macadamia nuts for processing in the Kohala area of Hawaii during February were 21 percent damaged. A GEOMETRID MOTH (Semiothisa santaremaria) has replaced another GEOMETRID MOTH (Anacamptodes fragilaria) as the primary foliar pest of koa haole in the State. A very heavy buildup of both species occurred during October in koa haole and kiawe thickets at Kaena Point, Oahu. A total of 4,500 S. santaremaria and 250 A. fragilaria moths were taken in a single light trap during a 12-hour period.

Man and Animals

MOSQUITO collections from 58 light traps on Oahu from December 1971 throughout October 1972 averaged 5.8 Aedes vexans nocturnus per trap and 51.3 Culex pipiens quinquefasciatus per trap per month. The highest monthly average occurred during April.

Beneficial Insects

Larvae and adults of a LADY BEETLE (Chilocorus nigritus) were recovered for the first time in Hawaii feeding on various species of scales infesting bamboo at the University of Hawaii campus on Oahu. C. nigritus was introduced from Ceylon in October 1958 and from Guam in August 1971 to aid in the control of Aspidiotus spp. Increased activity by LANTANA CERAMBYCID (Plagiohammus spinipennis) was especially evident at Panaewa Forest, Hawaii, and at Ulupalakua, Maui, where releases were made during spring. Near complete defoliation of lantana by heavy larval populations of LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) in 1,000+ acres of pastureland at Ulupalakua and Auwahi, Maui, was reported in late spring. BRACONID WASPS (Opius phaseoli and O. importatus) heavily parasitized Melanagromyza phaseoli (bean fly) infesting

leguminous plants on Maui and Kauai. Parasitism averaged 93 percent on Kauai. Heavy galling of Maui pamakani shrubs by a GALL FLY (Procecidochares utilis) was noted at Haleakala and Ulupalakua, Maui, and at Mt. Kaala, Oahu, during the fall. P. utilis was purposly introduced from Mexico in 1945 and continues to exert year-round stress on this weed pest.

Miscellaneous Pests

GIANT AFRICAN SNAIL (Achatina fulica) activity at Poipu, Kauai, decreased considerably. An average of 103 snails was destroyed during winter months, the usual period of peak snail activity. The 1970 average for these months was 460. At Wahiawa, a single snail was collected during December 1971 after six months of negative activity. Ten more snails were collected at this locale during January and February 1972, followed by negative activity for the remainder of the year. Snail activity on Hawaii Island remained extremely light; baiting and surveillance, however, continued here and on Kauai throughout most of the year. On Molokai, two snails were collected at Maunaloa in September, the first report of activity in this area in several years. On Lanai, a single 3.5-inch specimen was taken at Maunalei Gulch but subsequent surveys revealed no evidence of snail activity. A. fulica is presently established on every major island except Lanai. Several adults on an ICHNEUMON WASP (Pachysomoides stupidus) emerged from a nest of Polistes exclamans exclamans (a vespid wasp) collected at Honolulu in June, establishing its parasitic host relationship in Hawaii. A single adult was taken at large in koa haole thickets at Poipu, Kauai, during February, for a new island record.

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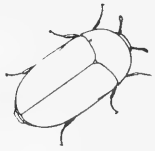

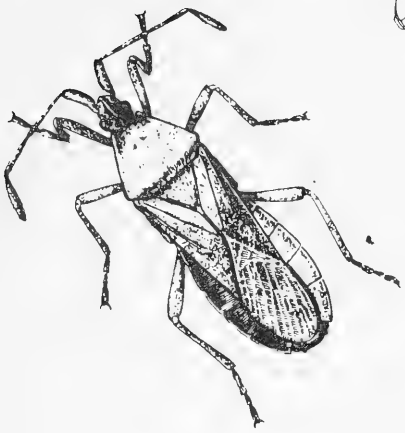

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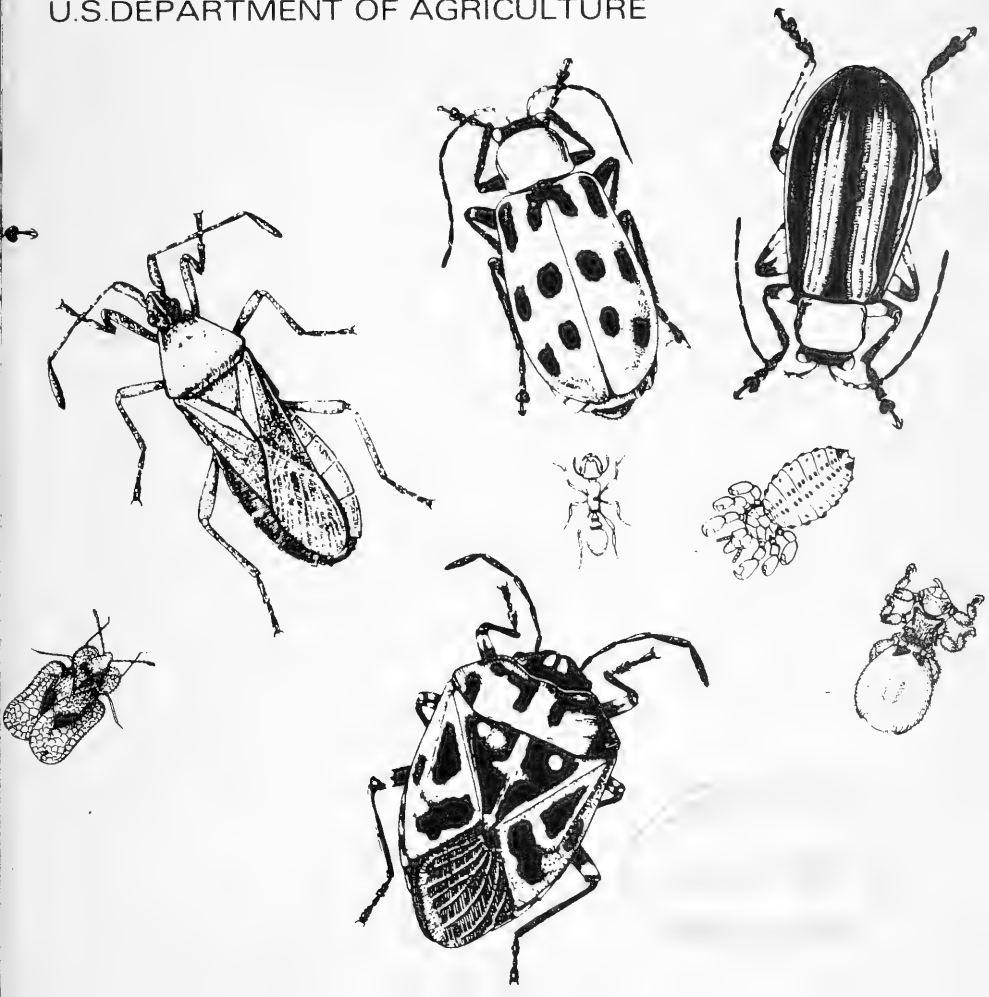

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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.

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

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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

Volume 23 February 23, 1973 Number 8

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ALFALFA WEEVIL larvae heavy on alfalfa in central Texas, adults numerous in trash sampled in west-central Oklahoma. (p. 85).

SOUTHERN PINE BEETLE poses possible threat for outbreak in Alabama this year. (p. 86).

Detection

For new county records see page 87.

Special Reports

Reports in this issue are for week ending February 16 unless otherwise indicated.

CONTENTS

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - TEXAS - Populations generally light on small grain in Wilbarger, Foard, Childress, Jones, Haskell, Throckmorton, Archer, and Wichita Counties. Counts ranged 0-15 per row foot in most fields surveyed. Light to moderate in some fields in Motley and Knox Counties. (Boring). OKLAHOMA - Ranged 2-3 per linear foot in wheat checked in Washita County. (Okla. Coop. Sur.). ARKANSAS - Surveys continued negative in wheat in northwest areas. (Boyer).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light on small grain in Archer, Foard, and Knox Counties. Increasing activity reported from some fields in Knox County. (Boring).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Heavy on alfalfa in central areas. First and second-instar larvae prevalent in field samples. (Latham). OKLAHOMA - Occasional larva noted in alfalfa in Pauls Valley area, Garvin County. Eggs light in Garfield County, no hatch noted. Adults very numerous in overwintering boll weevil trash samples checked in Washita County. (Okla. Coop. Sur.). ARKANSAS - All surveys negative to date in State. This is in contrast with situation past 2 years when larvae became active in southwest area in late January. Differences due to much colder winter this year. (Boyer).

COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Averaged 9,600 weevils per acre in trash samples collected in Webbers Falls area of Muskogee County; ranged 4,000-4,800 per acre in Washita County, and up to 4,000 per acre in Kiowa County. (Okla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - OREGON - Treatment in Jackson County completed. Oviposition expected to begin in Hood River County pear orchards in 7-10 days. (Berry, Zwick).

ORNAMENTALS

NATIVE HOLLY LEAFMINER (Phytomyza ilicicola) - MARYLAND - Infestation levels moderate to heavy in ornamental plantings of American holly in Baltimore, Prince Georges, and Montgomery Counties. Larval development appears 3-4 weeks early due to mild winter. (U. Md., Ent. Dept.).

AN ARMORED SCALE (Fiorinia externa) - MARYLAND - Heavily infested hemlock near Catonsville, Baltimore County. Controls to be applied in spring. (U. Md., Ent. Dept.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Small area of shortleaf pines, 6-12 inches in diameter, recently died due to extensive feeding of overwintering broods. Located in large pine area 10 miles northwest of Auburn, Lee County. Indicates overwintering broods may not have been reduced below levels that could produce population explosion in 1973. (McQueen).

AN OLETHREUTID MOTH (Rhyacionia bushnelli) - CALIFORNIA - Larvae and pupae present in twig tips of Monterey pine tree nursery stock in El Cajon, San Diego County. (Cal. Coop. Rpt.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - During the period February 4-10, there was one confirmed case reported in the continental U.S. from Hidalgo County, Texas. Total of 86 confirmed cases reported from Mexico. Number of sterile flies released in U.S. this period totaled 38,652,000, all in Texas. Total of 167,828,500 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Moderate in Ottawa County with pupation beginning; light to heavy in Cotton County and light in Caddo County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), heavy on cattle in Cotton County, moderate in Ottawa County, and light in Caddo County. (Okla. Coop. Sur.). MISSISSIPPI - Infestations of Solenoptes capillatus and Linognathus vituli (longnosed cattle louse) reported January 19 controlled by use of insecticide dust. Examination of cattle revealed no lice present. (Robinson).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - NORTH CAROLINA - Two specimens taken on separate occasions, June 13 and July 1, 1972, in residence near Apex, Wake County. This is a new county record. Previously taken only from Forsyth County. (Hunt).

STORED PRODUCTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - NEW MEXICO - Light to moderate in miscellaneous stored feed at Roswell, Chaves County, and at Artesia, Eddy County. (N.M. Coop. Rpt.).

BENEFICIAL INSECTS

A LADY BEETLE (Coleomegilla maculata) - MISSISSIPPI - Large adult populations taken from trash along borders of soybean fields in Noxubee County. (Robinson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae active in loquat fruit at Bradenton, Manatee County, February 6. (Fla. Coop. Sur.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - NORTH CAROLINA - Thirty workers collected at Cape Fear River Bridge at Wilmington, New Hanover County, February 6 by F.I. Bowen. Determined by V.H. Owens. Confirmed by D.R. Smith. This is a new county record. (PPQ).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - One additional property found infested at Fallbrook, San Diego County. Treatment of infested properties and survey continued. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Sorghum - CORN LEAF APHID (Rhopalosiphum maidis) generally light in 24 acres at Kahuku, Oahu; heavy in whorls and stems of some plants. From 30 to 85 percent of aphids parasitized by Lysiphlebus testaceipes (a braconid wasp). (Kawamura).

General Vegetables - PEPPER WEEVIL (Anthonomus eugenii) heavy in 5,000 square feet of sweet peppers at Pupukea, Oahu; about 85 percent of fruits infested. (Kawamura). Larval mines of LEAFMINER FLIES (Liriomyza spp.) light to moderate on greenhouse tomatoes at Pupukea, Oahu. Trace in 5,000 square feet each of mature and seedling snap beans in same area. (Kawamura).

Beneficial Insects - Field examination of Melastoma malabathricum at various locales on Hawaii Island revealed 34 and 24 percent infestation of fruits and terminals, respectively, by MELASTOMA BORER (Selca brunella). (Yoshioka). During January, Melanagromyza phaseoli (bean fly) infesting snap and long bean petioles collected at 9 locations on Kauai were 80-100 percent parasitized by BRACONID WASPS (Opius importatus and O. phaseoli). Similar samplings at Waikapu and Puunene, Maui, revealed 100 and 67 percent parasitism, respectively. (Sugawa, Miyahira).

DETECTION

New County Records - BROWN RECLUSE SPIDER (Loxosceles reclusa) NORTH CAROLINA - Wake (p. 86). RED IMPORTED FIRE ANT (Solenopsis invicta) NORTH CAROLINA - New Hanover (p. 86).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1972

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 1972 summary.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Highlights:

ARMY CUTWORM is apparently an increasing problem on sugar beets in North Dakota, and damaged winter wheat in Montana. ARMYWORM was heavy on corn in North Carolina, and Virginia at midseason, and moth collections exceed all previous records for mid-July in Ohio. CORN EARWORM was a major pest of soybeans in Alabama and Arkansas. CORN LEAF APHID required treatment on corn and sorghum in some States. GREENBUG was of some concern on sorghum and small grains in the central Plains.

ARMY CUTWORM (Euxoa auxiliaris) caused no economic damage to crops in KANSAS in spring 1972 except in a few fields of small grains and seedling alfalfa in the northwest district. Treatment was made to an estimated 1,900 acres of about 5,600 acres of small grains and to about 2,100 acres of 4,100 acres of alfalfa which probably needed treatment. Some of this acreage also had coinciding infestations of PALE WESTERN CUTWORM (Agrotis orthogonia). Probably populations of both pests combined were necessary to justify treatment in some cases. Larval feeding by army cutworm was first observed in the north-eastern counties of COLORADO in early March. Economic infestations occurred in Washington County where counts up to 12 larvae per linear row foot were made. This pest also damaged alfalfa. Chemical controls were applied to wheat and alfalfa in this county. In NEBRASKA, stand reduction of alfalfa ranged from light to nearly complete loss, especially in first-year stands. Larvae ranged 0-4.5 per square foot in Hitchcock, Lincoln, and Dawson Counties by April 10. By April 17, most feeding was over and pupation had begun.

Army cutworm appears to be an increasing problem on sugar beets in NORTH DAKOTA where previously it was a problem only in winter wheat early in the season in some western counties. In the last few years, it has damaged early and late seeded beets in the Red River Valley. Many beet fields were reseeded 2-3 times in 1972. Controls have been ineffective. Army cutworm was first reported in MONTANA this season the second week of May, which is 2-3 weeks later than usual. Much winter wheat in Cascade and Chouteau Counties was treated in May to decrease losses, but about 6,000 acres required reseeding. Those acres reseeded without treatments were lost. An estimated 50,000+ acres worth $1,250,000 were lost in Madison and Beaverhead Counties.

ARMYWORM (Pseudaletia unipuncta) was very heavy in corn across NORTH CAROLINA during June and July. Up to three control treatments were made to no-til fields in the Yadkin, Iredell, Wilkes, Surry, and Alleghany County area. In TENNESSEE, damage to small grains ranged light to severe in all sections of the State during May. Larvae were present in damaging numbers on corn in most areas of VIRGINIA by May 24 and severe in Roanoke, Buckingham, Amelia, and Craig Counties. Surveys in Montgomery, Pulaski, and Wythe Counties showed that an average of 35 percent of all plants were infested. Armyworm infestations in small grains were below 1971 levels in MARYLAND. Moderate to heavy infestations were found in Dorchester, Queen Annes, Talbot, and Wicomico Counties where about 3,500 acres of wheat and barley were treated. Damage to corn was also well below 1971 levels with heavy damage restricted to no-til corn in Frederick, Washington, Carroll, Montgomery, and Howard Counties where about 2,000 acres required controls. In PENNSYLVANIA, light to moderate armyworm infestations in no-til corn were reported in the south-central district by the first of June.

The first armyworm moths of the season in OHIO were collected during the second week in April. Populations increased steadily and moth collections exceeded all previous records for mid-July. Larval outbreaks in corn were reported from Guernsey, Muskingum, Ashland, and Monroe Counties and replanting was necessary in some Belmont, Darke, and Lawrence County fields. Armyworm was the most damaging pest of wheat, oats, and barley in KENTUCKY. Counts in Christian County ranged up to 340 per 100 sweeps on barley, with 30 percent of the heads cut. In Todd and Warren Counties larvae averaged 120 per 100 sweeps. Armyworm infestations on wheat reached moderately severe proportions in some areas in the southern third of ILLINOIS during late May and early June. In some thick, lush stands, populations ranged 3-15 (average 8) larvae per linear row foot.

Armyworm moths were first observed in east-central and southeast ARKANSAS in late March. A few infestations reached 5-6 larvae per square foot and were treated in late April. The highest recorded infestation was 18 per square foot in Desha County. Armyworm infestations were unusually light in KANSAS small grains during 1972, with no economic damage being reported. During early August, infestations in corn caused 50 percent defoliation in one treated field in Stafford County and 25 percent defoliation in a field in Stevens County. Light infestations were also reported in some fields in Grant and Seward Counties. Most defoliation was confined to the lower halves of plants. This pest was unusually heavy early in the season in CALIFORNIA, causing much damage to young corn and sorghum.

BEET LEAFHOPPER (Circulifer tenellus) populations on sugar beets in western COLORADO generally remained low and noneconomic. This insect was found throughout the Arkansas Valley where adult counts ranged 0-25 per 100 sweeps in late July. In August, populations ranging from zero to 100 per 100 net sweeps were found on tomato plants in Otero County. Early April surveys showed that overwintering adult populations in desert breeding areas were low throughout the Snake River Plains of IDAHO. Desert host plant development was slowed by unusually cool weather and control programs were not needed.

CORN EARWORM (Heliothis zea) was generally light with few controls necessary in UTAH, NEBRASKA, IOWA, INDIANA, VIRGINIA, and SOUTH CAROLINA.

Corn earworm populations in MARYLAND were well below normal during June and July in all areas but by early August ear-tip damage ranged 5-20 percent in corn for grain and for processing along the Eastern Shore. Damage levels in central and western areas peaked from mid-August through September with damage ranging from 5 to 30 percent in some grain corn. Corn earworm was one of the major pests of soybeans in southern ALABAMA in 1972 with about 180,000 acres in the extreme southwest area receiving controls. An average of 4 applications were necessary on 160,000 acres in Baldwin County. Controls were required throughout the year in FLORIDA. In some instances during spring months, applications were made daily when corn silks were growing rapidly and population pressures were heaviest.

Corn earworm infested 75-80 percent of ears in cornfields throughout MISSISSIPPI. This noctuid is the most important pest of soybeans in ARKANSAS. Surveys in 1972 showed that 295,000 acres of soybeans, or 7.1 percent of the crop, were treated. Corn earworm remained light to moderate in OKLAHOMA alfalfa most of the season reaching a high of 15 per 10 sweeps in Payne and Noble Counties in late September. Moderate to heavy numbers damaged ears of both garden and field corn from mid-June to late August. Moderate to heavy numbers were reported in a few sorghum fields in the south-central counties during August. In NEW MEXICO, corn earworm larvae ranged 0-3 per ear tip, with controls necessary, in 7 eastern counties.

CORN LEAF APHID (Rhopalosiphum maidis) infestations ranged light to heavy on corn and sorghum in Burleson, Brazos, Washington, Colorado, and Lee County, TEXAS on May 5, but began to decrease rapidly during mid-May when heavy populations of lady beetles and other beneficial insects occurred. Fields in the High Plains area had infestations of zero to 2,000 aphids per plant in early June. Scattered counts of up to 600 corn leaf aphids per sorghum plant were found in most areas of OKLAHOMA from mid-May to early September. Heaviest counts of the season ranged 500-1,000 per plant in scattered fields in the Panhandle in late July and up to 2,000 per plant in scattered fields in Caddo County in early September. Corn leaf aphid was heavy in scattered fields of sorghum and corn over most of KANSAS during June, July, and early August. An estimated 28,000 acres of corn and 115,000 acres of sorghum were treated.

Corn leaf aphid colonies were present on barley in east-central NORTH DAKOTA, by mid-July and heavy populations damaged late-seeded barley in Cass County during August. Corn leaf aphid was light and never developed into a serious problem on corn in ILLINOIS. By mid-July, 90 percent of the plants in some fields were infested but colonies were generally small, with many infested whorls having only a single winged adult. By late summer, 26 percent of the population in some southern fields were parasitized by Lysiphlebus testaceipes (a braconid wasp). Corn leaf aphid infestations of corn grown for grain in INDIANA were 1.7 percent heavy (500+ per stalk), 6.8 percent moderate (51-500 per stalk), and 19.6 percent light during the tassel-in-whorl stage or slightly thereafter. The only severe infestations were found north of Indianapolis.

Corn leaf aphid populations on corn in MARYLAND remained light. Heaviest populations were encountered on the lower Eastern Shore where 700 acres required treatment the last week of July. Corn leaf aphid was heavy on corn throughout ALABAMA during the 1972 season, especially in the central and northern counties.

GREENBUG (Schizaphis graminum) infestations were local and damaged CALIFORNIA corn, sorghum, and small grains early in the season. Infestations in COLORADO ranged 0-200 aphids per plant in early July and increased to 1,000 per plant in late July, but by early September were practically nonexistent. Greenbug was generally light in most small grain areas of TEXAS. Heaviest damage was noted in Throckmorton County. Generally this aphid was light in the Rolling Plains and Panhandle areas during February. Infestations were heaviest, 200 per square foot, in Briscoe County. Infestations ranged 200-750 per plant in the South Plains as early as July 7 and by July 14 heavy infestations damaged grain sorghum in Glasscock County. Populations peaked in the South and High Plains August 4 and by August 11 numbers began to decrease in the Rolling Plains due to beneficial insect activity.

Greenbug necessitated the treatment of 2,000 acres of small grains in ARKANSAS where it became important for the first time. It was found in 14 new counties and is very likely statewide in distribution. Economic infestations occurred in Clay County and by mid-July, 1-5 leaves per plant had turned red and 500+ aphids per leaf were common. This was also the first year that greenbug became an important pest on sorghum in INDIANA. Most of the economic infestations in the State were found in Parke County. During March, 200-2,000 greenbugs per linear foot were found in scattered small grain fields in south and central OKLAHOMA. First infestations on sorghum were reported in Ottawa and Craig Counties the first week of June. Heavy numbers were present in scattered fields in most areas during July and August but heavy area-wide infestations did not develop. Greenbug caused more damage on sorghum in KANSAS than in any previous year. An estimated 1,110,000 acres were treated, an increase of 327,000 acres over 1968 the first year that greenbug became important on sorghum. Most of the heavy infestations were located in eastern and north-central areas. The first infestations on seedling sorghum were found in mid-May in Bourbon and Montgomery Counties. By early June, flights from mature wheat to sorghum were heavy throughout most of the eastern part of the State and by late June a general outbreak had occurred in east-central and northeast areas. During the third week of July, Lysiphlebus testaceipes (a braconid wasp) began to exert significant control in most eastern counties but much damage had already occurred. Except for localized infestations, economic damage on corn and wheat was generally low throughout Kansas.

The first damage in NEBRASKA occurred the week of June 2 when alates and nymphs ranged 1-10 per 1 to 3-inch seedling sorghum plant. Populations continued to increase and by June 8, light to moderate infestations occurred on 1 to 6-inch grain sorghum in the south-central district. Populations began to kill lower leaves of grain sorghum by June 30. Many fields developed severe yellow stippling on the whorl leaves. Populations peaked in the extreme southeast counties about July 10-15 with parasitism by L. testaceipes ranging 20-95 percent. Greenbug ranged up to 1,500 per lower leaf in Gage, Lancaster, Platte, and Seward Counties.

Scattered economic infestations were still reported from Custer and Dundy Counties on August 4. Heavy damage with up to 2,000 greenbugs per linear foot were noted in Box Butte and Morrill Counties October 20. Greenbug damaged wheat and barley locally in Ransom County, NORTH DAKOTA. Populations of 3,000 per 100 sweeps were present in late seeded crops on July 28. Greenbug damaged forage and grain sorghum in 15 IOWA counties from July 10 to August 5. Populations peaked on 12-inch forage sorghum at 360 per plant on July 21 in Story and Polk Counties. At this time parasitism by L. testaceipes ranged 7-39 percent in Polk County.

ASTER LEAFHOPPER (Macrosteles fascifrons) migrants were first detected in rye in southwest WISCONSIN about April 20. A 50-fold increase in numbers occurred by May 5, when counts up to 150 per 100 sweeps were recorded at Spring Green, Sauk County. Movement from rye to oats began the first week of May. About 6.27 percent were infected with aster yellows disease which prompted a warning that there was a high potential for transmission to vegetable crops. By mid-July, this leafhopper decreased greatly and the percent infected with aster yellows had decreased to 1 percent. Leafhopper control efforts by vegetable growers kept aster yellows damage in check.

POTATO LEAFHOPPER (Empoasca fabae) caused light to moderate damage on alfalfa in Frederick, Baltimore, Washington, Carroll, and Montgomery Counties, MARYLAND. This pest was first reported in alfalfa, 5-10 per sweep, the last week in June. Populations peaked during July when counts ranged 5-50 per sweep, then fell below economic levels the second week of August in Carroll, Frederick, and Washington Counties. Infestations outside these counties remained noneconomic with counts ranging 5-10 per sweep. Damage on commercial lima and snap beans remained below economic levels mainly due to scheduled spray programs maintained by growers.

SPOTTED ALFALFA APHID (Therioaphis maculata) was light in alfalfa fields of Otero and Prowers Counties, COLORADO, in mid-June. Populations reached 10-30 aphids per sweep by early July and remained at that level until mid-September. Counts ranged light to moderate in most areas of OKLAHOMA. The only heavy infestations were reported in Cotton County in late March and in few east-central counties in late July and early August. In MISSOURI, counts ranged from 0-105 aphids per 10 sweeps in the southwest and south-central areas during August. Populations peaked at 1,000+ per 10 sweeps during early September in the southwestern area and yellowing and stunting were observed in areas of low rainfall. Spotted alfalfa aphid was taken as early as the last week in March in Daviess County, INDIANA. Populations up to 100 per sweep were found in one field in St. Joseph County in mid-July but this aphid was rarely of economic importance in the State.

TOBACCO BUDWORM (Heliothis virescens) was the major insect pest of flue-cured tobacco early in the season in several north FLORIDA counties. Infestations appeared about 16 days earlier than in 1971, and losses were moderate to heavy. This species and H. zea (corn earworm) occurred in mixed infestations as the most serious tobacco pests on ALABAMA'S 520 acres. Extremely active control efforts by growers kept them under good control. H. virescens and Manduca sexta (tobacco hornworm) were the major problem in most tobacco producing counties of SOUTH CAROLINA.

TOBACCO HORNWORM (Manduca sexta) did not infest wrapper tobacco in FLORIDA, but in the flue-cured tobacco area it was the major mid - and late-season insect pest of the State.

CORN, SORGHUM, SUGARCANE

Highlights:

EUROPEAN CORN BORER was generally higher than usual in several States. SOUTHERN CORNSTALK BORER infested corn in Kansas for first time since 1920. BLACK CUTWORM was of some concern on corn in southern Iowa and southern Illinois. CORN ROOTWORMS were economic on corn in several areas. SORGHUM MIDGE was an important pest of sorghum in Kansas, Missouri, Texas, and Mississippi.

EUROPEAN CORN BORER (Ostrinia nubilalis) infestations were significant in occasional cornfields in Linn and Johnson Counties, KANSAS, in late September. One field in Linn County had 95 percent of the plants infested. This pest was collected in Wichita and Logan Counties for the first time. Overwintered European corn borer populations were very heavy in central and southern NEBRASKA. In Hall County, overwintered borers averaged 5,025 per acre, or 3.35 times the average for 13 years of survey data. First moths of the season were taken May 17 in blacklight trap at Aurora. By May 25, about 60 percent of larvae in corn residue had pupated, and pupation was about 100 percent in east, southeast and central districts by June 2. First-brood moth flights peaked about June 8, then declined sharply. First-generation borer populations were generally light, except in occasional early planted corn in the east and central districts. Infestations ranged 0-80 (average 25) percent in late June and July. Second-brood moths were first trapped about mid-July and peaked about August 10-17. Second-generation borer populations were 83 percent lighter than those of 1971, and caused generally light damage.

The fall abundance survey in NORTH DAKOTA showed an increase from 130 borers per 100 plants in 1971 to 140 borers per 100 plants in 1972. Second-brood larvae were relatively unimportant this season. Stalk breakage due to this pest was heavier than normal in 1972. Cold weather moved into MINNESOTA during the critical time of European corn borer moth emergence and egg laying in June reducing activity to the point that the first and second generations were only minor problems. A few warm periods did induce sporadic egg laying in August and September, but populations were moderate to heavy in only isolated cornfields. Survival of overwintering O. nubilalis larvae in WISCONSIN ranged 80-100 percent in April despite a cold, open winter. Pupation began about May 20 and adults were caught in blacklight traps from May 26 to July 3, with peak catches about June 14. First eggs were noted June 14 and larval feeding was apparent June 20. First-generation larvae infested about 5 percent of grain corn and up to 30 percent of sweet corn plants in mid-July. Pupation began about July 21 and second-flight moths were taken in blacklight traps from July 24 to October 1. Egg mass counts reached 1 per 10 plants by August 15 at some sites and control treatments were initiated. Very heavy larval infestations were observed in late sweet cornfields in Columbia County, where some fields had up to 68 percent of ears infested. The annual fall survey showed an average population of 29 borers per 100 plants. This compares to 57 per 100 plants in 1971 and the 30-year average of 45 per 100 plants.

Overwintering European corn borer larvae averaged 6,074 per acre across IOWA in early May compared to 6,375 in 1971. The first moth was collected May 28 in Polk County. Oviposition began in early June and peaked about June 19. Extended cool, wet weather during the oviposition period reduced the economic potential of the first generation. Fields in central Iowa averaged 0.4 first-generation borers per plant and 1.4 second-generation borers per plant. Fewer than 200,000 acres were treated for European corn borer control in Iowa in 1972. First European corn borer moths of the season were collected in MISSOURI May 16 in Boone County. From 10 to 50 percent of corn plants in most areas showed feeding injury. The first generation appeared to be less injurious than during the past 5 years. The State average of infested plants was 61.05 compared to 70.16 in 1971. In ILLINOIS the overwintering survival European corn borer was 74 percent compared to a normal 80-85 percent. First and second generations averaged 1 and 32 borers per 100 plants, respectively, compared to a 10-year average of 4 and 101 borers per 100 plants. Pupation was completed by late May with 65 percent moth emergence. Egg laying began the first of June in the southern half of the State. By the first week of July, 70 percent of the borers were in the fifth stage. About 70,000 acres of corn were treated in Illinois, mainly for first-generation control.

The first European corn borer moth of the season in OHIO was trapped May 25 and peak emergence occurred June 11-20. Egg masses could be found statewide by June 9. Inspections during the last 2 weeks in July showed percent damaged plants by counties as follows: Pike 40, Morgan 36, Highland 24, and Clinton 20. Second-generation moths first emerged on August 1 and peaked August 21-30.

First adults of the season in DELAWARE were collected in black-light traps May 7, with peak flights the first week of June. Second-flight adults peaked at 25-30 per night during late July and the first week of August. This flight was much below the 1971 peak of 150 per night. The third adult flight peaked during late August, with an average of 22 per night which was also far under the 1971 average of 135 per night. These light adult flights correlate with the fall abundance survey which shows a State average of 186 borers per 100 plants compared to 358 in 1971. European corn borer severely damaged seedling corn in scattered fields over the Coastal Plain of NORTH CAROLINA during June. Larval damage was noticeable across the State during late August.

SOUTHWESTERN CORN BORER (Diatraea grandiosella) was heavy in several cornfields in ARIZONA from mid-August through November. Larvae were so plentiful in some plants that growth was inhibited to the point of producing almost totally blank seed heads. Early spring surveys in MISSOURI showed that heavier than normal numbers of southwestern corn borer successfully overwintered. On July 8, 22 percent of the plants were infested with fourth and fifth instar larvae. By July 22, 50 percent of second-generation adults had emerged, 40 percent were pupae, and 10 percent were full-grown larvae. The fall abundance survey showed the percent infested plants was down from 33.7 in 1971 to 25.05 in 1972.

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.*

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.

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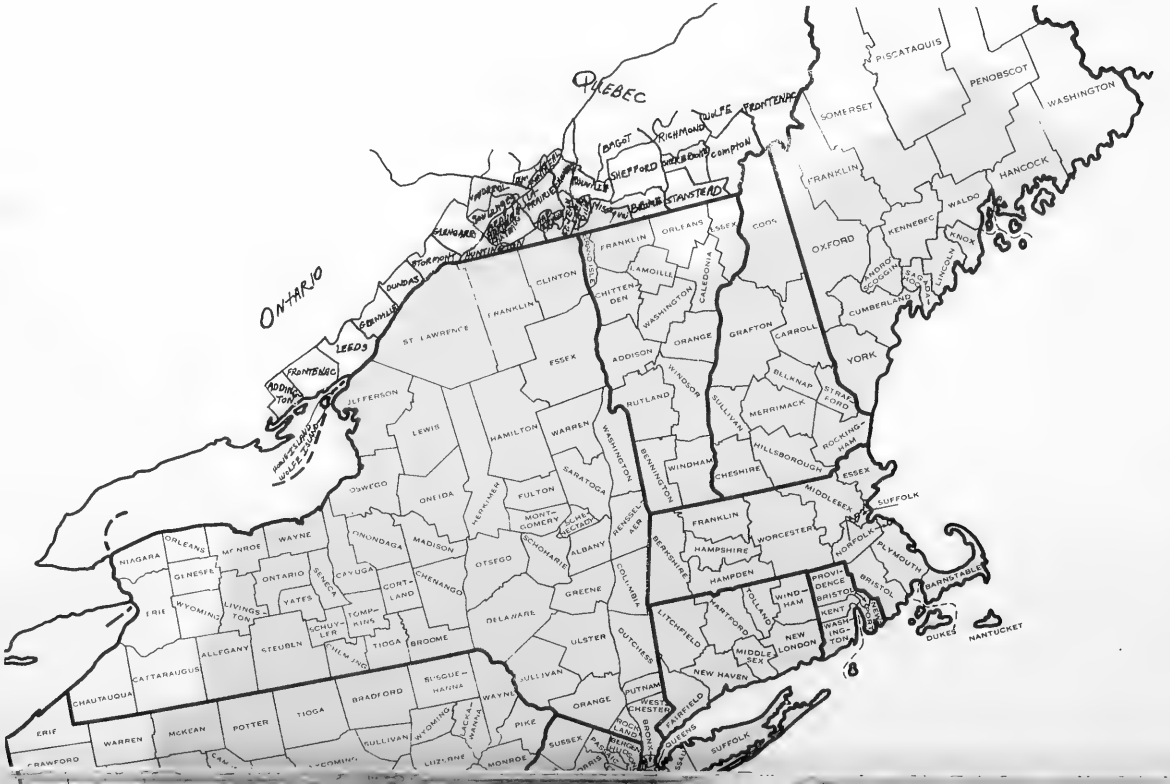
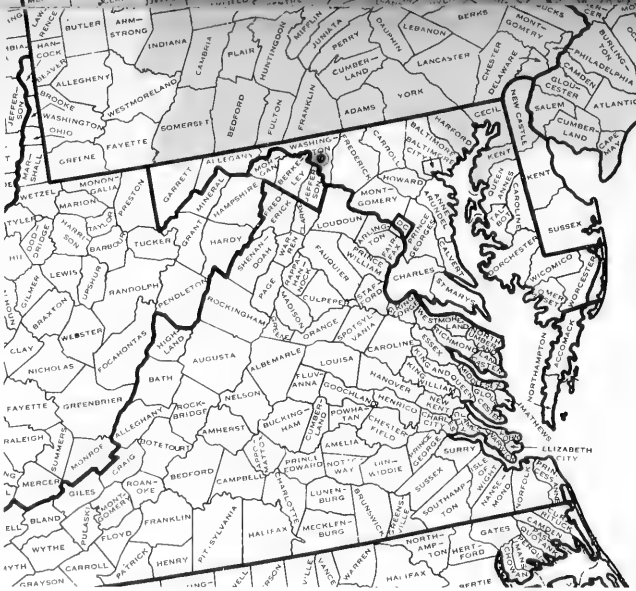
GYPSY MOTH QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
AND CANADA DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES





IN THE UNITED STATES CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT AND, IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

REVISED December 29, 1972

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;
COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED

GENERALLY INFESTED AREA–STATE, FEDERAL, AND CANADIAN REGULATIONS
(Eradication Treatments Not in Progress or Planned)

SUPPRESSIVE AREA–STATE, FEDERAL, AND CANADIAN REGULATIONS
(Suppressive Treatments in Progress or Planned)

STATE REGULATIONS ONLY
(Suppressive Treatments Planned Where Necessary)

ERADICATED–REGULATION REMOVED

See Reverse Side For List of Regulated Articles

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.*
5. FROM BLUE INTO ANY OTHER AREA.**

*IF REQUIRED BY AN AUTHORIZED INSPECTOR.
**IF REQUIRED BY APPROPRIATE STATE QUARANTINE OR BY AN AUTHORIZED INSPECTOR.

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.*

   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 im-

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) infested corn for the first time in KANSAS since 1920. Infestations involving 25-50 percent of stalks were verified in 2 fields in Pottawatomie County during late August. At a later date, an 8-percent infestation was found in one Chase County cornfield.

FALL ARMYWORM (Spodoptera frugiperda) was abundant in buds and on ears of sweet corn in FLORIDA, particularly in the Everglades area. On October 18, fall armyworm and beet armyworm destroyed 97 percent of the buds on unsprayed young sweet corn at Bradenton, Manatee County. Fall armyworm larvae were heavy (2-3 per plant) in ears and stalks of sweet corn during the fall. Fall armyworm caused light to moderate damage to corn for processing and for grain throughout MARYLAND. First larvae of the season were collected July 25 in Carroll County. Most infestations remained below economic thresholds with about 300-700 acres requiring controls during late August.

BLACK CUTWORM (Agrotis ipsilon) infestations were reported from most cornfields in the southern half of IOWA. Some fields showed 50 percent damage and replanting was necessary. Control was applied on approximately 50,000 acres. Many cornfields in the southern half of ILLINOIS were severely damaged by black cutworm during late May and early June. An estimated 79,000 acres were replanted and about 124,000 acres received emergency control treatments.

BEET ARMYWORM (Spodoptera exigua) has become a major insect pest of sweet corn in FLORIDA because of difficulty in control. It was particularly destructive to buds during late spring and early fall in the Everglades area. Beet armyworm was a pest of corn and sorghum all year in CALIFORNIA with some fields severely damaged. This damage was more general and heavier than in past years.

CORN ROOTWORMS (Diabrotica spp.) were of concern in several States. WESTERN CORN ROOTWORM (D. virgifera) was reported for the first time in IDAHO when a medium to heavy infestation was found in 6 acres of corn at Dayton, Franklin County, July 27, 1972. (See CEIR 22(35):574) By September 1, adults average 7 per 40-50 plants and ears in 7 fields. Root damage was insignificant and no plant lodging was observed. D. virgifera larvae were heavy in Baca County, COLORADO. Many growers having no previous rootworm problems failed to treat and losses were heavy in some fields. Larval infestations were heavier than usual in Weld County and there were many complaints by growers who failed to apply adequate controls. Eggs had hatched and larvae were active by mid-June. Adult emergence was noted by mid-July. Losses were heavy in some corn in northeast Colorado where adult controls were not applied.

D. virgifera began emerging in northeast KANSAS July 6 and by July 14 some emergence was reported throughout the State. Some severe root damage was noted during late July in untreated corn in Nemaha and Sedgwick Counties. During September, much goosenecking indicating severe root damage, was noted in many fields in the southeast area. About 91,000 acres of corn were treated for adult corn rootworms in Kansas. Western corn rootworm and NORTHERN CORN ROOTWORM (D. longicornis) larval activity was first observed in NEBRASKA June 15 in Saunders County. First D. virgifera adults were observed in this county July 7. Scattered corn rootworm damage occurred throughout the State, but was most common in eastern

counties. Adults ranged 1-3 per corn plant in most fields in August. Percent lodged plants averaged 7.4 in northeast, 7 in eastern, 3.5 in southeast, zero in central, and zero in southern districts during October. D. virgifera infestations and damage appeared to be lighter in NORTH DAKOTA than in 1971. Adults averaged 26 per 100 plants in infested fields in Richland County, with 10 percent of fields showing lodging due to larval feeding.

D. longicornis and D. virgifera egg hatch and larvae were first noted in MINNESOTA the week of June 26. First adults of the season were seen in mid-July. In early August, surveys in 54 counties showed that populations declined in 1972 in all except the southwest district. Corn rootworms were still important economic pests of corn during 1972 and will continue to be so in 1973. An adult corn rootworm survey in WISCONSIN during late August showed a 60-percent decrease from 1971 populations. Western corn rootworm decreased more than did northern corn rootworm. D. virgifera comprised more than 50 percent of the corn rootworm population in the southwest and northwest districts. Lodged plants became evident about July 12 following rain storms. Some southwest area fields had 28 percent lodging, but statewide damage averaged about 5 percent. In MICHIGAN, threatening populations of D. virgifera were found in Allegan, Berrien, Cass, Calhoun, and Ingham Counties.

Second and third instar Diabrotica spp. larvae were first observed in IOWA in Clayton County about June 15. During the second week of July untreated fields in Clayton and Webster Counties averaged 20 and 23 larvae per corn plant, respectively. Economic populations were observed statewide. Lodged stalks declined from 4.97 percent in 1971 to 1.58 percent in 1972 statewide. About 4,000,000 acres of corn were treated for rootworm control in Iowa during 1972. Hatching of D. virgifera eggs was observed in western MISSOURI during early June. Heavy larval infestations were reported from isolated spots throughout the western area. Adult emergence was noted during the first week in July. Counts on corn ranged from less than 1 beetle per plant to 20+ per plant. Adults were collected for the first time in 9 Missouri counties.

Newly hatched western corn rootworm and northern corn rootworm larvae were first found in northern ILLINOIS in early June and by mid-July adults of either species could be found throughout the State. An adult survey in early August indicated 1972 populations of both species had increased over those of 1971 in 8 of the 9 crop districts in the State. Infestations were heaviest in the northwestern third of the State where populations average 100 adults per 100 plants. About 36,000 acres of corn were treated for adult control and 3,680,000 acres were soil treated for larval control in Illinois. Western corn rootworm spread to 13 new counties in INDIANA in 1972. D. virgifera adults were found in 36.3 percent of cornfields in the northwest district and in 38.9 percent of fields in the north-central district. In those districts of Indiana in which both species compete, D. longicornis was 1.7 times more numerous than D. virgifera in the northwest district and 28 times more numerous in the north-central district. The heaviest population, 10,500 per acre, was found in Porter County. No observed corn rootworm populations in Indiana warranted controls in 1972.

MAIZE BILLBUG (Sphenophorus maidis) and S. callosus caused 40 percent stand loss of corn in scattered fields in NORTH CAROLINA as far north as Tyrrell County by June 1. Up to 5+ larvae per stalk were observed in Washington, Hyde, and Tyrrell Counties. More than 60 percent of the cornfields in Washington, Hyde, Tyrrell, Beaufort, Craven, and Pamlico Counties, North Carolina, evidenced marginal row damage by these pests. S. maidis and S. callosus continued to damage corn in most coastal counties of SOUTH CAROLINA. Heavy populations destroyed 40 acres of corn in Orangeburg County in May and 5 acres of mature corn in Dillon County in August. Chemical controls against S. callosus remained ineffective in South Carolina.

CHINCH BUG (Blissus leucopterus leucopterus) caused some economic damage on corn in northwestern OHIO. Up to 50 chinch bugs per ear were reported in Wood County July 19 and heavy populations damaged corn in Putnam County during the first 2 weeks of August. Chinch bug was troublesome in seedling corn and sorghum in scattered fields in the eastern half of KANSAS. Serious infestations occurred in Washington and Jackson County sorghum where some treating was necessary in late June. Moderate to heavy numbers damaged sorghum in Kiowa, Comanche, and Tillman Counties, OKLAHOMA, during June and early July. Localized but heavy infestations of chinch bug (12-15 per plant) were noted on corn in Limestone County, TEXAS, March 24. By mid-April, heavy populations were noted on corn in Lee County and on grain sorghum in McLennan and Limeston Counties.

CONCHUELA (Chlorochora ligata) was heavy on grain sorghum throughout much of central TEXAS as well as the Rolling and South Plains. First reports of economic damage were received June 30 from Gillespie and Travis Counties where infestations averaged 2 per head in many fields. During August and September damage was noted in several South Texas and Rolling Plains counties.

SORGHUM MIDGE (Contarinia sorghicola) caused heavy yield losses in some late planted sorghum in KANSAS, primarily in southeastern counties. Losses of 25-50 percent were not uncommon in very late sorghum in this area. The last significant infestations encountered in Kansas grain sorghum occurred in 1967 in the same area but only involved two counties--Montgomery and Wilson. This insect was again the most important insect on sorghum in southeastern MISSOURI. Heaviest populations (20-40 adults per head) were found on midseason and late sorghum in the extreme southeast area. The heaviest sorghum midge infestations in TEXAS were noted on late grain sorghum in the central and Rolling Plains areas during July. Counts ranged up to 80 midges per sorghum head in some central and north-central counties. Sorghum midge was also the most damaging insect of sorghum in MISSISSIPPI. Peak emergence of overwintering populations occurred in mid-May. Grain planted in mid-July in Oktibbeha County had 98 percent of the heads destroyed in mid-October, 60 percent of the grain grown for ensilage in Noxubee County was destroyed.

BANKS GRASS MITE (Oligonychus pratensis) populations on silage corn began increasing in July in Churchill County, NEVADA, and by early August heavy infestations had developed in many fields and chemical treatments were required. Banks grass mite was noted on corn in the Arkansas Valley of COLORADO about mid-June. Cooler

than normal weather kept populations under economic levels until late July. Economic infestations developed in Pueblo, Crowley, Otero, and Bent Counties in early August. Controls became necessary throughout August in the Arkansas Valley. Scattered infestations of this mite on corn were reported from the north-central and northeastern areas of Colorado. Infestations were present on corn and sorghum in the Panhandle counties of OKLAHOMA from late July into early September but heavy infestations were found only in limited areas. Heavy damage to sorghum was reported from Caddo County for the first time.

SMALL GRAINS

Highlights:

FALL ARMYWORM damaged small grains in Alabama and Oklahoma. HESSIAN FLY caused much less damage to wheat in Kansas this season than in 1971. BROWN WHEAT MITE required controls on 100,000 acres of oats in Texas in late October.

FALL ARMYWORM (Spodoptera frugiperda) damaged several thousand acres of oats, barley, rye, and wheat in various areas of ALABAMA. Larvae of this noctuid were a problem in some newly planted small grains, mainly rye, in western ARKANSAS in September. Fall armyworm damaged early planted small grains in almost all areas of OKLAHOMA from mid-September through mid-October. Late planted fields sustained little or no damage. Larvae caused some damage to seedling wheat in KANSAS, primarily in the southeast counties during the fall.

Larvae of a GELECHIID MOTH (Leucogonia california) caused severe damage to germinating wheat on widespread acreages in Yolo County, CALIFORNIA. This is the first reported commercial damage in the State by this pest.

HESSIAN FLY (Mayetiola destructor) occurred in a 700-acre area of McMinn County, TENNESSEE, where 1-99 percent of grain stalks were infested. Infestation of wheat in 385 acres of mixed wheat and vetch for silage resulted in a 125-ton yield reduction over 1971. Hessian fly populations in wheat stubble in late July were light in ILLINOIS, averaging 4 puparia per 100 tillers throughout the surveyed area in the southern half of the State. A survey of winter wheat in Wayne County in late October showed an average of 239 larvae and puparia per 100 tillers in susceptible varieties and 50 larvae and pupae per 100 tillers in resistant varieties. Scattered light infestations of Hessian fly occurred on spring wheat in NORTH DAKOTA this season, but no economic infestations or damage were found or reported. Hessian fly caused an estimated loss of 570,240 bushels of wheat in KANSAS compared to a loss of 3,031,030 bushels in 1971.

ENGLISH GRAIN APHID (Macrosiphum avenae) infestations were heavier than normal in ARKANSAS. Populations built up to 100-150 per 100 sweeps by early February and 500-600 per 100 sweeps by early March. A few fields in east-central Arkansas were treated in late March for combined infestations of this species and Schizaphis graminum (greenbug). Winged and wingless adults of English grain aphid were observed the third week in May in NORTH DAKOTA. Infestations were prevalent in most eastern and southeastern counties by mid-July, and were widespread but noneconomic over most of the State by the end of July. No damage occurred.

APPLE GRAIN APHID (Rhopalosiphum maidis) was moderate to heavy in wheat in Finney, Wichita, and Greeley Counties, KANSAS, in early November and in Lane County in early December. In OKLAHOMA, Rhopalosiphum padi infested small grains in most areas from mid-January to early April. Counts of 2,000-3,000 per linear foot were reported on rye in Stephens County in late March.

BROWN WHEAT MITE (Petrobia latens) was heavy, 500-2,000 per row foot, on wheat in Donley, Hall, and Childress Counties, TEXAS, by April 14. During late October, heavy damage was noted in Falls County and control measures were applied to approximately 100,000 acres of oats. Brown wheat mite was a problem on wheat only in isolated areas in Curry, Roosevelt, and Quay Counties, NEW MEXICO, in 1972. Infestations were heavy on winter wheat in southeastern COLORADO early in April. Some damage occurred in extremely dry regions and some growers applied controls. Brown wheat mite damaged 6,000 acres of wheat in the Monticello area of San Juan County and some fields in Washington County, UTAH. Infestations elsewhere in the State were light to moderate. Populations in NEVADA began increasing on small grains in late March and by mid-April were heavy in many fields in Pershing County. Irrigation controlled these infestations except for 700 acres which were treated chemically.

Spring migration of BARLEY THRIPS (Limothrips denticornis) in NORTH DAKOTA began in mid-May before most barley had emerged. In early seeded barley, infestations averaged 14 thrips per leaf sheath in mid-July, but most barley escaped losses because of the lateness of the crop.

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) populations in SOUTH CAROLINA were less damaging than the previous 2 years. Where damaging infestations did develop, they occurred primarily on Coastal Bermuda grass and on late-planted sweet corn. Heavy infestations in Bermuda grass and ryegrass lawns and pastures were reported from a number of counties in the eastern half of OKLAHOMA during late September and October.

SAGEBRUSH DEFOLIATOR (Aroga websteri) severely damaged several thousand acres of big sagebrush (Artemisia tridentata) in Churchill, Lander, and Washoe Counties, NEVADA.

GRASSHOPPERS infested turf and pastures statewide in ALABAMA. The most important species were Melanoplus femurrubrum, M. differentialis, and Schistocerca americana. Damage was most serious on 2 to 6-leaf clover seedlings in pastures during fall months, and on reseeded clover and grass sods where grasshoppers, in combination with crickets, destroyed many seedlings and weakened stands.

FALSE CHINCH BUG (Nysius ericae) populations were heavy on about 100,000 acres of rangeland at White Oaks, Lincoln County, NEW MEXICO.

MEDITERRANEAN FRUIT FLY
Ceratitis capitata (Wiedemann)

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1956-1959

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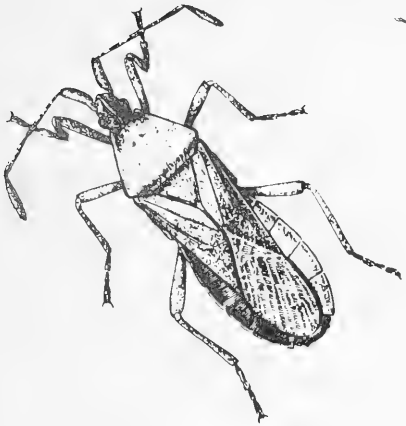

VOL. 23 NO. 9 March 2, 1973

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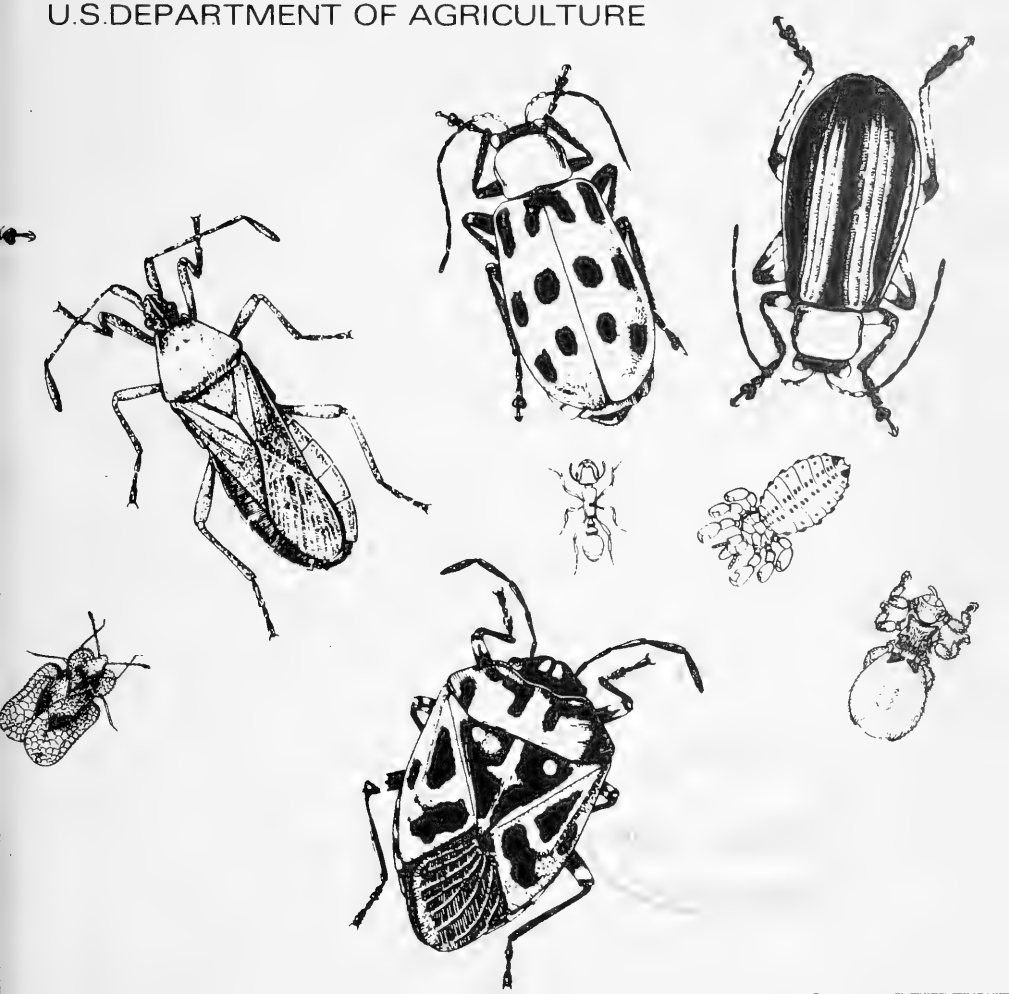
Cooperative Economic Insect Report

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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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

Volume 23 March 2, 1973 Number 9

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ALFALFA WEEVIL egg hatch and larvae in alfalfa terminals observed in southern Oklahoma. (p. 109).

SOUTHERN PINE BEETLE outbreak may continue in North Carolina. Activity of an ENGRAVER BEETLE reported in Alabama. (p. 110).

First EASTERN SUBTERRANEAN TERMITE swarms of season reported in Maryland and Kentucky. (p. 110).

Detection

New State records include an ERIOPHYID MITE from Virginia (p. 109) and a PENTATOMID BUG from Missouri (p. 111).

For new county and island records see page 111.

Special Reports

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

CONTENTS

WEATHER OF THE WEEK ENDING FEBRUARY 26

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

PRECIPITATION: Precipitation early in the week was mostly spotty and light. Fog shrouded the interior valleys of California. Cloudy weather prevailed from the northern and central Rocky Mountains to the Great Lakes. Light scattered snow flurries occurred in portions of this area. Freezing drizzle iced spots in the upper Mississippi River Valley. Drizzle was seen along the western Gulf coast and rain splashed down in central and southern Florida. Fog in California dissipated in a day or so. A storm off the coast of Baja California pumped moist Pacific air across the Mexican border into the dry Southwest. Rain fell from southern California to central and southern Texas. Snow fell at times in the mountains of southern Arizona and southern New Mexico. Warm rain fell on the snow pack in some mountainous sections of Arizona and New Mexico and caused a rapid runoff. By midweek, the storm had crossed northern Mexico and was producing rain as far east as Louisiana. Snow accumulated to 5 inches at Carrizozo and Roldoso, New Mexico. Phoenix, Arizona, received 0.86 inch of rain and 1.25 inches fell at Tucson in the 48 hours ending early Thursday morning. Flurries continued from the northern Great Plains to the Great Lakes. Three inches fell at Detroit, Michigan, Wednesday forenoon. Snow spread over the Northeast late Wednesday and Thursday. A storm off the middle Atlantic coast increased activity in the Northeast. A western storm continued dumping snow in the southwestern mountains from Arizona to Texas. Grand Canyon, Arizona, received a foot of new snow early Thursday and by noon, Weather of the week continued on page 112.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - NEW MEXICO - Averaged less than one per yard on wheat in Curry and Roosevelt Counties. (Mathews).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Generally light, 2-8 per linear foot, on wheat in Curry and Roosevelt Counties. (N.M. Coop. Rpt.). TEXAS - Ranged 0-16 per row foot of small grains in Wilbarger, Foard, Archer, Knox, Haskell, and Throckmorton Counties. Light in Jones and Motley Counties. (Boring).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ALABAMA - All stages light to heavy in association with extreme case of barley yellow dwarf virus on oats planted for erosion control along new highway roadbed in Lee County. (McQueen).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 0-10 per row foot in small grains in Throckmorton, Haskell, Knox, Archer, Wilbarger, Foard, and Wichita Counties. Light in Jones County. (Boring).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Egg counts per square foot by county: February 10 - Garfield, Alfalfa, Woods, Woodward 9-16; Major 33; Grant 64. February 15 - Payne 130. Egg hatch noted February 16 in Stephens County and larvae found in alfalfa terminals in southern Bryan County February 21. (Okla. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Averaged 550+ per 100 sweeps of alfalfa at Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

TOMATO PINWORM (Keiferia lycopersicella) - FLORIDA - Caused severe damage to 200 acres of 9 to 10-week-old tomatoes in Immokalee area, Collier County. (Fla. Coop. Sur.).

ORNAMENTALS

AN ERIOPHYID MITE (Trisetacus juniperinus) - VIRGINIA - Severely infested Japanese garden juniper, Juniperus procumbens, in Falls Church, Fairfax County. Collected January 18, 1973, by J.A. Weidhass. Determined by H.H. Keifer. This is a new State record. (Weidhaas).

LONGTAILED MEALYBUG (Pseudococcus longispinus) - FLORIDA - Nymphs and adults severely infested 24 of 40 sago palms, Cycas revoluta, around public building at Tampa, Hillsborough County. (Fla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Abundant on weeds, ornamentals, and bedding plants in all areas of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Outbreak detected during November and December 1972 on Grandfather Ranger District of Pisgah National Forest in McDowell County. Estimated 997 actively infested trees per 1,000 acres of host type in 6-12 locations. Brood densities averaged 461 forms per square foot of bark surface. This condition conducive to continuation of outbreak in area. (USFS). ALABAMA - Group of ten shortleaf pines, ranging from 15 to 25 feet high at edge of 1972 infestation in Chambers County recently died. This is further evidence that overwintered broods are active and pose threat to pines in State during 1973. (McQueen).

AN ENGRAVER BEETLE (Ips calligraphus) - ALABAMA - First new pitch tubes of season noted on 60-foot pine tree in Auburn, Lee County. Moved from nearby tree killed in 1972 which now has light overwintering brood. Fresh pitch tubes indicate adults in flight. Activity seems earlier than usual as temperatures in area averaged 6 degrees below normal. (McQueen).

DEODAR WEEVIL (Pissodes nemorensis) - MISSISSIPPI - Leader damage evident on 15-foot loblolly pines in Choctaw and Webster Counties. (Robinson).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 4 confirmed cases reported in continental U.S. during period February 11-17, all in South Texas. Total of 42 cases reported in Mexico. Number of sterile flies released in U.S. this period totaled 64,830,000, all in Texas. Total of 130,970,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Survey for overwintering adults in infested counties still negative. Overwintering adults have been located in State. (Robinson).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 2 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - Heavy on cattle in Delaware County, moderate in Osage County, and light in Payne County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus, heavy on cattle in Major, Delaware, and Cotton Counties, moderate in Payne and Osage Counties. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Lincoln County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

OLDHOUSE BORER (Hylotrupes bajulus) - TENNESSEE - All stages collected February 22, 1973, by C.D. Gordon in home in Davidson County. Larval damage to furniture extensive. This is a new county record. (Gordon).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND - First swarm of season reported at Beltsville, Prince Georges County. Peak flight activity not expected for another 4 weeks. (APHIS). KENTUCKY - First record of swarming received February 22 from Pendleton County. (Barnett, Scheibner).

MISCELLANEOUS WILD PLANTS

COTTON APHID (Aphis gossypii) - FLORIDA - Adults severely infesting stems and leaves of 40 percent of 500 purple passion plants, Gynura aurantiaca, at Apopka, Orange County. (Fla. Coop. Sur.).

STORED PRODUCTS

INDIAN MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Light to moderate in miscellaneous feed in store at Roswell, Chaves County. (N.M. Coop. Rpt.).

BENEFICIAL INSECTS

A PENTATOMID (Euthyrhynchus floridanus) - MISSOURI - This predaceous species collected on oak at Portageville, New Madrid County, September 28, 1972, by E.C. Houser. Determined by W.S. Craig. This is a new State record. (Munson).

AN ICHNEUMON WASP (Bathyplectes curculionis) - MISSOURI - This parasite of Hypera postica (alfalfa weevil) recovered from alfalfa field in Ray County February 6, 1973, by J.L. Huggans. This is a new county record. (Munson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Lint cleaner inspections showed averages of 80 per bale in Bryan County and 60 per bale in Coal County. (Okla. Coop. Sur.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Mounds numerous on rangeland in southern part of Brazos County, near Millican. (Williamson).

DETECTION

New State Records - AN ERIOPHYID MITE (Trisetacus juniperinus) - VIRGINIA - Fairfax County (p. 109). A PENTATOMID (Euthyrhynchus floridanus) - MISSOURI - New Madrid County (p. 111).

New County and Island Records - ACACIA PSYLLID (Psylla uncatoides) HAWAII - Lanai (p. 112). AN ICHNEUMON WASP (Bathyplectis curculionis) MISSOURI - Ray. (p. 111). OLDHOUSE BORER (Hylotrupes bajulus) TENNESSEE - Davidson (p. 110).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/16-22, BL - GRANULATE CUTWORM (Feltia subterranea) 4.

General Vegetables - LEAF MINER FLIES (Liriomyza spp.) generally moderate, occasionally heavy, in snap beans at Kurtistown, Hawaii. About 80 percent of leaves with larval mines. Light in small plantings of green onions at Manoa and Koko Head, Oahu; ranged 10-17 percent of leaves infested. (Matayoshi, Otsuka).

Fruits and Nuts - Larvae of a NOCTUID MOTH (Phlegetonia delatrix) caused heavy damage to terminals of roadside Eugenia cumini at Kipahulu and Hana, Maui; eggs heavy on young leaves. (Miyahira).

Man and Animals - Mosquito collections during January from 58 light traps on Oahu totaled 496 Aedes vexans nocturnus and 6,299 Culex pipiens quinquefasciatus. Aedes catches ranged 0-280 at Ewa. Culex catches ranged 0-4,665 at Waipahu. (Mosq. Control Br. State Dept. of Health).

Forest and Shade Trees - Erratic populations of a NOCTUID MOTH (Melipotis indomita) ranged trace to heavy under loose bark and debris at bases of kiawe (Prosopis pallida) trees from Waianae to Ewa and Hickam Air Force Base, Oahu. ACACIA PSYLLID (Psylla uncatoides) nymphs and adults noted on young terminals of Acacia koa near Lanai City, Lanai, February 6, 1971, for a new island record. P. uncatoides has now been reported from every major island except Molokai. (Beardsley).

Weather of the week continued from page 108.

Guadlupe Pass, Texas, and Flagstaff, Arizona, received 11.5 inches of new snow bringing their seasonal totals to 116.7 inches. Not in the last 2 decades has so much snow fallen in any season to the end of February. Fog combined with snow in parts of eastern Arizona Thursday afternoon and evening. This increased the hazards of automobile driving. As the weekend approached, moist gulf air flowed northward over the western Great Plains continuing precipitation over the southern Rocky Mountains. Winds blowing across the Great Lakes picked up moisture and produced snow from the Lee shores of the Lakes to New England. Fair skies prevailed over the central Great Plains. The weekend precipitation included light to moderate rain along the Pacific coast, light sprinkles along the gulf coast, and snow flurries from the Great Lakes to the northern and middle Atlantic coast. Strong winds accompanied rain in some places in the Far West. Snow accumulated to about 10 inches in spots near the Great Lakes.

TEMPERATURE: Fair weather prevailed over much of the Nation early in the week. Temperatures Monday afternoon, February 19, ranged from below freezing in the central Rocky Mountains and northern Great Plains to the 60's in the Florida Peninsula and 70's in southern California. Temperatures dropped 10 below freezing Tuesday morning over the entire nation except along the Pacific coast, the Mexican border, the Gulf of Mexico and the southern Atlantic coasts. Tallahassee, Florida, registered 31 degrees Tuesday morning. Subzero weather occurred in northeastern North Dakota, northern Minnesota, and the central Rocky Mountains. Weather of the week continued on page 122.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1972
(Continued from page 99)

FORAGE LEGUMES

Highlights: ALFALFA WEEVIL heavy on alfalfa in many Eastern States; most heavy damage in Maryland restricted to western area, decline noted in southwest Pennsylvania for first time since 1969. This weevil reported for first time in 27 counties in Iowa, 28 counties in Texas, and is now statewide in Kansas. PEA APHID was heavy on alfalfa in some areas. ALFALFA LEAF BLOTCH-MINER was of some concern in several Northeastern States.

ALFALFA WEEVIL (Hypera postica) counts averaged 21 adults and 35 larvae per 100 sweeps May 23 in Berkshire County, MASSACHUSETTS. By the third week of June no adults were collected. Larval populations increased rapidly to 2,480 per 100 sweeps by June 3, remained above 2,000 for 14 days, then decreased to 27 per 100 sweeps by June 27. Damage was spotty.

Larval populations increased in all regions of PENNSYLVANIA except the southwest where a decline was recorded for the first time since 1969. Acreage treated for alfalfa weevil increased only slightly in 1972. Alfalfa weevil larvae were first noted on alfalfa in DELAWARE during early April. Injury was moderate in a few fields with counts of 50 larvae per sweep but damage was light in most areas. Populations and damage were slightly heavier than 1971 levels in MARYLAND. Most economic damage was restricted to 6 western counties. Populations were very light in areas outside these counties. The first larval activity was reported April 7 with first-instar larvae ranging 1-2 per 50 tips. Populations increased slowly to 1-5 larvae per 50 tips by mid-April. Early May levels ranged 5-40 per 50 tips in central areas and controls were applied on 2,000 acres. Pupation peaked late in May and was complete by the second week in June. Damage decreased below economic levels the first week in June. Damage by alfalfa weevil was heavier in WEST VIRGINIA than in the past 3 years. Heaviest damage occurred along the Ohio River and some southern counties.

Alfalfa weevil eggs began hatching in Charlotte County, VIRGINIA, March 1, with larvae ranging 5-7 per alfalfa tip. By March 3, about 75 percent of the tips in Powhatan County were infested with first and second-instar larvae. By March 31, about 60 percent of the fields surveyed exceeded economic levels. Damage was heaviest in the southern Piedmont and Coastal Plain areas. By April 21, average defoliation was 15 percent for all fields surveyed. Infestations were heavier than the previous 2 years with severe damage in the northern Piedmont counties of Orange, Culpeper, Stafford, Fauquier, and Clarke. Alfalfa weevil populations throughout SOUTH CAROLINA were not as heavy as in 1971. Many growers obtained adequate control with one treatment rather than the normal two.

Alfalfa weevil was heavy on the 3,000 acres of alfalfa still grown in ALABAMA, and controls were applied. This pest also damaged white clover, vetch, and other legumes in the State. Larvae were first noted on alfalfa in Tipton County, TENNESSEE, during the second week of March. By March 24, populations in older fields were above control levels, while in new fields they were still non-economic. By late April, damage in older fields was moderate to

heavy. Where no controls had been applied, damage was severe and 5 or more larvae per stalk were common. Controls applied by April 15 gave moderate to good results. Populations in KENTUCKY after the first cutting did not reach control levels again. The first significant number of early larvae were found in Kentucky in mid-February on about 10 percent of alfalfa tips. First major populations developed in the south-central and western areas in mid-April. Average infestations at that time ranged from 60 to 75 percent. During April, May, and June some untreated alfalfa had infestations of 2,500-3,500 larvae per 100 sweeps. In these fields, defoliation ranged 75-90 percent. Statewide losses on untreated alfalfa averaged about 50 percent. Larval populations began to decline in early June and by early July most fields in the northern areas exhibited larval counts of less than 50 per 100 sweeps. Almost all alfalfa in Kentucky required treatment in 1972.

Alfalfa weevil larvae were first found on April 11 in Clinton County, OHIO. By May 3, 10-25 percent of alfalfa terminals in Holmes County were damaged. Damage reached 25 percent in Noble County by May 10. Destruction of first-cutting alfalfa occurred in Auglaize, Madison, and Wayne Counties. Adult weevils were first found in the northern two-thirds of the State on August 1, two months earlier than usual. Mid-August egg counts made in Pickaway and Hancock Counties were 14 per square foot and 71 per square foot, respectively. Many growers in MICHIGAN cut alfalfa early (late-bud to first-flowers stage) to avoid damage by alfalfa weevil and thus reduced spraying for control. Alfalfa weevil occurred on all alfalfa grown in INDIANA. First larvae were present by the end of March in most southern districts and 21 days later they had removed 50 percent of the leaf surface in some fields. Peak larval populations occurred between April 24 and June 6. Leaf loss was 50+ percent in some fields along the Ohio River by the end of April.

Alfalfa weevil development began much earlier than normal in ILLINOIS. Unseasonably warm weather in late February resulted in early egg hatch and damage. With favorable weather conditions during April, larvae increased tenfold in some southern counties, where larvae averaged 1,300 per 100 sweeps in Jackson and Perry Counties. Within 7 days, counts increased 10 to 100 times in the southern third of the State. The southwest crop district averaged over 8,300 larvae per 100 sweeps. During the first week of May, economic populations of 20 larvae per sweep could be found throughout the southern half of the State. Peak numbers in the Johnson County area ranged 50-200 larvae per sweep. Little economic damage was evident in the northern half of the State. About 104,000 acres of alfalfa were treated in Illinois in 1972. Damage to first-crop alfalfa was light in all areas of WISCONSIN and no controls were necessary in 1972. Larval parasitism by Bathyplectes sp. (an ichneumon wasp) ranged 80-96 percent in the southern area early in June and 33-80 percent in the northwest early in July. Microctonus aethiops (a braconid wasp), an adult parasite of alfalfa weevil, was released in Sauk County in mid-June. Alfalfa weevil egg hatch and first larvae were noted during the week of May 15 in MINNESOTA. Egg laying and hatch extended over many weeks and larvae could still be found July 19. Populations were light and of no economic importance on alfalfa. Six counties were found infested for the first time in Minnesota. Alfalfa weevil larvae

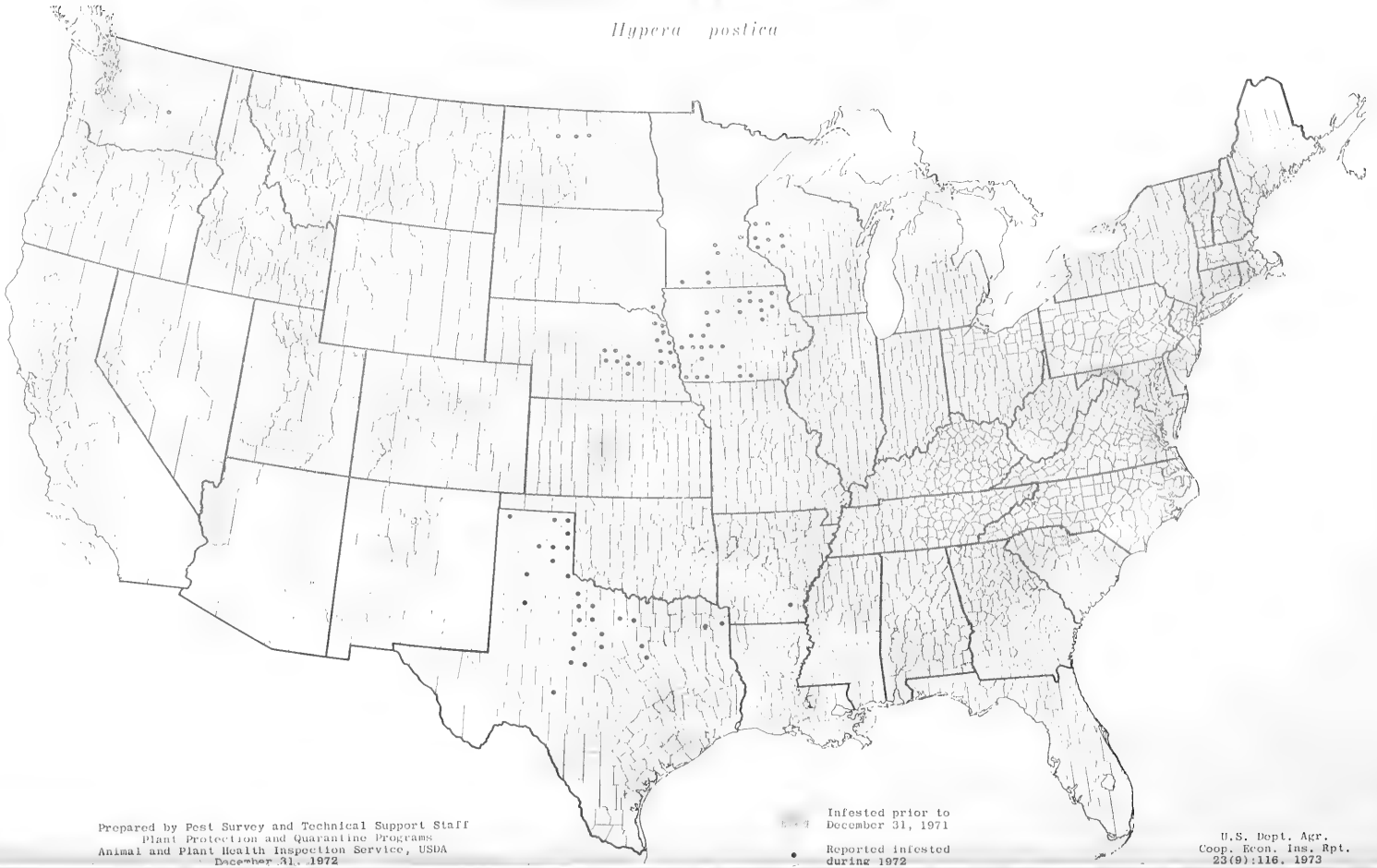
were first observed on alfalfa May 11 in Henry County, IOWA. Larvae and/or adults were collected in 27 previously unreported counties in 1972. The peak larval population of 10-22 per sweep was observed in Wayne County May 26 where 25-50 percent of the tips showed feeding. Larvae collected June 7 in Wayne, Mahaska, and Appanoose Counties were 33-93 percent parasitized by Bathyplectes curculionis (an ichneumon wasp).

Alfalfa weevil continued to be the most important insect on alfalfa in MISSOURI. Overwintering egg counts made in the fall in southern areas ranged 20-1,275 per square foot. Hatching was observed in late February in southern areas and by mid-March as far north as the Missouri River. On April 15, larvae ranged 200-1,500 per 10 sweeps in all southern areas. Adults ranged 1-40 per 10 sweeps by early May and by mid-May, warranted controls in a few fields. Economic infestations were observed throughout Missouri with the exception of the northwest area. Infestations developed earlier in ARKANSAS than any time since the pest was first recorded in the State in 1963. Larvae were active in Logan County in late February. Viable eggs were collected in Washington County in late February, followed by the first larval collection in the area March 2. This was about one month earlier than in 1971. There was a long period of egg hatch and larval infestation which indicated that a large percentage of the eggs that were laid the previous winter and spring survived and hatched. In Logan County some fields were treated as many as 3 times. Alfalfa weevil larvae were heavy on alfalfa in Burleson County, TEXAS, January 28. Larvae ranged 20-200 per square foot and eggs 20-132 per square foot. Alfalfa weevil was found for the first time in 29 Texas counties in 1972. All stages of alfalfa weevil were active in the southern half of OKLAHOMA by mid-February. Egg counts of 1,000+ per square foot were found in Grady County by early March. Heavy damage occurred in the southeastern two-thirds of the State during March, April, and May. Activity continued until the end of June in some areas. Adults began moving back into fields in early November.

Alfalfa weevil became a major pest of alfalfa in KANSAS for the first time. Most severe damage occurred in the southeast where up to 75 percent of terminals were damaged in some fields. By late April, some heavy infestations were found in Barber and Sumner Counties and by the second week of May, some heavily infested fields in Elk, Chautauqua, Montgomery, Labette, Crawford, and Bourbon Counties were 40-80 percent defoliated. Adult weevils were heavy in alfalfa in many southeast counties during mid-September indicating movement back into fields for fall egg laying. Alfalfa weevil was collected during May in Phillips County and is now found in all counties in Kansas. Alfalfa weevil was recorded for the first time in 17 NEBRASKA Counties in 1972. Populations generally increased throughout the State, reaching economic levels in a small number of fields in Dawson and Lincoln Counties. Populations peaked about June 5 when larvae in the Gothenburg and Cozad area ranged 272-2,840 per 100 sweeps before cutting. In cut fields, larvae ranged 2-147 per 100 sweeps. Populations in Otoe County peaked May 29, when larvae averaged 38 and adults 0.54 per 100 sweeps in 12 fields. A few weevils were still active in Dawson County fields September 20-21. Populations are expected to increase next year. Alfalfa weevil larvae were damaging irrigated alfalfa by June 9 in McKenzie and Williams Counties, NORTH DAKOTA. Infestations in some fields averaged 5,000 larvae per 100 sweeps.

Distribution of Alfalfa Weevil

Hypera postica



Infested prior to December 31, 1971

Reported infested during 1972

Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
December 31, 1972

U.S. Dept. Agr.
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Larvae and damage were evident on second and third cuttings until the end of September. Infestations and damage were much heavier than in 1971 due to delayed harvest of all 3 cuttings.

Alfalfa weevil was heavier than normal in eastern COLORADO. Adults became active by the first week in March. Egg laying was noted by mid-March. Larval populations were encountered in early April in the Arkansas Valley and in mid-May in western and northeastern areas. Larvae ranged 150-300 per 10 sweeps in many areas with a large acreage of alfalfa receiving treatments. Alfalfa weevil injury was unusually severe over much of UTAH, causing an estimated $4,000,000 loss to forage and seed alfalfa crops. Parasitism by Bathyplectes curculionis (an ichneumon wasp) was generally heavy during late May and June. Alfalfa weevil caused heavy damage to alfalfa in Custer, Richland, Dawson, Wibaux, Fallon, and Carter Counties, MONTANA. A total of 36,000 acres was lost in the first and second cuttings. Alfalfa weevil larvae required controls on 30,000 acres of alfalfa in Canyon County, IDAHO, by May 25. This was twice the acreage treated in 1971. By early June, larvae ranged up to 100 per sweep in Lincoln County. Jefferson County infestations in June were heavier than recorded for many years. In Twin Falls County, larvae ranged 492-698 per 25 sweeps June 26 and 50 per 25 sweeps July 21. Over 150,000 acres were treated statewide. Alfalfa weevil egg laying began in NEVADA in late March but unfavorable weather retarded hatch and larval development until May when economic populations developed rapidly. Peak larval populations (up to 300+ per sweep) and damage occurred in late May and early June. Controls began in mid-May and continued until mid-June. Alfalfa weevil continued to be a serious pest of alfalfa in central and southern OREGON, where damage was severe in Crook, Grant, Jefferson, and Klamath Counties.

CLOVER HEAD WEEVIL (Hypera meles) was a serious pest to crimson clover seed production in central ALABAMA. Only 900 acres were harvested in 1972 as compared to 1,200 acres in 1971 and 2,220 acres in 1970.

PEA APHID (Acyrthosiphon pisum) population peaks occurred statewide in OHIO during late June and late August. Record infestations in alfalfa were 20 aphids per sweep in Ashland County and 30 per sweep in Mercer County during the second peak. Predators, especially Nabis americoferis, responded rapidly and by September 7 had undergone a 5-50 fold increase in number. Populations remained below normal throughout the season in ILLINOIS and caused very little economic damage. By mid-May, populations ranged 100-500 per 100 sweeps in fields in the southern half of the State. The heaviest infestations occurred in Whiteside and Carroll Counties and ranged 10-50 per sweep. Egg hatch began about April 27 in 4-inch alfalfa in WISCONSIN. Winged forms were noted May 24. Pea aphid counts of 1-3 per sweep were typical early in June, with up to 60 per sweep in some fields. Heavy populations were observed in the northwest in late June, where alfalfa contained 30-70 per sweep and peas 20-40 per sweeps. Counts of 70 per sweep were noted in southwestern area alfalfa in September. Predators were common in alfalfa most of the growing season and parasitism and disease increased late in October.

Pea aphid was heavy (up to 1,000 per sweep) on second-crop alfalfa in Traill, Cass, Richland, and Ransom Counties, NORTH DAKOTA. Second-cutting yields were reduced in areas where moisture was short. Moderate to heavy infestations in alfalfa in several south-central and southwest OKLAHOMA counties by early March and in the rest of the State, except the Panhandle, by late March. Scattered, moderate infestations continued through June. Some problems were observed on first-cutting alfalfa in spring in the Arkansas Valley of COLORADO. Most populations were noneconomic with numbers below 40 per 10 sweeps. Very few control efforts were made or needed. Pea aphid required controls on several thousand acres of alfalfa in Millard and other counties in UTAH. Populations were lighter than normal in several counties where the summer was hotter than usual. Infestations in IDAHO were extensive. There were 150,000 acres of alfalfa infested on the Snake River Plains with some fields treated 3 times to prevent plant stunting. Collections varied from 800 aphids per 25 sweeps in Twin Falls County alfalfa June 26 to 5,000 per sweep in "hot spots" on August 22.

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) larvae infested 40-50 percent of leaves before first cutting in many alfalfa fields in MAINE. All fields checked were infested, although this is the first year this pest has been reported in the State. (See CEIR Vol. 22, No. 37:616). This blotch-miner was found in all alfalfa in NEW HAMPSHIRE. Infestation ranged 40-90 percent of leaves mined. Sampling began May 23 in Berkshire County, MASSACHUSETTS, where 303 adults per 100 sweeps were collected from alfalfa. By May 30, mines were becoming evident, and adults had increased to 593 per 100 sweeps. Damage ranged from light to heavy. The peak adult sample was taken June 3 with 1,210 per 100 sweeps. Damage reached 26 percent of leaflets mined by mid-June and peaked July 17 with 40 percent of leaflets mined. Adults were still present in mid-September and mines were evident through the end of September. Heavy alfalfa leaf blotch-miner adult populations were first found in VERMONT in Hartland, Windsor County, May 26. It has now been found infesting alfalfa in all counties of the State. A. frontella adults were collected in 7 fields in Northampton and Bucks Counties, PENNSYLVANIA, May 11. Mines were found in 0.24-38 percent of leaflets sampled in 4 alfalfa fields in the same areas July 3.

ALFALFA CATERPILLAR (Colias eurytheme) larvae were light on alfalfa in Dona Ana, Eddy, Chaves, Lea, Roosevelt, Curry, and Quay Counties, NEW MEXICO, during June. Late season buildup was evident in fourth and fifth cuttings of alfalfa in Chaves and Eddy Counties. Many fields required treatment. Larvae damaged alfalfa in ARIZONA from July through October to the extent that cutting did not control population buildups. Growers generally treated fields in July in Yuma County, August in Maricopa County, and October in Graham County. Alfalfa caterpillar was very heavy on alfalfa in the Curlew Valley of Box Elder County, UTAH, in late summer. Infestations were generally light to moderate elsewhere in the State.

GREEN CLOVERWORM (Plathypena scabra) was active in alfalfa in OKLAHOMA from late March into mid-November. Counts of 25-40 per 10 sweeps were found in many western counties from late September to mid-November. Larvae were more common than usual in alfalfa in INDIANA, economic in only one field in Jennings County. Counts ranged up to 6 per sweep in late August.

GRASSHOPPER populations were slightly heavier than normal in ILLINOIS and resulted in light feeding damage in alfalfa and clover. Numbers were as high as 30 per square yard in roadside grasses in several northern counties during July. The fall adult survey in alfalfa and clover indicated a State average of about 5 grasshoppers per square yard. Approximately 83,000 acres received control treatments. Nymphs of Melanoplus femurrubrum and M. sanguinipes, were first noted in forage crops in WISCONSIN June 7. M. differentialis was present by June 14. Adults of M. femurrubrum were present from August 1 into early November. Surveys conducted in early August revealed moderate infestations (10-30 per sweep) in scattered localities throughout central and southern Wisconsin and severe infestations (30+ per sweep) across the southern tier of counties. Despite heavy populations in these areas, damage to forage crops was minimized by good plant growth due to frequent rains and little treatment was necessary. Grasshoppers showed a marked decrease in MINNESOTA over 1971. An estimated 92,000 acres of forage crops had economic populations compared to about 160,000 acres in 1971. The dominant species continued to be M. femurrubrum. Indications are that in 1973 infestations will be scattered and localized.

SPIDER MITES (Tetranychus spp.) began increasing rapidly on seed alfalfa in Churchill, Humboldt, and Pershing Counties NEVADA in June. Infestations reached economic levels in late June through early August when 3,800+ acres were treated. Another 2,700 acres were treated for these pests and for aphids and lygus bugs.

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) ranged moderate to heavy on soybeans in Dorchester, Wicomico, and Worcester Counties, MARYLAND. Populations were above normal in May and early June. In June, adults ranged 1-10 per row yard, with 800 acres of 3 to 5-inch soybeans treated in Wicomico and Dorcester Counties. Larvae were present in most fields by late June. The heaviest mid-July larval counts ranged 7-20 per row foot with all instars present. An estimated 10,000 acres were treated in July. Pupation was 60 percent complete by August. Second-generation larvae ranged light to moderate. About 1,000 acres required controls during August and September in Somerset and Wicomico Counties, Maryland. Mexican bean beetle caused 5 percent foliar loss to soybeans early in the season in Breckinridge County, KENTUCKY. Populations increased slowly through summer and by August 25 had reached moderate to high levels, with 39 adults and 52 larvae per 360 row feet in Henderson County. A population buildup was first noticeable on soybeans in NORTH CAROLINA in the northeastern counties in mid-June. Up to 4 larvae per square foot were observed in scattered fields in the Camden County area by early July. Defoliation ranged up to more than 70 percent in some fields in the northeastern counties and as many as 3 control applications were made.

GREEN CLOVERWORM (Plathypena scabra) was first reported as a minor problem in KENTUCKY July 14 in Hickman County. Populations peaked in western counties during late August when larvae averaged 400 per 360 row feet at one location, 5 per linear foot at another. A very heavy population was observed in Hancock County. Damaging infestations of green cloverworm were reported on about 27,000 acres of soybeans in east-central and southeastern KANSAS.

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) reached damaging levels (30 percent defoliation) in Walton County, FLORIDA, by July 25 and by August 25 in Gadsden and Alachua Counties. Populations were heavier and occurred earlier on soybeans in the State than in previous years, with most infestations requiring one or two chemical treatments to prevent complete defoliation. Velvetbean caterpillar was a pest in numerous isolated fields in the coastal counties of ALABAMA, with the heavier numbers in the extreme southwest area.

PEANUTS

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) larval damage to peanuts in NORTH CAROLINA was 3 to 5 times more severe in 1972 than in 1971. This pest caused economic losses to about 50,000 acres in Northampton, Halifax, Edgecombe, Martin, Bertie, and Hertford Counties. In VIRGINIA, damage was greater in 1972 than in the past several years in Nansemond, Isle of Wight, Sussex, Southampton, and Prince George Counties. Damage ranged as high as 40-50 percent in some peanut fields.

REDNECKED PEANUTWORM (Stegasta bosqueella) appeared in peanuts last week of June in OKLAHOMA and by late August and early September 75-85 percent of the terminals were infested in most areas. A late season buildup on peanuts in Roosevelt County, NEW MEXICO, was noted in October. Many fields showed 75 percent of terminals damaged. Due to the lateness of the growing season, controls were not applied.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations were detected in early July in Comanche, Erath, Eastland and Brown Counties, TEXAS. Damage occurred in up to 70 percent of all dryland peanut plants.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) was more widespread and more damaging to peanuts than any previous season in ALABAMA. Damaging infestations required controls throughout the 9 southeastern counties. In the Northampton and Halifax County area of NORTH CAROLINA, spots up to one acre in size in peanut fields were observed with advanced yellowing and dead leaves. Webbing, with thousands of mites per leaf, was conspicuous in smaller spots.

COTTON

The first large scale BOLL WEEVIL (Anthonomus grandis) emergence in TEXAS was reported from the lower Rio Grande Valley during the week of June 12. In mid-June, adults began to appear in older cotton in the Rolling Plains area, and by late June were increasing rapidly in most infested areas of the State. Punctured square counts in the south-central, Blacklands, and north-central areas ranged 1-80 percent. First boll weevil adults of the season in OKLAHOMA were taken in traps in Jackson County May 16 and the first punctured squares were found in mid-June. Punctured squares ranged light to moderate (less than 25 percent) through July in all areas. Scattered fields were economically infested in most areas of Oklahoma during August and September. Boll weevil was heavier and more widespread in ARKANSAS in 1972 than in 1971. This trend has been underway for several years as winter weather has not been cold enough to reduce overwintering weevils significantly since January 1963.

Boll weevil infestations were generally widespread throughout the Bootheel area of MISSOURI with the heaviest infestations concentrated in the areas along Crowleys Ridge in Stoddard and Butler Counties. The first overwintered boll weevils in TENNESSEE were caught in sex-lure traps during the week ending May 5 in McNairy and Hardeman Counties. By mid-June, overwintered weevils were being found in cotton throughout the southern Tier of counties, and some feeding signs were noted.First-generation weevils began to emerge by mid-July and punctured square counts ranged 1-35 percent. By late July, the first-generation emergence had peaked, and punctured square counts ranged 1-55 percent. Second generation emergence began during the week ending August 11, and counts ranged 4-95 percent punctured squares. Weevils continued to damage squares until about mid-September. Boll weevil was by far the most serious pest of cotton in Tennessee in 1972. Boll weevil began emerging from hibernation in Johnston County, NORTH CAROLINA, April 21. During early August, 22 percent of fields checked had populations at or above control levels. In Northampton County, about 51 percent of 768 fields checked during July required treatment.

Boll weevil counts on presquare cotton on 38 farms in 10 ALABAMA counties revealed a high number of weevils had successfully overwintered. First reported overwintered weevils occurred in flight April 2 at Headland, Henry County. First weevil emergence was noted in early June. Populations were heavy throughout Alabama all during the growing season. Boll weevil emergence began in MISSISSIPPI during mid to late May. Infestations averaged 3 percent statewide by mid-June.

BOLLWORM (Heliothis zea) caused only minor damage in most cotton in NEW MEXICO. Controls were necessary in an area including southern Chaves and northern Eddie Counties. Beneficial insect populations remained heavy in most fields this season and aided in the control of this pest. A general increase in H. zea activity was noted in most cotton-growing areas of TEXAS, except in the South and High Plains areas. During late July, populations declined with only isolated cases of heavy activity noted. In OKLAHOMA, H. zea remained light all season in most fields that were not treated for other cotton pests. In treated fields, damage was moderate to heavy by mid-August. TOBACCO BUDWORM (H. virescens) began increasing at this time and made up 70-100 percent of the bollworm population on cotton in many areas of Oklahoma by September. Tobacco budworm was the heaviest ever observed on cotton in ARKANSAS. In Chicot and Ashley Counties conventional controls were completely ineffective and about 500 acres of cotton were plowed under as it was not worth harvesting. In late September infestations were as high as 40,000 larvae per acre.

BOLLWORMS (Heliothis spp.) were generally very light on cotton throughout KENTUCKY, except for heavy infestations in Warren, Logan, Todd, and Barren Counties. In NORTH CAROLINA, Heliothis spp. eggs began appearing on cotton during the second week of July in Scotland County. The number of acres severely damaged (25+ percent boll loss) was 50 percent greater than in 1971 in many southern Coastal Plain counties. Counts of 50+ percent damaged bolls were observed in fields of Harnett, Cumberland, Hoke, Scotland, and Robeson Counties. Heliothis spp. became pests of cotton throughout ALABAMA following a buildup of 2 or more generations on

clover, vetch, and corn. Damage was held at a minimum by the proper timing of controls made possible by increased surveys. First Heliothis spp. eggs were noted in MISSISSIPPI in early June. The first larval generation was of little economic importance. Damaged squares ranged 2-3 percent by mid-July. Infestations were spotty and severe in some southern and delta counties.

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) infestations increased in many northern counties of TEXAS during the week of June 13. This fleahopper continued to be the dominant pest of cotton in the Blacklands during the remainder of the month. In early July, it was the major problem in the Rolling Plains area. Cotton fleahopper was active in OKLAHOMA by mid-June and heavy infestations were present in many southwestern counties from mid-June to mid-July.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) populations on cotton throughout NORTH CAROLINA were held in check early in the season by cool weather. However, by July numbers had reached control levels in 10 percent of fields checked in Scotland County. Twospotted spider mite was largely confined to the central and northern areas of ALABAMA during the 1972 season. However, this spider mite was more of a problem statewide this season than for more than 5 years, probably due to a heavy overwintering population. STRAWBERRY SPIDER MITE (T. turkestani) infestations were widespread throughout the Bootheel area of MISSOURI with the primary concentration in New Madrid, Pemiscot, and Mississippi Counties. By August 11, 35.10 percent of the cotton fields scouted were infested with spider mites, mainly T. turkestani.

TOBACCO

GREEN PEACH APHID (Myzus persicae) alates moved into tobacco in southern MARYLAND about July 10. By July 21, infested plants ranged 2-15 per 50 plants in Prince Georges and Charles Counties. About 20 percent of the growers in southern areas applied pre-plant systemic treatments. Control costs were estimated at about $700,000. Damage to the tobacco crop was light in 1972, and below that of 1971.

TOBACCO FLEA BEETLE (Epitrix hirtipennis) damage was severe and common on tobacco in southern OHIO from June through August. By early September, every leaf in several Gallia and Lawrence County beds showed moderate to heavy damage. Tobacco flea beetle damage to tobacco in plant beds in KENTUCKY was heaviest in Scott, Hardin, and Logan Counties. Newly transplanted tobacco exhibited some foliar loss with the heaviest losses (about 10 percent) in Woodford, Shelby, and Lincoln Counties. Populations were light during spring and early summer but increased steadily and peaked in August. Populations were heaviest in Green County with about 20 per plant but counts in most areas of the State averaged fewer than 10 per plant. Overwintered tobacco flea beetle adults were less numerous in VIRGINIA than in 1971 and were held far below economic levels throughout most of the season.

TOBACCO HORNWORM (Manduca sexta) infestations were generally below economic levels in most areas of KENTUCKY. Heavy infestations occurred on tobacco in Barren, Anderson, Marshall, Christian, Pulaski, and Caldwell Counties during July and August.

SUGAR BEETS

ARMY CUTWORM (Euxoa auxiliaris) problems developed early in June in the Red River Valley of MINNESOTA with sugar beets and some sunflowers being damaged. A total of 5,500 acres of sugar beets required reseeding.

The first SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) adults of the season in NORTH DAKOTA emerged May 23 with peak fly emergence about June 9. The first eggs were seen May 31 and hatch began June 6. During mid-June, larvae averaged 20 per plant on untreated beets and ranged up to 150 per plant by the end of June. In treated sugar beets, larvae ranged up to 60 per plant.

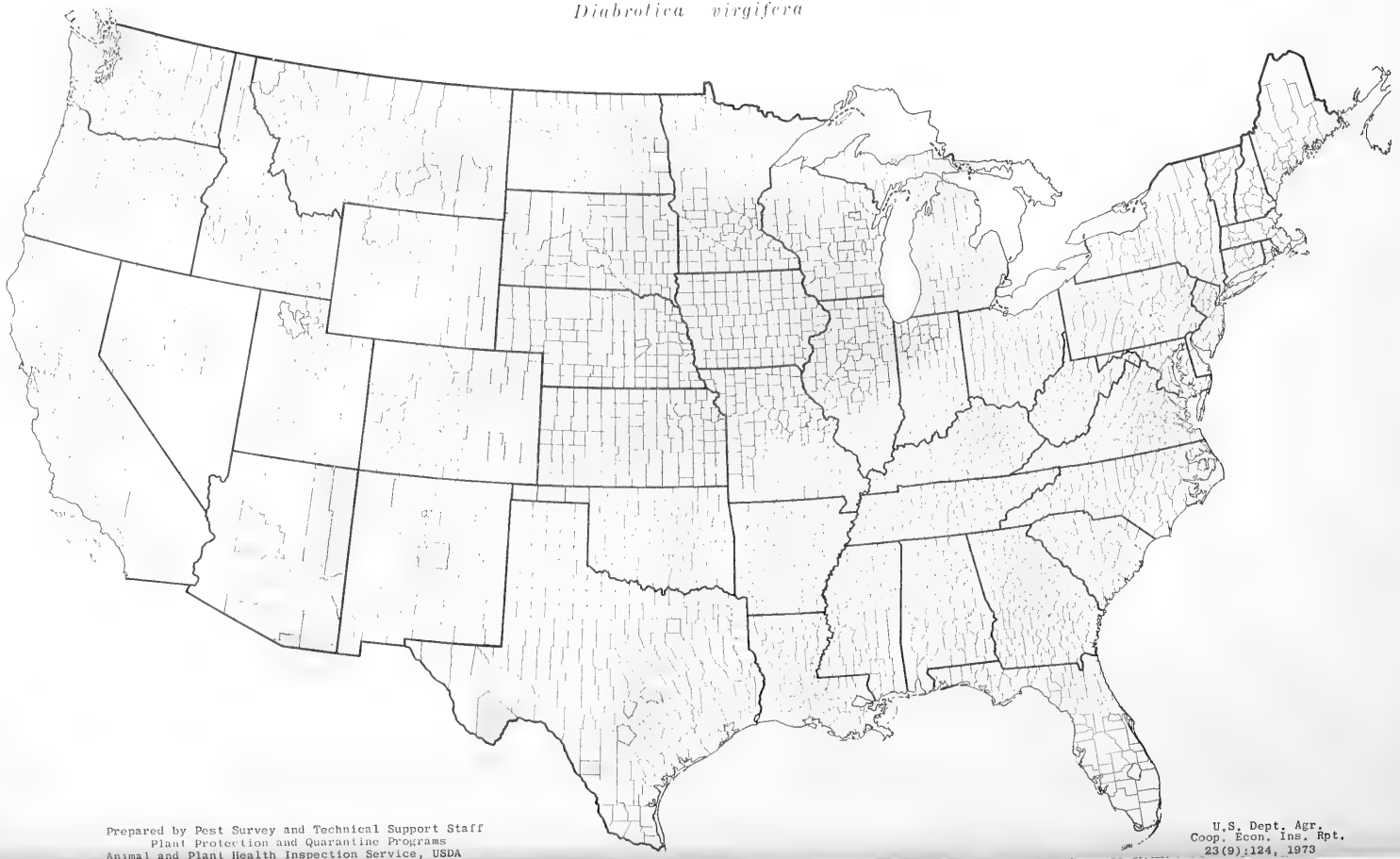
MISCELLANEOUS FIELD CROPS

SUNFLOWER MOTH (Homoeosoma electellum) larvae ranged 5-25 per head in several fields of sunflowers in Colfax and Platte Counties, NEBRASKA, during late July and early August. Larvae destroyed a few fields of sunflowers in York and Seward Counties. Damage to sunflowers by this pest is expected to be heavier during 1973 than in 1972 in Nebraska. Sunflower moth infestations were widespread across the 35,000 acres of sunflowers grown in IOWA in 1972. Larvae ranged 3-13 (averaged 6.2) per head in 63-95 percent of heads in Polk County fields during the first two weeks of August. Chemical controls were not applied to infested fields in Iowa.

Weather of the week continued from page 112.
Fraser, Colorado and Big Piney, Wyoming recorded -24 degrees Tuesday morning. Bitter cold pushed across the northern Great Plains but southern California enjoyed summer temperatures; 81 degrees at Culver City Tuesday. Cold Arctic air pouring across the Canadian border held afternoon temperatures over much of Minnesota and Wisconsin in the 12 to 20-degree range Wednesday afternoon and spots in northern New Mexico remained below freezing all day Thursday. The highest temperature at Las Vegas, New Mexico, Thursday was 52 degrees. Warming occurred over North Dakota where Bismarck recorded 53 degrees Thursday. Birmingham, Alabama, also recorded 53 degrees Thursday due to northerly winds resulting from a High over the southern Great Plains and a Low centered off the northern Atlantic coast. Much of the area from the Great Lakes to the Ohio River remained below 32 degrees all day Thursday. Early morning temperatures over the weekend ranged from a few degrees above zero in the vicinity of the Great Lakes to the 50's in southern California, along the Gulf of Mexico, and most of Florida. Afternoon temperatures were generally near 20 degrees in northern New England, near freezing over the northern Great Plains, near 70 degrees along the Gulf of Mexico, and the 70's in southern California and most of Florida.

Distribution of Western Corn Rootworm

Diabrotica virgifera



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

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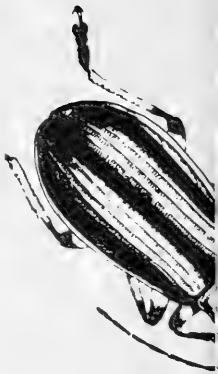

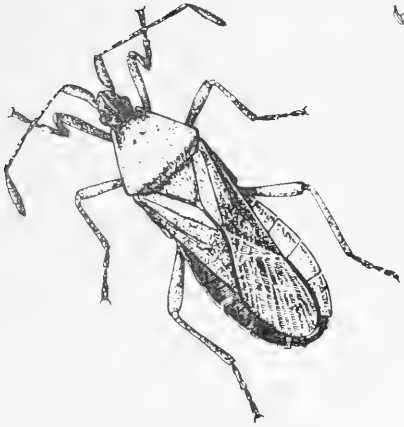

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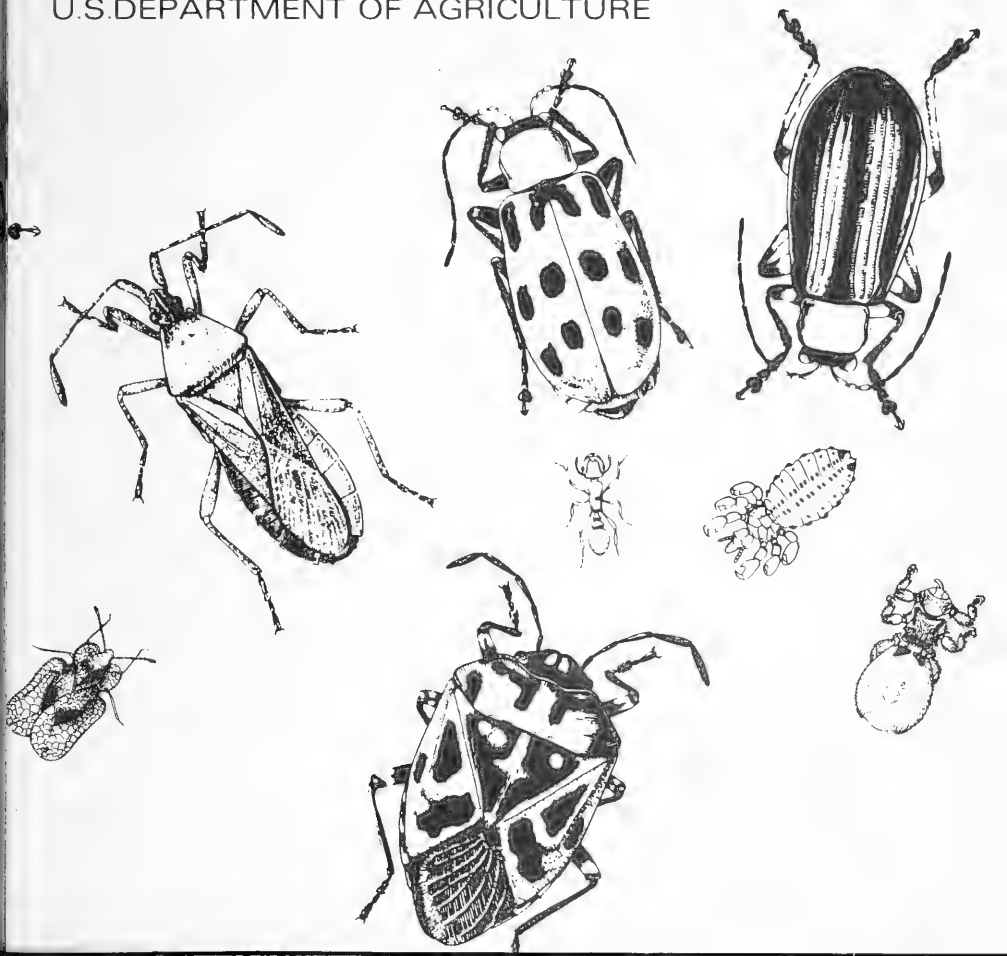

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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Animal and Plant Health Inspection Service
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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ENGLISH GRAIN APHID flights heavy in central California; could result in heavy infestations of small grains. (p. 127).

EGYPTIAN ALFALFA WEEVIL larval buildup in alfalfa noted in south-central Arizona; conditions ideal for heavy buildup and damage. (p. 127).

Significant SPRING CANKERWORM adult activity observed in Kansas. (p. 128).

Overwintering FACE FLY adults reported for first time in Mississippi. (p. 128).

Prediction

SPRING CANKERWORM expected to be serious in Kansas this spring. (p. 128).

Detection

- An ENCYRTID WASP reported for first time in Hawaii. This is a new United States record, but is not known to occur in continental U.S. (p. 130).

New State records include a DERMESTID BEETLE in California (p. 131), two SPHECID WASPS in Utah (p. 131), and SINUATE PEARTREE BORER in Michigan (p. 128).

For new county records see page 131.

Special Reports

Summary of Insect Conditions in the United States - 1972
- Potatoes, Tomatoes, Peppers (pp. 133-135).
- Beans and Peas (pp. 135-136).
- Cole Crops (p. 136).
- Deciduous Fruits and Nuts (pp. 137-139).
- Citrus (pp. 139-140).
- Small Fruits (p. 140).

Insects Not Known to Occur in the United States.
- Strawberry Tortrix (Acleris comariana (Zeller)). (pp. 141-142).

Reports in this issue are for week ending March 2, unless otherwise indicated.

CONTENTS

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MARCH 1973

The National Weather Service's 30-day outlook for March is for temperatures to average above seasonal normals across the Nation except for near to below normal in the South. Precipitation is expected to exceed normal along the north Pacific coast. Subnormal totals are indicated for the central intermountain region as well as the eastern half of the Nation except for near normal along the northern border. Elsewhere near normal precipitation is in prospect.

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 MARCH 5

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

PRECIPITATION: A storm centered off the Pacific coast early in the week dumped light to heavy rain along the coast from Washington to California. Snow fell in nearby hills and mountains. Mount Wilson, California, received 3.05 inches of rain in the 24-hour period ending Wednesday evening. In some places along the Weather of the week continued on page 132.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - TEXAS - Very light, ranged 1-6 per drilled row foot of small grains in Wilbarger, Foard, Childress, Wichita, Archer, Knox, Haskell, and Throckmorton Counties. Beneficials also present. (Boring). KANSAS - One winged adult noted in wheat field in Labette County. None seen in second field in county and none in wheat checked in 2 Montgomery County fields or in Cherokee County field. (Bell).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - OKLAHOMA - Overwintered larvae averaged 2, 4, and 18 per 100 stalks in 3 cornfields checked in Texas County. Stalk infestations had been 72, 26, and 58 percent, respectively, giving survival percentages of 3, 16, and 31. (Okla. Coop. Sur.).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 2-4 per row foot of grain in Archer, Wichita, and Foard Counties. Populations decreased past 3 weeks in Rolling Plains. (Boring). OKLAHOMA - Seen in most wheat fields in Kingfisher County; ranged 1-4 per linear foot except in one field where counts averaged 55 per linear foot. Light in some Logan County fields. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - CALIFORNIA - Alates heavy in flight at Sacramento, Sacramento County. Warm weather following rains triggered mass emergence. With favorable weather, flight could result in heavy infestations. (Cal. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Average counts per square foot by county as follows: Stephens - eggs 225, larvae 20; Payne - eggs 258, larvae 1; Dewey - eggs 16; Harper - eggs 13. Counts made February 21-24. (Okla. Coop. Sur.). MISSOURI - Winter egg counts ranged 3-8.5 per square foot in northwest area. Infestation recent in this area so no heavy buildup expected. Adult counts ranged 2-8 per 10 sweeps in south-central area. (Munson). TENNESSEE - Conditions conducive for larval emergence in alfalfa across State. Checks should begin soon to determine when economic levels reached. (Gordon).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larval buildup on alfalfa noted on borders of 2 fields in Maricopa County. Conditions ideal for heavy larval buildup and resulting feeding damage. (Ariz. Coop. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidulus) - VIRGINIA - Collected in Charlotte County by R. Perry December 1, 1970. Determined by R.E. Warner. This is a new county record. (Allen).

COLE CROPS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Winged adults, flying in from weeds, averaged 6 per lettuce plant in 3 Salt River Valley, Maricopa County, fields. Treatment applied. Several treatments necessary in Yuma County with general buildup noted. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - NORTH CAROLINA - Collected on cabbage November 4, 1972, near Wagram, Scotland County, by D.L. Stephan and September 20, 1972, near Weeksville, Pasquotank County, by K.A. Sorensen. Both determined by D.L. Stephan. These are new county records. (Hunt).

DECIDUOUS FRUITS AND NUTS

SINUATE PEARTREE BORER (Agrilus sinuatus) - MICHIGAN - Single adult taken on sticky trap in Manistee County July 24, 1972. Collected by T. Eiber. Determined by S.G. Wellso. This is a new State record. (Sauer).

SMALL FRUITS

A LEAFHOPPER (Scaphytopius magdalensis) - NORTH CAROLINA - Collected on cultivated blueberries near Charity, Duplin County, July 27, 1972, by T.N. Hunt. Determined by D.A. Young. Taken on same host August 15, 1972, near White Lake, Bladen County. Collected and determined by T.N. Hunt. These are new county records. (Hunt).

ORNAMENTALS

A PIT SCALE (Cerococcus kalmiae) - VIRGINIA - Overwintering eggs under dead females on heavily infested azalea in Norfolk collected February 15 by D.E. Greenwood. Determined by P.L. Lambdin. This is second record of species in State. (Allen).

COTTONYCUSHION SCALE (Icerya purchasi) - TEXAS - Heavy on Photinia at College Station, Brazos County. (Green).

FOREST AND SHADE TREES

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Expected to be serious problem in 1973 on some elms, hackberries, and certain other trees in some eastern area cities during spring. Significant moth activity in Manhattan, Riley County, noted at lights and on trunks of elms and hackberries night of March 1. Males ranged 0-30 per tree on lower portions of trunks. High count of 4 females per trunk also noted. Examinations of fresh sticky bands on some elms in Topeka, Shawnee County, March 2 revealed significant moth activity. Up to 150 males and 30 females found in sticky bands on some larger elms. (Bell).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - During the period February 18-24 there were 3 confirmed cases reported in the continental U.S., all in Texas. Total of 57 confirmed cases reported from Mexico. Number of sterile flies released in U.S. totaled 67,742,000 as follows: Texas 64,802,000; Arizona 2,940,000. Total of 72,390,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Overwintering adults recorded for first time in State when flies found around shed in Chickasaw County. No flies observed on nearby cattle. (Robinson). See corrections p. 131.

HORN FLY (Haematobia irritans) - FLORIDA - Populations light, ranged 50-100 adults per beef animal in southern area. Normal for time of year. (Fla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 2.6 per head on Holstein dairy cows of various ages in Fayette County. About two-thirds of infestation H. lineatum (common cattle grub) and remainder H. bovis (northern cattle grub). (Barnett). TEXAS - H. lineatum adults active in Travis County during warm days. (Cole).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), reported heavy on cattle in Major, Payne, Hughes, and Comanche Counties. Light in Cimarron County. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Comanche County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

GREENHOUSE STONE CRICKET (Tachycines asynamorus) - MICHIGAN - Adult collected December 5, 1972, by P. Steila in home in Detroit, Wayne County. Determined by M. Hanna and confirmed by I. Cantrall. This is a new county record. (Sauer).

A CARPENTER ANT (Camponotus rasilis) - TEXAS - Heavy and damaged home at San Antonio, Bexar County. (Gardener).

MISCELLANEOUS WILD PLANTS

A BILLBUG (Sphenophorus minimus) - VIRGINIA - Collected on Carduus nutans (bristlethistle) by R. Perry in Russell County November 10, 1970. Determined by R.E. Warner. This is a new county record. (Allen).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - MARYLAND - Colonies emerged from winter with low honey stores; condition generally weak. Deterioration should end next few weeks with first nectar flow of maple and elm. Some maple nectar available now. Bees should replenish depleted stores rapidly with approaching mild weather. (U. Md., Ent. Dept.).

New State record - Specimens of an ENCYRTID WASP (Cheiloneuromyia javensis) emerged from several lots of Coccus acuminatus (a soft scale) found infesting foliage of Singapore plumeria trees at various localities on Oahu. Earliest collection dated November 1965. Determined by B.D. Burks. (Beardsley). This is a new United States record but is not known to occur in continental U.S. (PPQ).

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) light on experimental hybrid Bermuda grass planting at Waimanalo, Oahu; larvae ranged 4-8 (average 5) per square foot. Light numbers of adults of Sphenophorus venatus vestitus (a billbug) and larvae of Spodoptera mauritia (lawn armyworm) and Hylephila phyleus (a skipper) also noted. (Mitchell).

General Vegetables - Nymphs and adults of a TREEHOPPER (Antianthe expansa) moderate in yard planting of eggplant at Whitmore Village, Oahu, nil in adjacent commercial planting. Nymphs light in yard planting of tomatoes at Lanikai. (Davis, Kawamura). SWEETPOTATO LEAFMINER (Bedellia orchilella) heavy in young sweetpotato planting at Wailua, Kauai. About 75 percent of leaves with larval mines affecting 10-80 percent of leaf surfaces. (Sugawa). All stages of IMPORTED CABBAGEWORM (Pieris rapae) and DIAMONDBACK MOTH (Plutella xylostella) heavy, causing near complete defoliation in small yard planting of cauliflower at Hilo, Hawaii. About 10 percent of P. xylostella parasitized by Diadegma insularis (an ichneumon wasp); about 5 percent of P. rapae parasitized by Apanteles sp. (a braconid wasp). (Matayoshi). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) moderate to heavy in eggplant at Whitmore Village, Oahu; TOBACCO FLEA BEETLE (Epitrix hirtipennis) trace, "shot holes" light. (Kawamura).

Fruits and Nuts - BROAD MITE (Polyphagotarsonemus latus) trace in 21 acres of papaya seedlings at Makaha, Oahu; damage negligible. (Kawamura). BLACK CITRUS APHID (Toxoptera aurantii) infestation variable in large commercial macadamia nut planting at Ka'u, Hawaii; 80-100 percent of floral racemes infested with nymphs and adults. About 55 (range 5-95) percent of aphids parasitized by Lysiphlebius testaceipes (a braconid wasp). (Matayoshi). NEW GUINEA SUGARCANE WEEVIL (Rhabdoscelus obscurus), TAHITIAN COCONUT WEEVIL (Diocalandra taitensis), and COCONUT SCALE (Aspidiotus destructor) trace to light on 12 coconut trees at Kailua, Oahu; 5 trees with moderate to heavy D. taitensis exit holes. (Kahale, Otsuka). Increased sightings of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) throughout Oahu during past few weeks indicates end of diapause and coincides with cycle established during first year of observation in State. First specimen of P. xuthus taken at Salt Lake, Oahu, during April 1971. (Kawamura).

DETECTION

New United States Record - AN ENCYRTID WASP (Cheiloneuromyia javensis) - HAWAII - Oahu (p. 130).

New State Records - A DERMESTID BEETLE (Attagenus faciatus) - CALIFORNIA - Collected from experimental dermestid trap at milling warehouse in Hanford, Kings County, November 22, 1972, by A. Gilbert and L. Bookout. Determined by F. Andrews. This species was formerly known as A. gloriosae. (Cal. Coop. Rpt.).

SPHECID WASPS - UTAH - Steniolia duplicata collected at Santa Clara, Washington County, June 21, 1950. Glenosticta scitula collected in Dixie State Park, Washington County (no date available). Both collected by G.F. Knowlton. Determined by J.E. Gilaspy. (Knowlton).

SINUATE PEARTREE BORER (Agrilus sinuatus) - MICHIGAN - Manistee County. (p. 128).

New County Records - BEET ARMYWORM (Spodoptera exigua) NORTH CAROLINA - Scotland, Pasquotank (p. 128). A BILLBUG (Sphenophorus minimus) VIRGINIA - Russell (p. 129). CLOVER ROOT CURCULIO (Sitona hispidulus) VIRGINIA - Charlotte (p. 127). GREENHOUSE STONE CRICKET (Tachycines asynamorus) MICHIGAN - Wayne (p. 129). A LEAFHOPPER (Scaphytopius magdalensis) NORTH CAROLINA - Duplin, Bladen (p. 128).

CORRECTIONS

CEIR 23(8):86 - MAN AND ANIMALS - CATTLE LICE - MISSISSIPPI - Infestations of Solenoptes ... should read Infestations of Solenopotes ...

CEIR 23(8):97 - CONCHUELA (Chlorochora ligata) should read (Chlorochroa ligata).

CEIR 23(9):110 - FACE FLY (Musca autumnalis) - MISSISSIPPI - Second sentence should read: "Overwintering adults have never been located in State." See page 128, this issue for first record of overwintering adults in Mississippi. (PPQ).

CEIR 23(9):111 - DETECTION - New County and Island Records - AN ICHNEUMON WASP (Bathyplectis ... should read (Bathyplectes ...

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/23-3/1, BL - BLACK CUTWORM (Agrotis ipsilon) 2, GRANULATE CUTWORM (Feltia subterranea) 6.

Weather of the week continued from page 126.

coast, rain was accompanied by gales. Winds gusted to 45 m.p.h. at Crescent City, California, Thursday morning. By Thursday, precipitation in the West had spread eastward, dropping rain along the coast and snow eastward across the northern Great Basin to the northern Rocky Mountains. Moist air covered most of mid-America last week. Fog prevailed over the Great Plains and parts of the Mississippi River Valley early in the week. Freezing drizzle fell over spots in the northern Great Plains on one or two days. Two inches of snow fell at Sault Sainte Marie Wednesday bringing the depth on the ground to 16 inches. Thundershowers developed in the central and southern Great Plains. Some large hail fell in the Waco, Texas, area. A storm moved across Georgia and the Carolinas early in the week and continued northeastward along the Atlantic coast. It brought rain from the Carolinas to Virginia and mixtures of rain, snow, and sleet from the Virginias to New England. Weekend precipitation included rain along the Pacific coast, light snow over the western edge of the central Great Plains, and rain or drizzle over the eastern half of the Nation. Thunderstorms spotted the lower Mississippi River Valley. Fog and clouds covered much of the area from the Great Lakes to the Gulf of Mexico and advanced eastward to the Atlantic Ocean by late Sunday or early Monday. Freezing drizzle slicked roads in northern Maine. A late winter storm moved through Nevada, Utah, and northern Arizona late Sunday. It left snow amounts ranging from 2 inches to over a foot, before moving eastward across the Rocky Mountains to the Great Plains. Several inches of snow fell in eastern Colorado, western Nebraska, and western Kansas.

TEMPERATURE: On Monday, February 26, a cold High was centered north of Lake Superior with a high pressure ridge extending southward across the central Great Plains to northern Texas. Cold air pushed southward east of the ridge. Subzero weather occurred in northern New England and northeastern New York. Houlton, Maine, registered 24 degrees below zero Tuesday morning. In spite of sunny skies, temperatures hovered near zero in northern Maine Tuesday afternoon. Houlton recorded 4 degrees above zero. Early morning temperatures remained above 60 degrees in southern Florida. Mild temperatures pushed northward across the southern and central Great Plains at midweek. Hill City, Kansas, registered 62 degrees and Philip, South Dakota, 63 degrees Wednesday afternoon. Temperatures along the Canadian border ranged from 32 degrees at Williston, North Dakota, to 16 degrees at Caribou, Maine, Wednesday afternoon. The warmest weather occurred along the Atlantic coast of Florida early in the week and in southern Texas at midweek when afternoon maximums reached the 80's. In the Far West, afternoon temperatures ranged from the 50's in Washington to the upper 70's in southern California. The weekend brought a warming trend to much of the Nation. Montana and western North Dakota warmed to the 50's and southern Texas warmed to the 80's Saturday afternoon. Almost the entire Nation averaged warmer than normal. In some sections, the weather last week was the warmest since last fall. Much of the northern Great Plains averaged 10 to 20 degrees warmer than normal.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1972
(Continued from page 123)

POTATOES, TOMATOES, PEPPERS

Highlights: COLORADO POTATO BEETLE was more common than usual on potatoes in Maine and northern Utah. PEPPER WEEVIL infested peppers on the east coast of Florida for the first time since 1945. GREEN PEACH APHID was heavy on fall potatoes in Virginia. This aphid was very heavy on potatoes and heavier than usual on tomatoes in Florida than for the past two years. Controls for this pest were necessary on most potatoes in the Arkansas Valley of Colorado and damage was very serious in the northern Willamette Valley of Oregon.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) overwintered adults and associated damage on potatoes were more common in all areas of MAINE by June 7 than in many years. Several fields were severely damaged before controls were applied. Adults were abundant in several potato fields in Kent County, DELAWARE, during mid-May and in some potato and tomato fields throughout the State in late May and June. Overwintered Colorado potato beetle adults began ovipositing in MARYLAND the last week of May. Second and third-instar larvae were light (1-2 per 10 yards of row) in several fields in Wicomico and Somerset Counties. Most first and second generation field populations on potatoes and tomatoes were kept below economic levels with scheduled control programs. Second-generation adults failed to reach economic levels in late July and August due to scheduled sprays. Control costs for this pest in Maryland during 1972 were estimated at $80,000.

Colorado potato beetle larvae and adults began to appear in potato fields of Larimer and Weld Counties, COLORADO, in mid-June. Counts in July averaged 6 larvae and adults per 10 sweeps in scattered potato fields in the area. Chemical controls were necessary in several fields. In UTAH, damage by this leaf beetle was extensive and above normal to potato and tomato foliage in infested areas of the northern part of the State. Much control was applied.

PEPPER WEEVIL (Anthonomus eugenii) appeared for the first time on the east coast of FLORIDA during March 1972. The infestation subsequently extended from northern Broward County, north across Palm Beach County, and into Martin County. In the east coast area this weevil was found inland west of Loxahatchee, Palm Beach County. Fruit drop of bell peppers was serious on some farms. The rapid spread of this pest in the east coast area was probably due to the practice of dumping waste fruit from packing areas, as well as the unusually warm winter which was conducive to rapid reproduction. Heavy populations (1-3 per fruit) built up during spring at Immokalee, Collier County, and at Dover, Hillsborough County. These are the first reports of pepper weevil in Florida since 1945.

EUROPEAN CORN BORER (Ostrinia nubilalis) infestations in untreated sweet peppers averaged approximately 25 percent in most areas of DELAWARE during late August and September. By mid-June, infestations in unsprayed potatoes ranged up to 5 percent in several fields totaling 200 acres in Somerset County, MARYLAND. Populations did not reach economic levels before harvest in late June and early July. Scheduled treatments for Leptinotarsa decemlineata

(Colorado potato beetle) suppressed European corn borer populations in most fields. About 700 acres of sweet peppers required 1-3 treatments in Wicomico, Dorchester, Somerset, and Worcester Counties to insure economic yields of undamaged fruits.

TOMATO FRUITWORM (Heliothis zea) was the most important pest of the 8,500 acres of commercial tomatoes and in home gardens in ALABAMA. All commercial fields received 15-30 control applications per acre during the 1972 season. BEET ARMYWORM (Spodoptera exigua) caused foliar damage to tomatoes during fall at Bradenton, Manatee County, FLORIDA, where larvae ranged 10-20 per 20 plants. A heavy infestation also developed on tomato plots at Fort Pierce in St. Lucie County.

TOMATO PINWORM (Keiferia lycopersicella) was moderate (1-5 per plant) on tomatoes at Bradenton, Manatee County, FLORIDA, during spring and fall. This pest severely damaged tomato plants in the Tampa area of Hillsborough County where control was difficult. Several light to heavy infestations of tomato pinworm were reported on tomatoes at scattered locations in TEXAS. However, damage was not as extensive as had been reported in past years.

GREEN PEACH APHID (Myzus persicae) was first noted on peppers during late June in Kent and Sussex Counties, DELAWARE, when infestations were light. Numbers continued to increase as the season progressed with counts in early August averaging about 400 per 100 leaves. Counts peaked at 1,100 per 100 leaves in late August and early September. Green peach aphid was kept under control in most MARYLAND potato and tomato fields for the second consecutive year. Most growers in Worcester and Somerset Counties applied preplant treatments to potatoes which held off possible aphid buildups in June. Infestations on peppers were light to moderate in Wicomico County. By late August, infestations in unsprayed pepper fields ranged 20-50 percent. Heavy infestations developed in VIRGINIA on fall potatoes during the first weeks of October when controls were applied. Green peach aphid populations were heavy on potatoes during April and May at Hastings, St. Johns County, FLORIDA. This was the second year of very heavy infestations. Recommended control measures were ineffective.

In the Homestead area of Dade County, Florida, green peach aphid was more abundant than usual on tomatoes the past two fall seasons and more prevalent during spring 1972 than 1971. This aphid is the most important pest of tomatoes and potatoes in the Homestead area. Green peach aphid appeared on pepper plantings in the Palm Beach County area of Florida during October and increased the next two months. Colonization was heavy during December, and a high incidence of pepper virus diseases followed aphid flights.

Movement of green peach aphid into late potatoes was observed the first part of July in Weld County, COLORADO. By July 20, populations ranged 1-20 per leaf. In the Arkansas Valley, populations reached 30-50 per leaf. Controls were necessary in most potato fields. Green peach aphid was heavy in 100+ acres of potatoes in Lyon County, NEVADA. Plants were severely damaged and controls applied. Movement of this aphid into Malheur County, OREGON, potatoes began in late May. Heavy numbers continued to be trapped in the Newell Heights and Mitchell Butte areas until mid-August. Sporadic population buildups occurred in all potato-growing

sections of Oregon. Leaf roll damage was very serious in the northern Willamette Valley in Washington, Clackamas, and Multnomah Counties, with counts ranging up to 600 aphids per 25 bottom leaves in early September.

POTATO SCAB GNAT (Pnyxia scabiei) was collected on potatoes at Ellensburg, Kittitas County, WASHINGTON, January 27, 1972, by B.J. Landis. This is a new county record. Infestations were also noted at Pasco, Franklin County, in August and in Benton County in September. These were also new county records reported during the 1972 season.

BEANS AND PEAS

Highlights: MEXICAN BEAN BEETLE was kept below economic levels in Maryland by scheduled sprays. This beetle was serious on beans in Alabama and necessitated controls in Nebraska and Utah. PEA LEAF WEEVIL damaged peas for the first time in Nez Perce County, Idaho.

MEXICAN BEAN BEETLE (Epilachna varivestis) adults were present on snap beans throughout Kent and Sussex County, DELAWARE, beginning in late May and early June. All stages were common on this crop by mid-June, with heaviest injury noted in July on snap and lima beans. Adults ranged 5-10 per 10 row feet of snap beans in Dorchester and Wicomico Counties, MARYLAND, in June. Controls were applied to several hundred acres for early season adult beetle control. Population levels for July, August, and September were maintained below economic thresholds by scheduled sprays. Mexican bean beetle was a serious and damaging pest of lima and pole beans throughout ALABAMA, and to a lesser extent field peas. Populations were heavy and about the same as the past 5 years. Controls were applied to several fields of beans in Scotts Bluff County, NEBRASKA. Larvae ranged 10-15 per plant with 20-50 percent of plants infested in August. Damage to beans by Mexican bean beetle was common with control generally necessary in infested areas of UTAH.

BEAN LEAF BEETLE (Cerotoma trifurcata) adult damage to beans in MARYLAND was below economic levels statewide. Only 200 acres of beans in Caroline County required controls. PEA LEAF WEEVIL (Sitona lineatus) adults damaged peas and to some extent alfalfa, clover, and lentils throughout Latah County, IDAHO, and for the first time peas in some areas of Nez Perce County. Until green peas emerged, feeding damage was restricted to alfalfa and other legumes. Some pea plants were consumed as they emerged while others outgrew weevil feeding. Populations varied greatly ranging from 5 to over 35 per square foot during the period June 8-14.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused severe damage (up to 100 percent) to blackeye peas in Kern County, CALIFORNIA. Larvae of this pyralid moth damaged fall planted field peas in the Lake City area of Columbia County, FLORIDA, during September.

ALFALFA CATERPILLAR (Colias eurytheme) infestations in pea fields were light in MARYLAND. However, these light infestations caused contamination problems in the canning of peas. Full-grown larvae and pupae passed through the processing screens and were packed in

the cans. This situation only involved an estimated 200 acres on the Eastern Shore of Maryland. CABBAGE LOOPER (Trichoplusia ni) was the most serious pest of beans in KENTUCKY, however, damage was far less than that of 1971. Only scattered "hot spots" occurred in 525 acres of snap beans in Wayne County. WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) damaging populations occurred about July 19 or 14 days later than 1971 in IDAHO. Over 1,500 acres of lentils and peas in Latah and Nez Perce Counties were treated.

COLE CROPS

Highlights: IMPORTED CABBAGEWORM damaged commercial cabbage in Maryland and on the Eastern Shore of Virginia, but controls reduced this damage near the end of the season. CABBAGE LOOPER damaged cole crops in Maryland, but timely controls prevented serious economic damage. This pest required controls on the fall cabbage crop in North Carolina.

IMPORTED CABBAGEWORM (Pieris rapae) larval damage ranged 90-100 percent in all unsprayed commercial and garden plantings of cabbage statewide in MARYLAND. This pest was brought under control in commercial acreages with scheduled spray programs. Larvae caused much damage to cabbage throughout Accomac and Northampton Counties, VIRGINIA, during the first week in June. By August 18, very heavy adult populations were present in cabbage fields on the Eastern Shore but due to insecticidal programs damage was light. Imported cabbageworm became heavy for the first time in several years in FLORIDA, with populations being heaviest near the end of the season in April and May. This pest caused heavy damage to cabbage and required 4 or more pesticide applications. Polyhedrosis virus eliminated 50 percent of the larval population by the end of the season but this was too late for practical value. This pierid butterfly was one of the most destructive larvae on commercial and home plantings of cabbage, collards, and other cole crops throughout ALABAMA.

CABBAGE LOOPER (Trichoplusia ni) caused moderate to heavy damage to unsprayed cabbage, broccoli, and kale in Wicomico, Baltimore, Carroll, and Prince Georges Counties, MARYLAND, during August and September. Timely controls in most commercial acreages prevented economic damage to these crops. Controls for this pest were necessary on the fall cabbage crop during September in northeastern NORTH CAROLINA, particularly in Pasquotank and Hyde Counties. Cabbage looper infestations were heavy on cabbage during fall and spring in the Hastings area of St. Johns County, FLORIDA. Growers were unable to produce marketable cabbage without 6-8 regular pesticide applications per season. Cabbage looper was the most damaging insect on cabbage in the Everglades area of the State.

DIAMONDBACK MOTH (Plutella xylostella) damaged cole crops in isolated areas throughout ALABAMA, but was most important on turnips, mustard, cabbage, and collards. Larvae of diamondback moth ranged 12-22 per plant and caused severe damage to several acres of collards in Charleston County, SOUTH CAROLINA, in late January. This pest also caused scattered damage to collards in Clarendon County in June.

DECIDUOUS FRUITS AND NUTS

Highlights: CODLING MOTH first-brood flight was delayed in Colorado by cool weather. TARNISHED PLANT BUG caused heavier than usual damage to peaches in Virginia. EUROPEAN RED MITE was the most important pest of apples in North Carolina. Several NUT PESTS were of concern on nut crops in some States.

The first CODLING MOTH (Laspeyresia pomonella) adults of the season in MASSACHUSETTS were found in pheromone traps in Middlesex County May 18 and in Hampshire County May 30. On June 7, 30 moths per trap were collected in 2 days in an abandoned Hampshire County orchard. Through June, about 20 per trap per week were collected in abandoned orchards but fewer than 5 per trap per week were collected in July and August. In treated orchards there were never more than 4 per trap per week collected. In abandoned orchards 25-50 percent of all apples were infested. The first moths of the season in COLORADO were taken in apple orchards April 5 in Mesa County. Cool weather delayed first-brood flight. The main flight occurred April 22-25 with moth catches of up to 40 per day in pheromone traps. First cover sprays were posted for May 5 in Mesa County and for May 20 in Delta, Montrose, and Garfield Counties. The second-brood flight took place the last week of July with moth catches of 20-50 per day. Codling moth larvae were found infesting sweet cherries in an unsprayed orchard at Sunnyside, Yakima County, WASHINGTON. Extensive injury and second-brood entries were noted by July 15.

PLUM CURCULIO (Conotrachelus nenuphar) feeding and oviposition damage were found on virtually 100 percent of the apples in abandoned orchard in MASSACHUSETTS, while damage to treated orchards was virtually zero. The first beetles appeared on apples in central MAINE by May 26 and first cutting of fruit was observed about 7 days later. Populations appeared lower than usual, but their period of activity was rather protracted due to considerable periods of cool weather, which resulted in somewhat more fruit injury than usual.

First APPLE MAGGOT (Rhagoletis pomonella) adults of the season in MASSACHUSETTS were collected in attractant traps June 21 in Hampshire and Worcester Counties. By July 6, as many as 75 per trap per week were being collected in abandoned apple orchards of Middlesex and Worcester Counties. In Hampshire County, the peak of 37 per trap per week was reached the first week of August. In treated orchards never more than 2 per trap per week were collected. Adults were still flying in unsprayed orchards at the end of August.

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) fly emergence was heavy during week of June 1 in most of the Yakima County of WASHINGTON cherry area. Peak emergence for the lower Yakima Valley occurred the week of June 14.

APPLE APHID (Aphis pomi) overwintering eggs began hatching by the end of April in Hampshire County, MASSACHUSETTS. Populations slowly built to a peak in late July with 369 aphids per terminal on Red Delicious and 177 per terminal on McIntosh trees which had been sprayed with fungicides only. For unknown reasons the aphid population was reduced to zero in 2 weeks. Predation by

syrphid fly larvae was possibly responsible. Aphid populations on trees with alternate row spraying peaked in late July with 241 aphids per terminal on Red Delicious and 30 per terminal on McIntosh. On regularly sprayed trees the aphid populations never exceeded 8 per terminal.

GREEN PEACH APHID (Myzus persicae) egg hatch was nearly complete in peach orchards of Mesa County, COLORADO, the latter part of March. By April, colonies were well established on trees. Alate forms were noted on May 22 with migration from peach to summer hosts noted on May 26. Green peach aphid caused extensive peach leaf curling during spring in orchards in Washington, Grand, San Juan, Salt Lake, and Utah Counties, UTAH.

PEAR PSYLLA (Psylla pyricola) is now present in Box Elder, Cache, Davis, Weber, and Salt Lake Counties, UTAH. The freeze of fruit crops allowed this pest to build up in Cache County, with possible increased dispersal due to failure to spray orchards.

TARNISHED PLANT BUG (Lygus lineolaris) was very active in MAINE on apple just prior to bloom and after petal fall. This plant bug caused much injury to fruit where control measures were lacking. Tarnished plant bug caused heavier damage to peaches in VIRGINIA in 1972 than it has the past several years. Damage ranged from 5 to 17 percent of the fruit in some orchards.

EUROPEAN RED MITE (Panonychus ulmi) overwintering eggs began hatching on apple trees by the end of April in Hampshire County, MASSACHUSETTS. On trees which were sprayed only with fungicides, mite populations began increasing in mid-July and peaked in mid-August with 126 eggs and 51 mites per leaf on Red Delicious and 43 eggs and 19 mites per leaf on McIntosh trees. In treated orchards mites were a problem only in a few isolated instances. In Franklin and Hampden Counties there was some buildup in late August. In OHIO, overwintering egg counts per one-half inch of roughened apple stem by county were as follows: Clermont 100-125; Pickaway 10-20; Meigo, Auglaize, and Hardin 5-25. First hatch occurred in the central areas April 28 and was completed statewide by mid-May. Up to 90 mites per leaf were observed on susceptable varieties statewide July 19-24. European red mite was the most important pest of NORTH CAROLINA apple plantings. Overwintering eggs hatched around full pink with peak hatch occurring about full bloom. The number of commercial orchards reaching economic threshold levels was generally greater than during the 1971 growing season.

PECAN WEEVIL (Curculio caryae) emergence from pecans in MISSISSIPPI began in mid-August and peaked in mid-September. Infestations were heavy in Lowndes, Newton, and Hinds Counties. Pecan weevil adults began emerging in OKLAHOMA during mid-July in Payne County, but heavy emergence did not occur until the end of August and the first week of September. Infestations were moderate to heavy in most areas of Oklahoma. In NEW MEXICO, pecans infested with pecan weevil larvae were found in retail outlets at Las Cruces, Dona Ana County in January. All wholesale and retail outlets in the State were checked and over 3,000 pounds of infested pecans were seized. These were returned to out-of-State distributors or destroyed. A total of 9 weevils was collected in traps at Tularosa, Otero County, in fall 1972.

Apparently C. caryae has not spread beyond the initial infestation in Otero County where it was found in 1970. Plans are being made to continue the treatment of suspect trees in an attempt to erradicate this pest from New Mexico.

WALNUT CATERPILLAR (Datana integerrima) caused heavy defoliation to pecan and walnut trees in many eastern counties of OKLAHOMA from mid-June to mid-July (first generation) and mid-September to mid-October (second generation).

FALL WEBWORM (Hyphantria cunea) adults began ovipositing in OKLAHOMA the last week of May. Two generations of larvae caused heavy damage to pecan, walnut, hickory, and persimmon trees over most of the eastern two-thirds of the State from mid-June to mid-September. Partial defoliation of many pecan trees by this arctiid in Dona Ana, Sierra, Eddy, and Chaves Counties, NEW MEXICO, occurred in October. Controls were applied on commercial plantings.

First spring-brood pupae of PECAN NUT CASEBEARER (Acrobasis caryae) in TEXAS were observed in mid-April in Maverick County. Emergence of spring-brood adults was essentially completed across the State by late May. Much damage occurred when control measures were not applied. The first eggs of the season were found in Love County, OKLAHOMA, May 15. First-generation damage was variable in all areas of the State with reports ranging from 16 to 76 percent of the nut clusters damaged.

BLACK PECAN APHID (Tinocallis caryaefoliae) was very heavy in FLORIDA. This pest caused severe defoliation in unsprayed pecan trees, and moderate defoliation and leaf drop in sprayed trees. The unusual abundance in the Monticello area correlated with a 2-month drought in August and September.

CITRUS

Highlights: CITRUS RED MITE was at the lowest levels in 21 years of record on Florida citrus during the cool and warm months, but was a major pest of citrus in California. BLACK SCALE on citrus in Florida reached the highest levels in 21 years of sampling in that State.

CITRUS RUST MITE (Phyllocoptruta oleivora) continued as the most damaging arthropod pest of citrus in FLORIDA. Populations were above normal in a majority of groves for most of the year. Populations peaked in midsummer.

TEXAS CITRUS MITE (Eutetranychus banksi) populations were very light on citrus in FLORIDA early in the year but reached a high level, slightly above average, in July.

CITRUS RED MITE (Panonychus citri) was much below normal for most of the year on FLORIDA citrus. Levels for many of the cool and warm months were the lowest in 21 years of sampling in the State. Citrus red mite continued as a major pest of citrus in CALIFORNIA.

CITRUS SNOW SCALE (Unaspis citri) was probably the second most serious arthropod pest of citrus in FLORIDA. This armored scale has now spread to 38 percent of the citrus groves, and most of these infestations will continue to be important. This is the only scale insect of citrus in the State that is likely to require control measures during winter.

CALIFORNIA RED SCALE (Aonidiella aurantii) required control on citrus in some locations in CALIFORNIA. Parasite and/or predator activity exerted much control on this armored scale.

BLACK SCALE (Saissetia oleae) was abnormally widespread and heavier on FLORIDA citrus, with populations reaching the highest levels in 21 years of record in the State. Populations peaked in early July.

CITRUS WHITEFLY (Dialeurodes citri) was severe and damaged dooryard citrus in Sacramento, Sacramento County, in San Diego, San Diego County, and in Santa Ana, Orange County, CALIFORNIA. This whitefly has yet to be found in commercial citrus groves in California. Summer populations of WHITEFLIES (Dialeurodes spp.) were heavier than usual on citrus in FLORIDA. Honeydew from above average populations of whiteflies, as well as black and green scales, resulted in an above normal sooty mold problem.

CITRUS THRIPS (Scirtothrips citri) was damaging and spotty on citrus in CALIFORNIA.

SMALL FRUIT

STRAWBERRY WEEVIL (Anthonomus signatus) has become an increasing problem for strawberry producers in MICHIGAN since the removal of hydrocarbons for control. No substitute control has yet been found. Crop losses for strawberries in the State for 1972 ranged from 60-75 percent in the southern area to 95 percent in several Manistee County plantations.

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) adults appeared 7-10 days earlier than usual in NEVADA. Damage to grapes in southwestern Clark County was heavy.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) populations increased gradually on strawberries from January through June in FLORIDA. By late spring, heavy counts of 50-100 per leaf were noted. Severe foliar damage was evident on strawberries in Manatee and Hillsborough Counties.

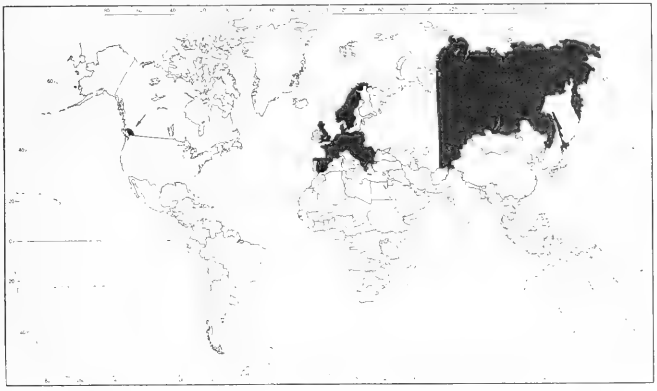
All stages of EUROPEAN RED MITE (Panonychus ulmi) were present on Concord grapes in North East and Harborcreek Townships of Erie County, PENNSYLVANIA, during August and September. When populations peaked in mid-August, counts ranged 28-212 (average 78) per leaf, and in some vineyards up to 90+ percent of the foliage was bronzed.

STRAWBERRY TORTRIX (Acleris comariana (Zeller))

Economic Importance - This moth is primarily a pest of strawberries. The larvae first feed on the leaves but the worst damage occurs when they move to the developing flowers, bore through the calyx and feed on the stamens and carpels. The damaged flowers will then produce only distorted fruit if any at all. This species has severely injured strawberries throughout much of Europe. Yields have been reduced up to 75 percent in England. It also causes considerable damage to azaleas in Belgium and has been recorded as feeding on roses in many areas.

Hosts - The larvae of this tortricid feed mainly on plants of the family Rosaceae, including species of Fragaria, Rosa, Rubus, and Potentilla. The main wild host plant is P. palustris, the marsh cinquefoil, and as a result the moth is more common as a pest in England in low lying areas that were once marshland. Other occasional hosts are blueberry, willow, and azalea.

Distribution - Middle and northern Europe, the Balkans, eastern U.S.S.R., Japan (Hokkaido), and British Columbia, Canada.

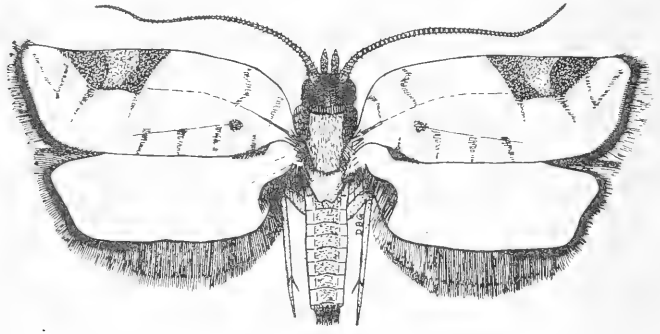


General Distribution of Strawberry Tortrix

Life History and Habits - The biology as recorded in England is as follows: This species overwinters in the egg stage. The eggs begin to hatch in late April or early May. As soon as they hatch, the larvae begin to feed on young, folded leaves, making holes through the successive layers. The larvae are sheltered by the folds of the fanlike leaves and are not usually visible. The leaves are bound together by webs which the larvae spin while feeding and this is a good indication of the presence of the pest. Later they move to the unopened flowers, bore through the calyx and feed on the stamens and developing carpels. The larvae require from 4-5 weeks for development. Pupation begins around the first of June but some larvae may be present throughout the month. Before pupating the larva moves to another leaflet, rolls it, and weaves a cocoon which is much tougher than the larval web. The pupal stage lasts for 2-3 weeks. First generation adults emerge from mid-June to late July. They can be found sitting on the host and fly

erratically when disturbed. They can fly rapidly but apparently travel only short distances, as fields adjoining an infestation may remain free of attack for up to 2 years. These adults live for about 4 weeks, laying their eggs on the backs of the stipules at the base of the plant or on the lower part of leaf stalks. Two to 3 eggs may be placed on each stipule and take about one week to hatch. Second generation larvae are present until early September, pupae until late September and adults until mid-November. The second generation larvae and pupae require about the same amount of time for development as the first generation but the adults may live for up to 8 weeks. The eggs are again deposited on the host plant but do not hatch until 5 or 6 months later.

Description - Eggs are flat and broadly oval; 0.86-0.96 mm in length by 0.64-0.69 mm in width; silvery white, highly sculptured. Young larvae (1.9-2.1 mm) have a black head and thoracic shield. The body is dirty white or yellowish, and the legs are brownish black with green bases. Beginning with the third instar the larvae become quite different in appearance. They have green or yellowish brown bodies and yellowish brown legs. The head is yellowish and semi-transparent with light brown spots on the vertex and a pair of black spots on each side. The head and body are pubescent in all larval stages. Full grown larvae are 9.5-11.0 mm in length. The adults are highly variable in appearance with 10 or more distinguishable morphs. The forewing usually has a distinctive, triangular costal blotch which may be brown, black or reddish brown. The base color varies from tan to marbled black and white or brown with a series of darker transverse striae. In some specimens the forewing may be entirely unicolorous. The hindwing is silver grey. The adults have a wing span of about 2 cm. (Prepared in Pest Survey and Technical Support in cooperation with other agencies). CEIR 23(10):141-142, 1973.



Adult of Acleris comariana

Major references: Petherbridge, F.R. 1920. The life history of the strawberry tortrix, Oxygrapha comariana, Zeller. Ann. Appl. Biol. 7:6. Turner, J.R.G. 1968. The ecological genetics of Acleris comariana (Zeller), a pest of strawberry. J. Anim. Ecol. 37(3):489. Vernon, J.D.R. 1971. Observations on the biology and control of tortricid larvae on strawberries. Plant Pathol. 20(2):73

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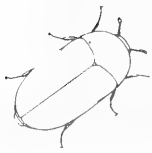

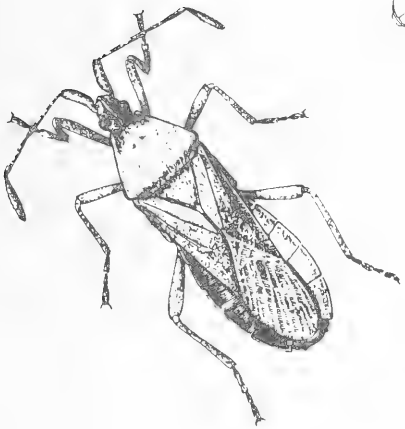

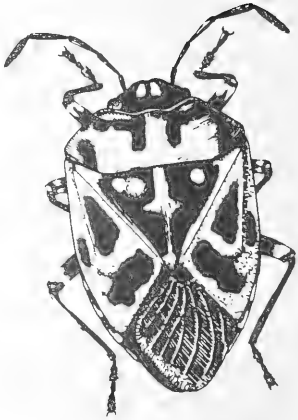

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Cooperative Economic Insect Report

Issued by
PLANT PROTECTION AND QUARANTINE PROGRAMS
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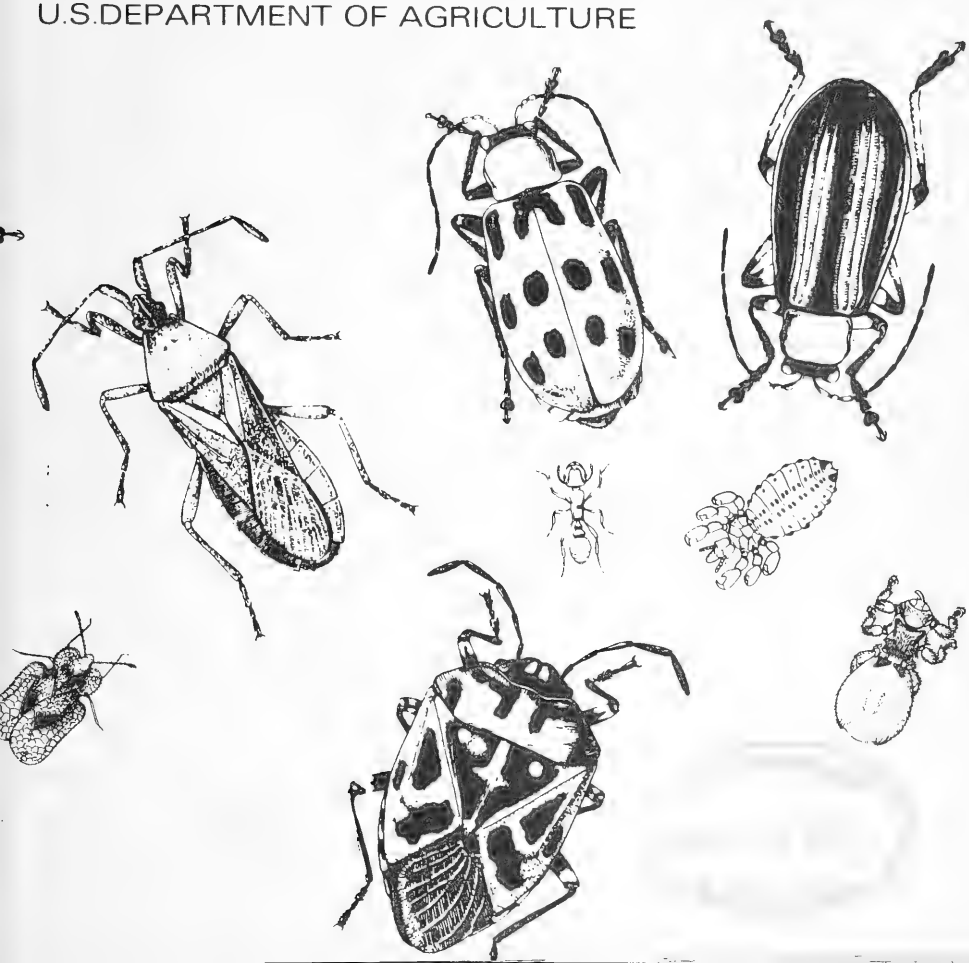

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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Volume 23 March 16, 1973 Number 11

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG heavy on wheat in some areas of Texas Panhandle. (p. 145).

ALFALFA WEEVIL increasing in Texas, reported in southwest Missouri; adults light in Oklahoma. Hatching and light feeding in Illinois. EGYPTIAN ALFALFA WEEVIL larvae increasing in Sacramento and San Joaquin Valleys of California; this pest and alfalfa weevil may be severe. (pp. 145-146).

DIAMONDBACK MOTH increasing on late cabbage in southern Florida. (p. 146).

SOUTHERN PINE BEETLE outbreak may be most severe yet known in Alabama, continues to expand on Nantahala National Forest, North Carolina. (p. 147).

Detection

A BRUCHID and a STRATIOMYID FLY reported for first time from Hawaii. These are new United States records, but neither species is known to occur in continental U.S. (p. 149).

A CONIFER APHID reported for first time in Wisconsin. (p. 147).

For new county records see page 148.

Special Reports

Summary of Insect Conditions in the United States - 1972
- Ornamentals (p. 150).
- Forest and Shade Trees (pp. 150-155).
- Man and Animals (pp. 155-159).
- Stored Products (p. 160).
- Beneficial Insects (pp. 160-161).

Browntail Moth Quarantines. Map. Centerfold.

Some First Occurrences of the Season

GREENBUG in Arkansas. SPOTTED ALFALFA APHID in Florida. PEA APHID in Arkansas. IMPORTED CABBAGEWORM moths in Alabama. PEAR PSYLLA adults and eggs in Washington. FALL WEBWORM adult in Florida. ELM LEAF BEETLE adults in Washington. EASTERN SUBTERRANEAN TERMITE in Missouri.

Reports in this issue are for week ending March 9 unless otherwise indicated.

CONTENTS

WEATHER OF THE WEEK ENDING MARCH 12

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

PRECIPITATION: A number of weather systems produced a variety of weather over the Nation early in the week. One system, off the Oregon coast, caused rain along the Pacific coast from Washington to southern California. An elongated Low lay over the Rocky Mountains. It had a north-south orientation, centered over the central Rocky Mountains Monday. It separated, the northern portion centered over western South Dakota, and moved toward the Great Lakes. It caused snow from North Dakota to Minnesota, freezing rain over Upper Michigan, drizzle and fog elsewhere near the Great Lakes. The southern portion of the storm, centered over the Texas Panhandle, caused rain, drizzle, and fog from the southern Great Plains to the Atlantic coast. Heavy rain, some thunderstorms, hail, and a few tornadoes occurred over the southeastern quarter of the Nation. Tornadoes touched down in the vicinities of Belzoni and Fulton, both in Mississippi, and Tuscumbia, Alabama. A dying storm off the coast of Florida caused rain, drizzle, and fog along the middle and southern Atlantic coast. At midweek, a storm was centered over Lake Superior. A cold front extended from the storm center to the southern Great Plains. Prefrontal showers and thunderstorms occurred in the moist air ahead of the system. Flash floods caused considerable damage in central Alabama. Rain and drizzle fell along the Atlantic coast. By Wednesday afternoon, precipitation was widespread over the eastern and western portions of the Nation. Snow fell in the southern Rockies. Several inches fell along the Mogollon Rim and in the White Mountains of Arizona. Cloudiness and storminess increased late in the week over much of the Nation. Strong winds in the Far Southwest picked up dust and sand causing duststorms and sandstorms. Weather of the week continued on page 162.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Decrease in adult counts north of Big Panoche Canyon in western Fresno County indicates continued winter die-off. Flatland vegetation adjacent to overwintering slopes continues to make good growth. Only selected slopes expected to require treatment north of Big Panoche Canyon. Most slopes south of canyon appear favorable for beet leafhopper reproduction. Only selected slopes expected to require treatments in Coalinga area next few weeks. Surveys throughout most of Kern County overwintering areas indicate light adult populations. Some nymphs found on portion of Pentland Flats and south side of Elk Hills range. Vegetation growing throughout most of overwintering areas in county remains green except on steep areas of extreme southern exposures. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - TEXAS - Survey of 21 Panhandle counties, period February 16-27, showed maximum counts per row foot of wheat as follows: Motley 2,000, Hale 1,000, Hall 400, Castro 250, Deaf Smith 200. Remaining counties averaged 24 per row foot. (Boring). ARKANSAS - Collected on wheat in Washington County March 8 for first report this year. (Boyer).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Heavy numbers of first to third-instar nymphs reported on lycium at Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - About 300 nymphs and adults collected in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 4-5 per linear foot in wheat in Kiowa and Washita Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - FLORIDA - About 125 nymphs and adults collected in 100 sweeps of 9-inch high oats at Gainesville, Alachua County. (Mead).

FORAGE LEGUMES

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County as follows: Yuma Valley 400-1,800, Yuma Mesa 10-600, Gila Valley 130-360, Dome Valley 60-1,200, Wellton 140-2,000. (Ariz. Coop. Sur.). OKLAHOMA - Ranged 3-5 per terminal in alfalfa checked in Kiowa and Washita Counties. (Okla. Coop. Sur.). ARKANSAS - Light, 100+ per 100 sweeps, in northern Logan County. Ranged 200-250 per 100 sweeps in alfalfa in Miller County; probably active in county about 14 days. First of season found in Washington County March 8. (Boyer, Jones).

ALFALFA WEEVIL (Hypera postica) - TEXAS - Activity increasing throughout State on alfalfa. Larval counts ranged to 151 and eggs 50 per square foot in Burleson County. Light to medium infestations (5 adults per 100 sweeps) in Wharton and Fort Bend Counties. (Boring et al.). OKLAHOMA - Eggs averaged 223 and 457 per square foot in Stephens and Payne Counties respectively. Adults light in alfalfa in Kiowa, Washita, Roger Mills, and Muskogee Counties. (Okla. Coop. Sur.). ARKANSAS - Three egg clusters found in

north Logan County; no larvae nor adults present. Two adults but no larvae or eggs found in Miller County. (Boyer, Jones). MISSOURI - Adult activity reported in southwest area. Counts ranged 0-8 per 10 sweeps. Hatch observed in Newton and Barton Counties. (Munson). ILLINOIS - Hatching and light feeding noted in Gallatin and Hardin Counties. (Ill. Ins. Rpt.). TENNESSEE - Egg counts in Knox County ranged 25-30 per square foot. Some hatching and light feeding noted. (Bennett). VIRGINIA - Larvae should appear within next 14 days in southern Piedmont and Coastal Plain areas. Normally appear during third week in March. (Allen).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Alfalfa beginning spring growth although weather cold and very wet past month. H. brunneipennis larvae increasing and treatments being applied in Sacramento and San Joaquin Valleys. Larvae ranged up to 20 per sweep in some fields. Weather predictions indicate H. brunneipennis and H. postica (alfalfa weevil) infestations may be severe and damage may extend over longer period than normal. (Cal. Coop. Rpt.). ARIZONA - Alfalfa field at Yuma Valley, Yuma County, with 6,000 larvae per 100 sweeps. Averaged 3 larvae per sweep in many fields in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Averaged 105 per 5-leaf sample on bell peppers with some signs of virosis appearing in plantings at Belle Glade, Palm Beach County, late February and early March. (Fla. Coop. Sur.).

COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Populations increasing on late plantings of cabbage at Belle Glade, Palm Beach County. Expected to be heavy in area. (Fla. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - First adults of season observed in flight in central area; laying eggs on cole crops. (McQueen).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Adults averaged 13 per tray and eggs 9 per 25 spurs at Wapato, Yakima County, February 27; adults 39 per tray and eggs 2 per 30 spurs at Summitview and Fruitvale, Yakima County, February 28. First eggs deposited at Rock Island, Douglas County, March 2; first sprays applied March 5 at this location and at sites in Chelan and Douglas Counties. (Gregorich, Rushmore).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larval survival heavy in old shucks under all pecan trees examined in Lee County. Pupation expected next 10-30 days. Larvae present in 10-20 percent of old shucks under many trees. (McQueen).

SMALL FRUITS

RAISIN MOTH (Cadra figulilella) - CALIFORNIA - Full-grown larvae found under bark of grapevines in Bakersfield, Kern County. Larvae developing in mummified bunches of grapes left on vines. (Cal. Coop. Rpt.).

ORNAMENTALS

NATIVE HOLLY LEAFMINER (Phytomyza ilicicola) - TENNESSEE - Larvae observed tunneling in holly leaves in eastern and middle areas. Larvae apparently overwintered in leaves, unusual for the State. (Hadden, Gordon).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Development continued in previously reported pine areas of Lee County. Additional trees dying along outer edges. Several hundred larvae, pupae, and adults per square foot of bark surface. Adult population explosion expected in these areas and other infested areas in 40+ counties in late March and April. Outbreak may be most severe yet known in State. (McQueen). NORTH CAROLINA - Outbreak continues to expand on Tusquittee Ranger District, Nantahala National Forest, Cherokee and Clay Counties. January survey indicates 3-fold increase in estimated number of infested trees per 1,000 acres of host type since July 1972. (Hunt). Also problem in pine-type forest in 40 counties. Outbreak increased rapidly in western half of State during late fall 1972. More than 3.6 million board feet of infested pine salvaged since July 1, 1972. (USFS).

A CONIFER APHID (Cinara canadensis) - WISCONSIN - Collected by C.J. Wertschnig from needles of Juniperus sp. on July 21, 1972, at Watertown, Jefferson County. Determined by L.M. Russell. This is a new State record. (Wis. Ins. Sur.).

FALL WEBWORM (Hyphantria cunea) - FLORIDA - First adult of season taken in blacklight trap in Gainesville area, Alachua County. (Fla. Coop. Sur.).

ELM LEAF BEETLE (Pyrrhalta luteola) - WASHINGTON - First adult emergence noted March 4 in Wenatchee, Chelan County. (Rushmore).

AN ARMORED SCALE (Hemiberlesia quercicola) - ARIZONA - Collected February 5, 1973, at Sedona, Coconino County on oak by J. May. Determined by R.J. Gill. This is a new county record. (Ariz. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - During period February 25 through March 3, there was one confirmed case reported in the continental U.S. from Starr County, Texas. Total of 112 confirmed cases reported from Mexico; about twice number reported previous period. Number of sterile flies released in U.S. this period totaled 73,620,000, all in Texas. Total of 166,191,500 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 3 per head on untreated Holstein dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - H. lineatum (common cattle grub) ranged up to 10 per head (average 3) on steers checks in Payne County. Light numbers present in Cimarron County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - FLORIDA - Adults averaged 24 per beef cow in herd near Lacrosse, Alachua County. (Fla. Coop. Sur.).

CATTLE LICE - TEXAS - Heavy infestations of Haematopinus eurysternus (shortnosed cattle louse) and Linognathus vituli (longnosed cattle louse) observed on beef cattle in Young and Wilbarger Counties. (Boring).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND - Swarm reports averaged 3 per week in Prince Georges, Montgomery, and Anne Arundel Counties. Peak activity expected in 21 days. (U. Md., Ent. Dept.). MISSOURI - First swarms of season reported from Butler and Scott Counties. (Munson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Larvae averaged 38 per square foot in pasture examined February 7 in Whatcom County. This is same general area where early instar larvae averaged 1,800 per square foot in fall 1972. (Campbell). See CEIR 22(44):741.

RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Heavy mound building noted throughout south-central area. Heaviest activity noted in Waller, Grimes, and Harris Counties. Light activity only noted in Fort Bend County, site of recent control operations. (Green et al.).

DETECTION

New United States Records - A BURCHID (Callosobruchus albocallosus) - HAWAII - Maui. A STRATIOMYID FLY (Wallacea albiseta) - HAWAII - Oahu. (p. 149).

New State Record - A CONIFER APHID (Cinara canadensis) - WISCONSIN - Jefferson County. (p. 147).

New County Record - AN ARMORED SCALE (Hemiberlesia quercicola) ARIZONA - Coconino (p. 147).

CORRECTIONS

CEIR 23(8):93 - CORN, SORGHUM, SUGARCANE - "EUROPEAN CORN BORER (Ostrinia nubilalis) infestations were significant in occasional cornfields ..." should read "EUROPEAN CORN BORER (Ostrinia nubilalis) infestations were significant in occasional sorghum fields ..." (PPQ).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/5-8, BL - BLACK CUTWORM (Agrotis ipsilon) 1, GRANULATE CUTWORM (Feltia subterranea) 17, ARMYWORM (Pseudaletia unipuncta) 1.

New State Records - Specimens of a BRUCHID (Callosobruchus albocallosus Pic) in University of Hawaii and Hawaii Department of Agriculture collections, recognized as being new to State by J.W. Beardsley, were determined this species by J.M. Kingsolver. Earliest specimens collected in January 1965 by N.L.H. Krauss at Haiku, Maui. Subsequent specimens collected at light on Univeristy of Hawaii campus by J.W. Beardsley and on pigeon pea at Ewa by G. Funasaki, both on Oahu. (Funasaki).

Eight male specimens of a STRATIOMYID FLY (Wallacea albiseta de Meigere) collected at large December 3, 1972, at Waahila Ridge (400 meters elevation), Oahu, by F.G. Howarth. Two males taken at Mokuleia, Oahu, by W. Gagne dated September 1, 1970, subsequently noted in private collection. Determined by M.T. James. W. albiseta described from Java and later recorded from Taiwan, Singapore, Okinawa, and Guam. A subspecies W. a. borealis described from the Bonin and Mariana Islands by M.T. James in 1962. (Howarth). As far as is known W. albiseta is of no economic importance. (PPQ).

Callosobruchus albocallosus and Wallacea albiseta are new United States records but are not known to occur in the continental U.S. (PPQ).

General Vegetables - BEET ARMYWORM (Spodoptera exigua) larvae very heavy on green onions at Koko Head, Oahu, with 80-90 percent of leaves infested or damaged. Light to moderate in adjacent onion planting; less than 30 percent of leaves infested or damaged. Larval mines of LEAFMINER FLIES (Liriomyza spp.) light in both fields. All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy in snap beans at Waimanalo; moderate, but sporadically heavy, in 2 nearby soybean plantings and trace in greenhouse cucumbers in same area. (Kawamura).

Beneficial Insects - BRACONID WASPS (Opius importatus and O. phaseoli) and a PTEROMALID WASP (Halticoptera patellana) parasitized 100 percent of Melanagromyza phaseoli (bean fly) infesting snap bean and yardlong bean petioles collected at Waikapu and Puunene, Maui, during February. O. importatus dominant. Opius spp. parasitized 80-100 percent of M. phaseoli infesting cowpea and snap bean petioles collected at various sites on Kauai during same period. (Miyahira, Sugawa).

(Continued from page 140)

ORNAMENTALS

Highlights: BAGWORM was heavy and damaging to evergreens in several States.

BAGWORM (Thyridopteryx ephemeraeformis) was a serious pest of untreated or improperly treated junipers throughout the eastern half of KANSAS. Infestations were heavier than normal in ARKANSAS and caused heavy losses where controls were not applied. Bagworm was the most destructive pest of coniferous shrubs throughout ALABAMA. This psychid was the most common problem encountered in ornamental pest surveys in MARYLAND for the fourth consecutive year. Infestations were heavy again this year in all parts of the State. The first bagworm larvae of the season in DELAWARE were noted on arborvitae and other evergreens during early June. Infestations were generally heavy in many areas of the State.

BRONZE BIRCH BORER (Agrilus anxius) was the major pest of ornamental white birch in MARYLAND. This wood borer has destroyed several hundred birch trees in Montgomery, Baltimore, Anne Arundel, and Prince Georges Counties. Also in Maryland, a JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) continued to spread throughout the State. Heavy damage continued to be spotty and was restricted mainly to plantings of azalea, privet, rhododendron, and small leaf hollies.

SPRUCE SPIDER MITE (Oligonychus ununguis) caused heavy damage and some mortality in hemlock and spruce plantings in several areas throughout MARYLAND. Damage was most severe during July and August. SPIDER MITES (Tetranychus spp.) were again the most common arthropod pests of shrubbery in NORTH CAROLINA. Infestations were light in some nurseries with 5-50 percent of plants infested. TWOSPOTTED SPIDER MITE (Tetranychus urticae) was very heavy on roses, shrubs, and annual plants in CALIFORNIA, requiring repeated control applications early in the season.

BALSAM TWIG APHID (Mindarus abietinus) caused stunting and heavy degrading of Christmas trees throughout VERMONT. Infestations appear to be on the increase in managed tree stands.

A THRIPS (Scirtothrips inermis) was collected from liquidamber trees at Long Beach in Los Angeles County, CALIFORNIA, in May. This was the first record of this thrips on the North American Continent. (See CEIR 22(30):483).

FOREST AND SHADE TREES

Highlights: SOUTHERN PINE BEETLE was found in WEST VIRGINIA for the first time since 1882, and was serious in pine type forests in several Southern States. The potential for continued outbreaks is great in some of these States. MOUNTAIN PINE BEETLE continued to cause heavy losses to lodgepole pine in Oregon and is now epidemic in the eastern foothills of the Rocky Mountains in COLORADO. DOUGLAS FIR BEETLE was the most destructive pest of western OREGON forests but is expected to decrease in 1973. ELM SPANWORM is

is expected to be serious in RHODE ISLAND during 1973. FALL WEBWORM was the heaviest in several years in Ohio. Heavy defoliation by FOREST TENT CATERPILLAR in Minnesota did not materialize due to cold weather preceding egg hatch. ELM LEAF BEETLE was serious on elms throughout COLORADO and unusally so throughout KANSAS.

SOUTHERN PINE BEETLE (Dendroctonus frontalis) was reported in WEST VIRGINIA for the first time since 1882. This bark beetle had killed 175-200 pitch pine trees on the Kanawha State Forest. Southern pine beetle continued to be a problem in the central Piedmont and the far western counties of NORTH CAROLINA. A survey conducted during August and September on the 220,000-acre Uwharrie National Forest indicated a southward spread from the northern boundary of the forest. Surveys conducted during 1971 and 1972 on the Tusquitee District of the Nantahala National Forest revealed a westward expansion of the outbreak there.

One of the most severe outbreaks of southern pine beetle recorded in ALABAMA occurred during 1972. The first report of major consequence occurred in a residential section of Auburn in Lee County July 6 where an exploding population killed approximately 100 growing and mature pine trees. Epidemic populations were reported during July, with 30 of the 67 counties surveyed found to be infested. By September, 40 of the 67 counties were reported as epidemic. At this time predator populations were at low levels. The potential population of this beetle for 1973 in the 21.7 million acres of pine forest in Alabama is the greatest ever known. Surveys of 1.6 million acres of pine type in MISSISSIPPI by State personnel revealed southern pine beetle populations in outbreak proportions in 9 southwestern counties where brood counts averaged 172 per square foot of bark surface. The presence of this bark beetle also was verified for the first time in the 4 east-central counties of Mississippi bordering Alabama. Brood densities of 366 per square foot of bark surface in the Homochitto National Forest (contiguous with the 9 southwestern counties) indicated the potential for continued high populations there. In ARKANSAS, a total of 1,090 new southern pine beetle infestations were detected in Ashley, Drew, and Union Counties, by the State Forestry Commission during the period May 15 to December 31. Controls involving cutting, burning, spraying or salvaging were applied to 1,039 of these new infestations.

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) continued to cause heavy losses in lodgepole pine stands in the Wallowa and Whitman, Umatilla, Malheur, Deschutes, Fremont, and Winema National Forests of OREGON. Losses in the Cascade Mountains to western white pine continued to decrease. Statewide losses of pine were estimated at 58,722,040 board feet. Heavy infestations of mountain pine beetle were found on ponderosa pine in the eastern foothills of the Rocky Mountains in COLORADO. These populations increased 5 to 6-fold over 1971 and are now in an epidemic status.

DOUGLAS FIR BEETLE (Dendroctonus pseudotsugae) caused severe tree kill in the Hood River drainage area of the Mt. Hood National Forest in OREGON. This was again the most destructive species in western Oregon forests where it accounted for an estimated loss of 14 million board feet of Douglas-fir. Populations are expected to subside in 1973.

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) infestations increased very sharply in area and density in northeastern OREGON. A total of 118,650 acres were either defoliated or killed. Damage ranged moderate to heavy on young white fir trees in localized areas of high recreational value in the Spring Mountains of Clark County, NEVADA.

Although the extent and intensity of defoliation by SPRUCE BUDWORM (Choristoneura fumiferana) decreased in MINNESOTA over that of 1971, there was still much tree mortality and severe defoliation on mixed stands of balsam fir and white spruce in St. Louis, Lake, and Cook Counties during 1972. Overall defoliation is estimated at more than one million acres in Minnesota. Spruce budworm defoliated more than 40,000 acres of hemlock throughout PENNSYLVANIA.

COOLEY SPRUCE GALL APHID (Adelges cooleyi) was heavy in many areas of COLORADO with many galls on blue spruce trees. In Larimer County, populations averaged 5 galls per 40 terminal twigs which is heavier than the past four or five years. BALSAM WOOLLY APHID (Adelges piceae) continued to cause mortality of Fraser fir at a steady rate in NORTH CAROLINA. This pest was damaging in every major spruce fir area (total of 60,000 acres) in the Southern Appalachians except Mount Rogers in VIRGINIA.

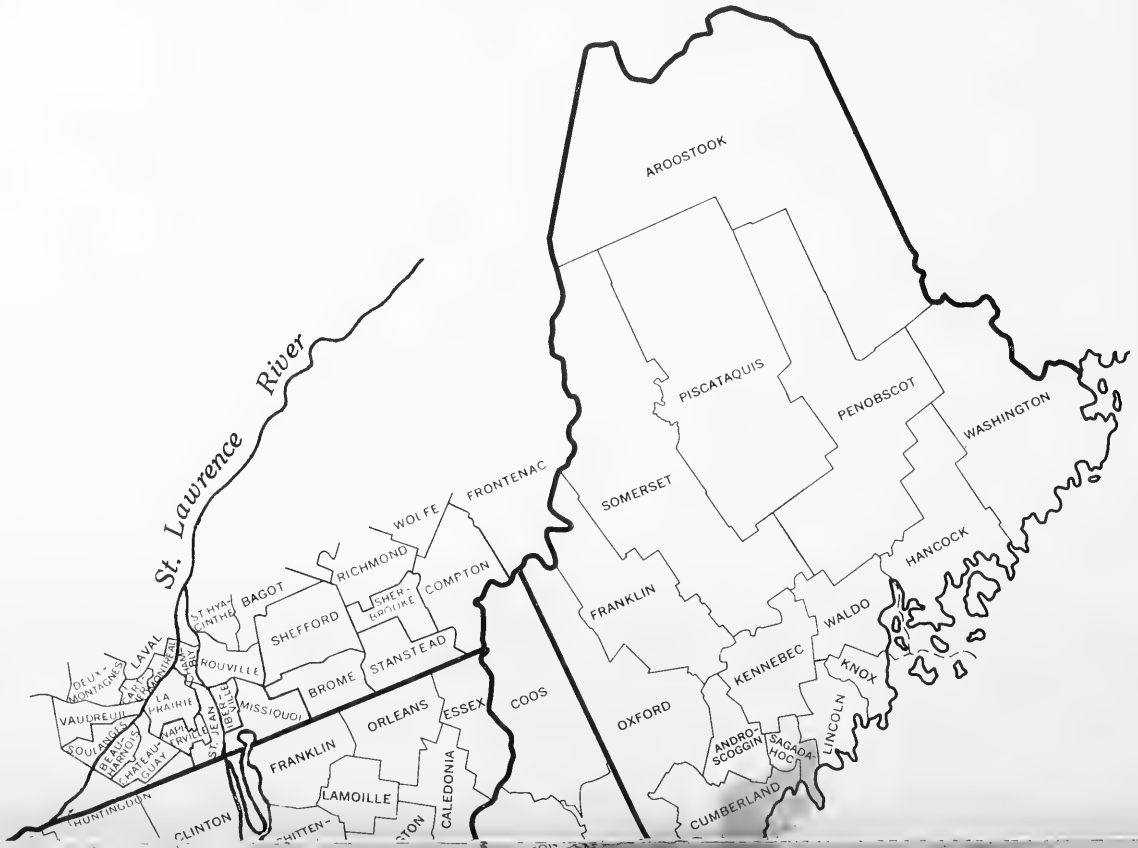
A CONIFER SAWFLY (Neodiprion pratti pratti) defoliated pines in eastern and south-central KENTUCKY attacking Virginia, shortleaf, and pitch pines. The first hatch of the year was observed in mid-February. Percentages of larval defoliation of Virginia and shortleaf pines by district were as follows: South-central 40-70; northeastern 10-30; Kentucky River 30-50; eastern 10-30; and southeastern 20-40. Larvae of an other CONIFER SAWFLY (Neodiprion taedae linearis) heavily defoliated loblolly and shortleaf pines in western KENTUCKY. Defoliation ranged 75-100 percent in Calloway, Marshall, and Graves Counties, while counties along the Mississippi River incurred 50-75 percent defoliation.

ORANGESTRIPED OAKWORM (Anisota senatoria) damage ranged moderate to heavy on oak and chestnut throughout much of WEST VIRGINIA. This saturniid was taken on white oak at Pipestem, Summers County, September 10, 1972, by J.D. Hacker. This is a new county record. GREENSTRIPED MAPLEWORM (Anisota rubicunda) completely defoliated many silver maples in Pottawatomie and Shawnee Counties, KANSAS, during late August. This pest was very heavy on honeylocusts in some cities in northeast and east-central counties. Defoliation of 50-100 percent in Riley and Shawnee Counties was common during late August.

LARGE ASPEN TORTRIX (Choristoneura conflictana) was unusually heavy on poplar stands over much of the northern two-thirds of MAINE. West of Moosehead Lake, defoliation was very noticeable from the ground and the air. This is the first instance of such heavy populations in many years and possibly since 1931 when some 100,000 acres of poplar were defoliated. Defoliation increased an estimated 2 million acres in MINNESOTA. Large portions of St. Louis, Cook, and Lake Counties were affected with smaller areas in Koochiching, Beltrami, Lake of the Woods, Itasca, and Carlton Counties being damaged.

BROWNTAIL MOTH QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
COOPERATING WITH AFFECTED STATES



REVISED January 19, 1973

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.

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.

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES.

THE FOLLOWING REGULATED ARTICLES MUST BE MOVED UNDER CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:

Deciduous trees, and shrubs with persistent woody stems, and parts of such trees and shrubs, with leaves attached.

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.*

*-Exempt if not exposed to infestation after the prescribed handling.

OAK LEAFTIER (Croesia albicomana) was the major pest of red oak from the mid-1950's to the mid-1960's in PENNSYLVANIA. Again in 1972 it was present in large numbers. Another siege of oak mortality most likely can be expected for the next few years in Pennsylvania. Larvae of a TORTRICID MOTH (Archips semiferanus) defoliated 159,620 acres of Sproul State Forest in Clinton and Centre Counties, PENNSYLVANIA. Statewide defoliation, which covered one million acres the previous two years, decreased to 610,000 acres in 1972. This is undoubtedly the worst forest pest disaster to occur in the State in many decades.

SPRING CANKERWORM (Paleacrita vernata) caused moderate to severe defoliation of shade trees, particularly elms, in many areas of NEBRASKA in May and June. Male moths were active in Cass County, NORTH DAKOTA, on March 20. Male and female moth emergence peaked in Fargo by April 14. Eggs were present in Hettinger County April 18 and in Ward and Renville Counties by May 5. Tanglefoot bands on trees in Walsh, Pembina, and Grand Forks Counties had 14 females per square inch by May 5. Adult emergence was complete over the State by May 26. First-instar larvae hatched in Bottineau County by May 19 and 40 percent had hatched by May 23 in Pembina County. Infestations and damage were heavy and widespread throughout the northern half of North Dakota by June 2. Larvae were fully grown by June 2 and maximum defoliation had occurred by June 9.

The extent and severity of defoliation by larvae of a GEOMETRID MOTH (Hydria prunivorata) increased substantially in PENNSYLVANIA during 1972. Defoliation was heaviest on the eastern portion of the Allegheny National Forest and in adjacent areas of State and private forest lands. Defoliation was heavy on 26,500 acres of forest in Elk County. In this area of the State, defoliation ranged light to moderate on 86,500 acres of black cherry which comprises 5-90 percent of the northern hardwoods. Defoliation was also heavy on 7,000 acres of McKean County and 6,000 acres in Tioga County.

Late-instar larvae of ELM SPANWORM (Ennomos subsignarius) were feeding in Washington County, RHODE ISLAND, by July 3. Adults were heavy in Providence, Kent, and Washington Counties during the period July 14-17. Elm spanworm is expected to cause much damage to forested areas of the State in 1973. BRUCE SPANWORM (Operophtera bruceata) and a LEAFROLLER MOTH (Sparganothis acerivorana) caused widespread and locally heavy defoliation of maple over the northern two-thirds of MAINE in late May and early June. This insect complex caused up to 75 percent defoliation of forest trees in several limited areas of Maine.

The SADDLED PROMINENT (Heterocampa guttivitta) outbreak of 1970-1971 in NEW HAMPSHIRE collapsed during 1972. Light trap collections of adults decreased by 95 percent from 1971 collections. Only a few acres of forest trees in isolated areas were considered heavily defoliated. VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) caused widespread damage throughout WEST VIRGINIA with heaviest infestations in Hardy, Wayne, and Hampshire Counties. This notodontid moth was collected on hawthorn in Coopers Rock State Forest, Preston County, September 11, 1972, by L. Butler. This is a new county record. Larvae of another NOTODONTID MOTH (Symmerista canicosta) caused severe defoliation on 200 acres of bur oak in Dickinson, Lyon, and Sioux Counties, IOWA. The area of defoliation by this pest is increasing.

FALL WEBWORM (Hyphantria cunea) first-generation larvae appeared in early July on various shade trees in Chaves and Dona Ana Counties, NEW MEXICO. Second-generation larvae caused partial or complete defoliation of all types of shade and pecan trees. In October larvae began moving onto walls and entering homes. Heavy webbing of this pest in pecan and walnut trees occurred throughout the Piedmont and Coastal Plains of NORTH CAROLINA, first appearing in early June. Counts of webs in persimmon and pecan trees along U.S. Highway 64 from Tyrrell County to Rowan County June 14 and 15 ranged 0-10 per tree. The heaviest fall webworm population in several years was present in northeastern and east-central OHIO and in the Tar Hollow State Forest vicinity. First-instar larvae were seen feeding in Wayne, Jefferson, and Carroll Counties by the second week in June. Infestations of up to 40 tents per tree were noted in many northeastern and east-central counties. Fall webworm webs were first reported on cherry, apple, and wild cherry in Darlington, Beaver County, PENNSYLVANIA, July 15. Damage was evident along roads in many southwestern areas. About 70 percent defoliation occurred on 4,000 acres of black cherry and crab apple in Hanover Township, Washington County.

EASTERN TENT CATERPILLAR (Malacosoma americanum) egg hatch began about the second week of April in southern OHIO and 14 days later in northern areas. Noticeable feeding damage occurred on apple and sweet cherry in Clermont, Harrison, and Carroll Counties. Hawthorn and crab apple in Franklin County and east-central areas contained up to 20 tents per tree. Pupation began in central and southern Ohio about May 22. Egg mass surveys indicated that the parasite, predator, and disease impact was not sufficient to reduce the numbers of overwintering egg masses. In KENTUCKY, the first egg hatch of the year was observed April 1 in McCreary County. Larval emergence was heavy in some areas and larvae continued to defoliate wild cherry well into May. Infestations were heaviest in Muhlenberg and Fayette Counties where tents averaged 46 and 44 per mile, respectively.

Eastern tent caterpillar egg hatch began in Lawrence and Johnson Counties, INDIANA, about April 14. Four-inch webs were present by April 21 in the metropolitan area of Indianapolis, where the insect was unusually heavy, infesting such unusual hosts as lilacs and other ornamentals. Larvae were full grown by May 12 in the southern half of the State, and were pupating in Indianapolis by May 19. New egg masses were found in Vigo County by June 30. Marion County had the heaviest infestations in the State while Warren, Tippecanoe, La Porte and Elkhart Counties had isolated pockets of heavy infestations. Eastern tent caterpillar was very abundant in ILLINOIS in 1972 although economic damage was minimal. By the end of April, young wild cherry and crab apple trees were completely defoliated throughout the southern half of the State with as many as 20 tents in some trees.

Eastern tent caterpillar egg hatch began about April 27 in southern WISCONSIN and webbing was noted by May 5. Larvae were in the second instar May 19, third instar by May 26 and fourth instar by May 31. Migration from trees began about May 31. Pupation began June 7 and adults began emerging about June 28. Trees mainly affected by this pest were black cherry, chokecherry, mulberry, and untreated apples. Heavy eastern tent caterpillar infestations were common on wild plum throughout most of the eastern half of KANSAS and on wild cherry in the southeastern areas.

FOREST TENT CATERPILLAR (Malacosoma disstria) completely defoliated an estimated 1,200 acres of tupelo and blackgum timber along the Roanoke River near Woodville in Bertie County, NORTH CAROLINA. Forest tent caterpillar larvae caused 30-100 percent defoliation on 1,700 acres of timber in the western counties of Muklenberg, McLean, and Hopkins in KENTUCKY, where oaks were the primary hosts. Heavy defoliation by forest tent caterpillar was expected over a minimum of 200,000 acres of forest in Koochiching County, MINNESOTA, in 1972 but a severe cold period preceding egg hatch in early May caused a drastic population reduction and no defoliation was recorded.

ELM LEAF BEETLE (Pyrrhalta luteola) was a serious problem on elms in all areas of COLORADO, with heavy infestations being common. Organized spray programs were necessary in several municipalities. This pest appeared on elms in NEW MEXICO in April and was a continuous problem throughout the State all season. Defoliation was almost complete in many areas where elms are the dominant shade trees. Elm leaf beetle damage to Chinese elms in TEXAS was heaviest in Wilbarger, Winkler, Ward, Ector, Midland, and Martin Counties. In OKLAHOMA, activity began during mid-April and damage to elms was heavy by early June. Damage by second and third-generation larvae was heavy on Siberian elms in most areas of the State during July and August.

Elm leaf beetle first-generation larvae caused unusally severe defoliation of Siberian elms throughout most of KANSAS. The first eggs of the 1972 season were observed in mid-April and hatching had begun by May 19. By June 9, pupation of the first generation had begun with foliar damage ranging up to 50 percent. A large percentage of first-generation pupae checked in Riley County had been killed by an unidentified fungus. This may have been largely responsible for the comparatively light succeeding generations. This leaf beetle was a very troublesome pest of elms throughout NEBRASKA. Damage by this pest was very severe on elms in Woodburg County, IOWA, during the first 14 days of June when larvae ranged 0-6 (average 2) per leaf. Larvae of elm leaf beetle were collected from elm at Denison, Crawford County, June 14 by M.E. LaRue. Specimens were determined by S.O. Ryan. This is a new county record.

MAN AND ANIMALS

Highlights: SCREWWORM outbreak in Southwest worst in several years. FACE FLY was difficult to control on beef herds in central MARYLAND and appeared on increase in KENTUCKY. HORN FLY was generally annoying to beef and dairy cattle in several areas. MOSQUITO populations, especially floodwater species, increased in Maryland after tropical storm Agnes. These pests were also annoying to man and livestock in other areas.

During 1972, there were 95,642 confirmed cases of SCREWWORM (Cochliomyia hominivorax) reported in the continental United States as follows: Texas 90,980; Arizona 2,320; New Mexico 1,269; Oklahoma 1,024; California 27; Kansas 8; Arkansas 6; Florida 2; Louisiana 2; Georgia 1; Alabama 1; and one case each from Colorado and Iowa, both originating in Texas.

The extent of the 1972 disaster was chronicled each month as it developed. Thus, end-of-the-year totals are appropriate, both for historical reasons and to demonstrate the severity of the outbreak the industry has been through.

Only six times in nine years has a State had 1,000 or more cases. In 1972, Texas had 28 counties with more than this number of cases. Val Verde County had the largest number of cases--3,003. Other totals were Medina 2,733; Kinney 2,595; Uvalde 2,593; De Witt 2,138; and Atascosa 2,053.

New records were set in 178 counties in Texas. Only nine of the State's 254 counties failed to record at least one case. All in East Texas, they were: Hardin, Jefferson, Marion, Morris, Nacogdoches, Newton, Orange, Sabine, and San Augustine.

Going into the year 10 counties had never reported an outbreak. During 1972, Camp, Dallam, Hansford, Jasper, Ochiltree, and Sherman fell by the wayside, leaving only four with unsullied records: Marion, Newton, Sabine, and San Augustine.

In thirteen States, 350 counties had one or more screwworm outbreaks confirmed within their boundaries.

Not all States set new screwworm records in 1972. Texas did, of course, nearly doubling its previous record of 49,484 in 1962, a figure which had been surpassed by about August 24 of 1972.

Compared to Texas, Arizona's 2,320 cases do not appear very heavy, but set against previous marks the outbreak there was considerably worse than in the Lone Star State, more than tripling its previous mark of 728 established in 1963.

Oklahoma's 1,024 was substantially ahead of its earlier high, 444 set way back in 1962.

Five States set automatic records with the first cases they had reported since program inception in 1962--Kansas 8, Florida 2, Alabama 1, Colorado 1, and Iowa 1.

Despite ranking third this year with 1,269 cases, it wasn't the worst year New Mexico has had. That dubious distinction goes to 1963, when 1,447 cases were detected.

Other non-recordbreakers included California with 27 in 1972, compared to 135 in 1968, and Arkansas with 6 against 25 a year ago.

The year ended with an unbroken 291 consecutive days during which the Mission Laboratory had received at least one screwworm sample. Not since March 15 had a working day passed without one of the flesh-eating larvae being identified.

There were 4,572 non-screwworm samples in the U.S. during 1972. This total represents slightly over one-fifth of all laboratory confirmed cases of screwworms and non-screwworms combined.

In Northern Mexico, there were 30,301 laboratory confirmed cases of screwworms during 1972. This total is almost 3.5 times the number of cases reported from this area in 1971. This year was the worst for Northern Mexico in program history--prior to this year, the 19,452 screwworms reported in 1968 had been the greatest number of cases confirmed.

Both the U.S. Virgin Islands and the British Virgin Islands were declared free of screwworms in November 1972.

COMMON CATTLE GRUB (Hypoderma lineatum) was heavy in 77 percent of yearling calves examined in Cherry County, NEBRASKA. Grubs averaged 15 per animal on February 29. Adult activity was noted in Keith, Logan, Lincoln, and McPherson Counties by May 31. Larvae of this oestrid fly were heavy in most areas of OKLAHOMA from mid-February into late March. First fall larvae were found in mid-September and by mid-November packing plants in several areas were reporting heavy damage to carcasses. H. lineatum continued to be a problem in the upland areas of ARKANSAS. In one herd in Benton County, 268 grubs were counted on 31 head. Populations and damage remained about the same as the past 3 years, in ALABAMA. Infestations were light to medium only due to better and more widespread use of proper pesticides.

FACE FLY (Musca autumnalis) was difficult to control in beef herds in central MARYLAND. Populations were moderate to heavy throughout the season. Populations ranged 5-30 per head during May, 20-40 per head in July and 30-100 per head in August. Annoyance to cattle dropped below economic levels in September. Face fly populations on the Eastern Shore were extremely light (1-2 per head) as expected. Face fly was very annoying to cattle in the mountain and western Piedmont counties of NORTH CAROLINA. Populations reached 50 flies per head during August in some localities. Populations increased in KENTUCKY compared to those of the past 4 years. Adults averaged 15.3 per animal per county statewide.

Face fly ranged 35-40+ per face in Crawford, Geauga, Jackson, and Wayne Counties, OHIO, in July. Up to 50+ flies per face caused severe annoyance to cattle in Coshocton and Guernsey Counties late in August. The first face flies of the season in ILLINOIS were observed during mid-April on cattle in the central area, when counts averaged less than 1 per animal. By mid-July surveys indicated that populations had increased to 25 per animal. These levels held up, at least in the northern two-thirds of the State, until late September. Annoyance to cattle began in WISCONSIN in late May and became general by June 3. Counts were heavy at various times in Outagamie, Chippewa, and Richland Counties. Several cases of pinkeye, presumably spread by face fly, were reported in Trempealeau County late in June. Control measures were necessary.

Face fly populations on beef cattle averaged 5 per head in Story County, IOWA, by June 23 and 40-70 per head on untreated beef cattle in Polk County August 4. In NEBRASKA first face fly adults were observed June 15 in Lincoln County. Populations continued to increase and peaked about August 11 at 16-17 per animal. Annoyance to range animals was noted through mid-September. Fly populations were held at about 7-8 flies per head where dust bags were used. Face fly populations remained light in NORTH DAKOTA until the first of August when counts on calves in Richland County reached 29 per face and up to 12 per face on cows. Some annoyance was noted in Dunn County with up to 6 flies per face.

HOUSE FLY (Musca domestica) emergence was heavy at several feedlots across NEBRASKA and developed into a serious problem in July and August. Severe problems were noted in Brown, Saunders, Lincoln, and Keith Counties, where counts ranged up to 10-12 flies per

Scudder grid. In WISCONSIN, counts began building up around dairy barns early in June and increased at a normal rate until late in August when very heavy counts were apparent throughout the southern three-fourths of the State. Much control was necessary around livestock farms and private residences. House fly continued to be the number one nuisance and pest to all beef, pork, and poultry operations in SOUTH CAROLINA. An increase in complaints from nonfarm families living near farms or processing areas was noted. Even with extensive fly control and educational efforts, the incidence of complaints remained high.

HORN FLY (Haematobia irritans) infestations were slightly below normal in MARYLAND. During June and July counts ranged 10-30 per head on unsprayed beef cattle. During the same period counts on sprayed dairy cattle ranged 0-15 per head. Populations dropped below economic levels in September. The heaviest horn fly infestations in OHIO were observed in the east-central and southern areas of the State but were never found to exceed 500 per side on livestock. In INDIANA, horn fly populations ranged 1-2 per steer in May and continued to increase until the last week in August, counts ranged 600-700 per steer. Populations began building up in ILLINOIS in late May and by mid-June had reached an average of 20 per animal statewide. By early August counts reached 100 per animal and remained at this level until late September. Horn fly was generally annoying on beef cattle throughout IOWA. Populations peaked in Story County on July 21 when about 400 per head were observed.

Horn fly annoyance to dairy cattle in WISCONSIN was observed in Columbia County as early as May 24 and moderate numbers were reported in Chippewa County in mid-June. The peak of activity occurred about August 1 when 20-40 flies per animal were observed on dairy cattle. Horn fly populations appeared to be down this year in most areas of NORTH DAKOTA. By June 9, counts in McKenzie County averaged 170 per animal. Counts averaged 35 per animal in Pierce County on June 23 and by July 14, populations had reached 240 per animal in Richland and Ransom Counties. On August 4, buffalo in Benson County averaged 150 flies per animal. In west-central NEBRASKA, horn fly averaged 5 per head on cattle in Keith, Arthur, McPherson, Logan, and Lincoln Counties on May 11. By mid-June, flies increased to 300-400 per head and by mid-July ranged 500-3,000 per animal. Populations remained at about 1,500 per head on range animals through August 23, then declined. Horn fly was active on cattle in CKLAHCMA from mid-March into late November. In Payne County the heaviest numbers, 1,500-1,700 per head, occurred in early June. Horn fly increased in the Trans-Pecos area of TEXAS in late April where counts ranged 400-3,000 per head in Presidio County. Medium to heavy infestations were noted in many counties in the Blacklands, north-central, Trans-Pecos, and Rolling Plain areas throughout the summer. Increasing populations were noted in the Panhandle area in late June. Adults averaged 100 per cow by March 24 in Jones County, MISSISSIPPI, and by mid-May averaged 179+ per cow in Marion, Monroe, and Oktibbeha Counties. Populations peaked in mid-July at 500+ per cow in Clay, Monroe, Montgomery, Noxubee, and Oktibbeha Counties and again in mid-September at 1,000+ per cow. Horn fly infestations were annoying and damaging to livestock throughout the fly season in southern ALABAMA beginning in late March. Infestations were limited mainly to beef cattle herds where proper control was not applied.

STABLE FLY (Stomoxys calcitrans) infestations were slow building up in NORTH DAKOTA but populations became economic with the hot, wet weather during August. The lack of a killing frost until October contributed to the prolonged annoyance. This species is primarily a feedlot and farm herd problem in North Dakota and is not a problem in the drier western areas of the State. The heaviest populations observed in NEBRASKA were seen in mid-August when flies ranged 20-25 per leg on feedlot animals in Lincoln and Keith Counties. Fly activity and breeding began to decrease by September 7. Stable fly became apparent on cattle in WISCONSIN late in May and increased rapidly in the northwest area early in June and in the southeast area later the same month. Moderate to severe annoyance to cattle occurred on warmer days and unusually numerous reports of stable flies biting humans were received. High numbers persisted until the end of September.

An established infestation of a LOUSE FLY (Hippobosca longipennis) was found on imported cheetahs in the San Diego Wildlife Park at Poway, San Diego County, CALIFORNIA. About 180 adult flies were recovered from a mature cheetah and 6 from a cub during a flea bath. Eradication treatments were initiated. This fly is a serious pest of carnivores in Africa.

MOSQUITO populations were heavier in MARYLAND during 1972 than in 1971. A total of 97,864 females were taken in 23 light traps operated in 16 counties. Culex spp. comprised 50 percent of the total collected and Aedes sollicitans 23 percent. This was a 64-percent increase over the total collected in 1971. Populations of flood water species increased rapidly after the passage of tropical storm Agnes. Cost of operating mosquito control and abatement programs in Maryland exceeded $1,140,000. In most areas, annoyance levels were similar to those of 1971. In OHIO, one or more cases of encephalomyelitis were reported in 66 counties. This disease is seasonal in the State, corresponding with that of mosquito activity. Thus far, 51 encephalomyelitis isolations have been confirmed from 6 species of Aedes spp. Aedes vexans was the most common mosquito in INDIANA, not only during the usual period of May and June, but all season. A. sticticus appeared with A. vexans early in the season. A. trivittatus was first observed at Lafayette, Tippecanoe County, June 2. Psorophora spp., particularly P. ciliata, were more common than usual. Heavy populations of Aedes cinereus, A. stimulans, and A. communis were apparent in WISCONSIN in mid-May near permanent wetlands. Moderate to severe annoyance to livestock and humans was reported. Populations moderated slightly through May and June due to dry weather. Rainy weather began early in July and populations increased drastically late in July, along with annoyance to humans and livestock. A few areas had problems with heartworm of dogs transmitted by mosquitoes. Mosquitoes became a problem to man and animals in almost all areas of NEW MEXICO after July because of rains and flooding.

BROWN DOG TICK (Rhipicephalus sanguineus) infestations ranged moderate to heavy in MARYLAND. This species was particularly common in the suburban areas of Prince Georges and Montgomery Counties during fall and winter months.

STORED PRODUCTS

INDIAN MEAL MOTH (Plodia interpunctella) infestations were reported damaging stored products in 26 IOWA counties during 1972. Infestations were reported in stored grain in a research laboratory, bulk and bagged seed corn in commercial warehouses, and stored corn or other stored products in homes in these counties. This represents a 35-percent increase in inquiries concerning this pest over those received in 1971.

CONFUSED FLOUR BEETLE (Tribolium confusum) adults were a problem in stored products in isolated areas of KENTUCKY. Counts averaged 1,600 per bushel of stored oats at a location in Nelson County and 73 per bushel of wheat at a location in Washington County. On a statewide basis, however, infestations were much less severe than usual. In NORTH DAKOTA, this pest infested 17,000 bushels of stored wheat in Cass County at the rate of 1,280 adults per bushel.

RICE WEEVIL (Sitophilus oryzae) was a serious pest of stored corn and grain sorghum in central and southern ALABAMA.

BENEFICIAL INSECTS

Highlights: CONVERGENT LADY BEETLE and a BRACONID WASP were effective in controlling pests of alfalfa, small grains, and corn in KANSAS and OKLAHOMA. Several PARASITIC WASPS of cereal leaf beetle, alfalfa weevil, walnut aphid, and European corn borer became established in new areas during 1972.

CONVERGENT LADY BEETLE (Hippodamia convergens) was instrumental in maintaining or reducing Acyrthosiphon pisum (pea aphid) infestations in alfalfa hay to below economic levels in NEVADA. In conjunction with parasites and other predators, this lady beetle was effective also in holding Rhopalosiphum maidis (corn leaf aphid), Macrosiphum avenae (English grain aphid), and Schizaphis graminum (greenbug) infestations below economic levels in the State. Convergent lady beetle was a major factor in the control of pea aphid during April and May throughout KANSAS. This lady beetle also was a principle factor in the control of Therioaphis maculata (spotted alfalfa aphid) in the State from mid to late July, especially in Reno and Sedgwick Counties. Convergent lady beetle was active in OKLAHOMA from early March into October. Heavy populations aided in the control of greenbug on wheat in many areas in late March and in sorghum during June and July. All stages of this predator were very common in alfalfa during March and April and in cotton from mid-June to mid-July in Oklahoma.

A BRACONID WASP (Lysiphlebus testaceipes) began exerting significant control pressure on Schizaphis graminum (greenbug) in southeast KANSAS during the third week of June. By August 11, this braconid wasp had eliminated greenbug infestations on sorghum throughout the State. In OKLAHOMA, L. testaceipes was active in greenbug-infested wheat by early March. Parasitism of greenbug by this braconid wasp was as high as 60 percent by the end of March.

An ICHNEUMON WASP (Lemophagus curtus) became established at Gull Lake in Kalamazoo County, MICHIGAN. Two previously established parasites of Oulema melanopus (cereal leaf beetle) larvae,

Tetrastichus julis (a eulophid wasp) and Diaparsis carnifer (an ichneumon wasp), are increasing. Populations of T. julis were sufficiently abundant to parasitize a high percentage of cereal leaf beetle larvae. Additional releases of this parasite were made at 37 locations in Michigan, mostly in the southern half of the Lower Peninsula. Releases of T. julis are planned throughout the State during 1973 in locations where cereal leaf beetle has been found. Recoveries of T. julis were made in 17 Lower Peninsula counties and is now present in more than 25 new locations. This is a major step in the efforts to achieve biological control of cereal leaf beetle.

An ICHNEUMON WASP (Bathyplectes curculionis) and a EULOPHID WASP (Tetrastichus incertus), larval parasites of Hypera postica (alfalfa weevil), were found throughout PENNSYLVANIA, with B. curculionis remaining the dominant larval parasite in the State. The heaviest activity of T. incertus occurred after B. curculionis activity declined in July. A BRACONID WASP (Microctonus colesi), a parasite of H. postica adults, also was prevalent throughout Pennsylvania. M. aethiops was released in the extreme southwestern counties of Pennsylvania in 1970 and 1971 but no recoveries were made during 1972.

Adults of Bathyplectes curculionis and B. anura ranged 4-5 per 100 sweeps of alfalfa in KENTUCKY early in the season and parasitism ranged 0-47 percent during the peak of larval activity in the State. B. anura and B. stenostigma were collected in OHIO for the first time since originally released. (See CEIR 22(23): 337 and 22(32):528 respectively). A total of 2,550 alfalfa weevil parasites, including B. anura, M. colesi, and a CHALCID WASP (Peridesmia discus), were released at various locations throughout OREGON.

A BRACONID WASP (Trioxys pallidus) was reared from Chromaphis juglandicola (walnut aphid) collected in walnut orchards in the Talent area of OREGON in fall 1972. This recovery indicates the establishment of T. pallidus in Jackson County. The initial release of this braconid wasp at this locality in Oregon was made in August 1971.

A EULOPHID WASP (Sympiesis viridula) was taken from larval burrows of Ostrinia nubilalis (European corn borer) in stalks of corn grown for grain in Warren County, INDIANA, October 25, 1971, and in Rush County (CEIR 22(35):583) by R.W. Meyer. Both determinations were by B.D. Burks. Warren County is a new county record. These were the first records of this eulophid wasp in Indiana since 1948.

An ICHNEUMON WASP (Eriborus terebrans) adult, reared from a burrow of O. nubilalis in a 1971 cornstalk in La Porte County, INDIANA, by R.W. Meyer, emerged June 8, 1972. An adult reared from green corn at an agronomy farm in Tippecanoe County emerged July 27. Eleven adults of this ichneumon wasp were reared from 200 European corn borer burrows collected during April from overwintered cornstalks in Harrison Township, Fayette County, and a cocoon was taken from green corn in Indian Creek Township, Lawrence County. La Porte, Tippecanoe, Fayette, and Lawrence Counties are all new county records for E. terebrans.

Weather of the week continued from page 144.

Snow fell in the mountains in Arizona and in New Mexico. Strong winds caused blowing snow and drifting snow hampering travel in those areas. Nine inches of new snow fell in central Arizona and 6 inches fell at Los Alamos, New Mexico, Thursday night and early Friday morning. Sixteen inches of snow lay on the ground in Flagstaff, Arizona, Friday morning. A low centered over Nevada early Sunday produced heavy snow over the mountains of California, Nevada, and Utah. Wet weather persisted over the eastern half of the Nation. Severe thunderstorms struck eastern Texas and the lower Mississippi River Valley Saturday. Tornadoes occurred near Waco, Texas, and Dogpatch, Arkansas, Saturday forenoon. A tornadoe struck Hubbard, Texas, a town of 1,500 population, killing 4 persons, injuring 80, and damaging one-third of the town. Other severe storms occurred in the afternoon and evening. Early Sunday morning, a tornadoe damaged homes, power lines, trees, and injured several persons at Mendenhall, Mississippi. Heavy rains fell over much of the Southeast. Jacksonville, Florida, measured 4.90 inches in 24 hours ending Saturday morning.

TEMPERATURE: Temperatures below freezing were common over the Great Basin, Rocky Mountains, and much of the northern and central Great Plains several mornings early in the week. Afternoon temperatures remained below freezing in spots in northern Minnesota and northern Michigan one or two days. Escanaba, Michigan, warmed only to 30 degrees Monday. Other extremes: Fort Myers, Florida, and Cotulla, Texas, warmed to the upper 80's several days. Maximums over the Great Plains ranged from the 30's and 40's in the Dakotas to the 70's and 80's in Texas and Louisiana. Afternoon temperatures in the West ranged generally from the 30's to the 50's in the north and to the 60's along the Mexican border. Subzero temperatures occurred in the higher Rocky Mountains on one or two mornings. Southerly winds brought unusual warmth to the eastern half of the Nation late in the week and over the weekend. Youngstown, Ohio, registered 69 degrees Saturday and Sunday afternoons. It had never before been so warm so early in the season at Youngstown. London and Pikesville, both in Kentucky, recorded 82 degrees Friday afternoon. Traverse City, Michigan, warmed to 71 degrees Sunday afternoon. The entire Nation, except the Far Southwest, averaged warmer than normal last week. A large area from the Great Lakes to Tennessee averaged 15 to 25 degrees warmer than normal.

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK MID-MARCH TO MID-APRIL 1973

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 Appalachian Mountains. Subnormal temperatures are indicated for the western quarter of the Nation. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal over the West Coast States, the Great Basin, and the Midwest. Subnormal totals are indicated for the Gulf and south Atlantic Coast States as well as the central and southern Plains. Elsewhere near normal precipitation 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.

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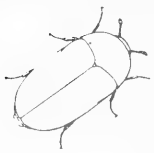

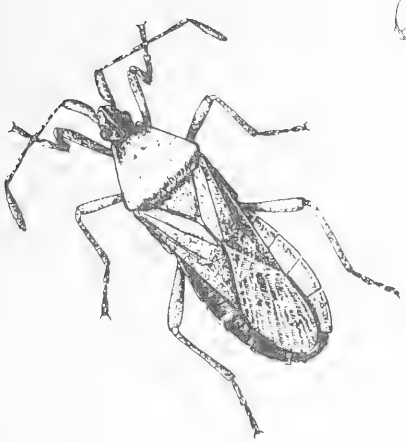

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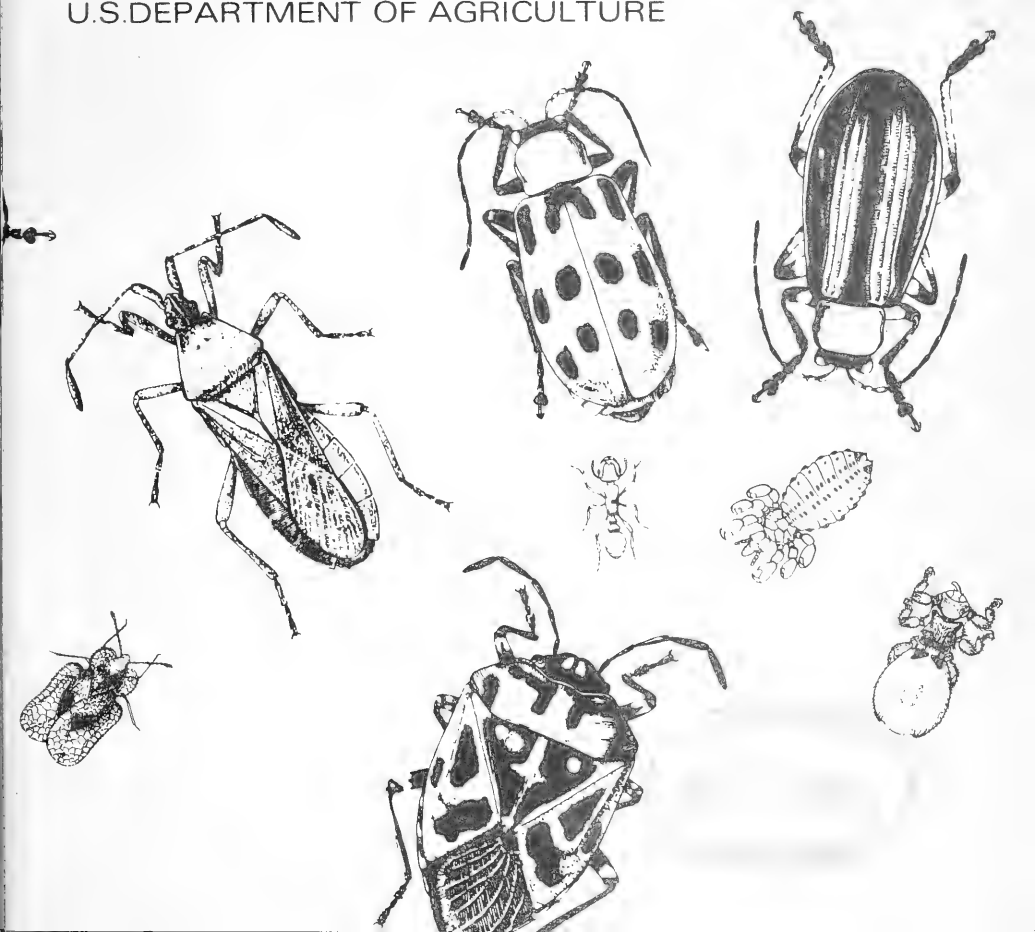

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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Federal Center Building
Hyattsville, Maryland 20782

Volume 23 March 23, 1973 Number 12

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

EUROPEAN CORN BORER winter survival low in northwest Illinois and southwest Kansas. (p. 165).

DOUGLAS FIR TUSSOCK MOTH expected to cause heavy defoliation in eastern Oregon. CALIFORNIA FLATHEADED BORER severely damaged Jeffrey pines on Cleveland National Forest in southern California. (p. 167).

There were no confirmed SCREWWORM cases reported in continental U.S. this period. (p. 168).

CEREAL LEAF BEETLE active earlier than usual in southwest Michigan due to unseasonably warm weather. (p. 170).

Detection

New State records include 2 APHIDS and a EULOPHID parasite of leafminer flies in Idaho (pp. 167, 168, 169), an ITCH MITE in California (p. 169), and STRIPED MEALYBUG in Arizona (p. 165).

For new county records see page 171.

Special Reports

Summary of Insect Conditions in the United States - 1972
Forest Insect Highlights (pp. 173-177).

Distribution of Giant Hornet. Map. (p. 172).

Some First Occurrences of the Season

EASTERN TENT CATERPILLAR larvae in Kentucky, Mississippi, Alabama, and Oklahoma. SPRING CANKERWORM male and female moths in Minnesota. ELM LEAF BEETLE overwintered adults in Kentucky and Colorado. Adults and nymphs of a TREEHOPPER on oak in Florida. HORN FLY adults in southern Mississippi. EASTERN SUBTERRANEAN TERMITE swarms in Delaware.

Reports in this issue are for week ending March 16 unless otherwise indicated.

CONTENTS

WEATHER OF THE WEEK ENDING MARCH 19

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

PRECIPITATION: Flagstaff, Arizona, began Monday, March 12, with 6 inches of snow bringing the total from the storm extending back to the previous week to 9 inches. Monday's snow brought the Flagstaff total to an incredible 140 inches since October 1. A storm developing in the Southwest caused widespread precipitation from southern California into the Plateau region. It rained in the valleys and snowed at higher elevations. While the Great Lakes, Ohio Valley, and New England remained cloudy, the southern Plains area, across Tennessee and the Atlantic States enjoyed sunshine. Early Tuesday a vigorous late winter storm crossed the Rockies and blanketed northern Arizona and southern Utah with snow. Salt Lake City recorded 3 inches. At higher elevations over one foot of snow accumulated. A dangerous storm moved into the Plains; southerly winds gusted up to 40 m.p.h. Thunderstorms developed in an explosive manner Tuesday morning in the central and southern Plains. Wind damage occurred at Lees Summit, Missouri, about noon. A tornado hit Newkirk, Oklahoma, in mid-afternoon. The path of the storm measured 30 miles long and one to two blocks wide as it tore through the center of the town damaging the courthouse, schools, businesses, cars, and homes. Ahead of the severe storm, heavy rain fell in places. Part of Kansas City, Missouri, received 1 inch of rain in an hour, at Quincy, Illinois 2 inches. Most of the East and South remained sunny and warm. By Wednesday an enormous storm centered in the central Plains moved slowly to the northeast. Tropical air flowing across the Mississippi Valley provided heat and moisture to trigger violent thunderstorms. Late Wednesday, 21 tornadoes were sighted from Texas to Illinois. North of the storm, a blizzard shaped up in the North Central States. Cheyenne, Wyoming, reported 13 inches of snow driven by wind gusts up to 60 m.p.h. Weather of the week continued on page 178.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - OKLAHOMA - Averaged 5 per linear foot in wheat checked in Washita and Caddo Counties. (Okla. Coop. Sur.). MISSOURI - Light, ranged 0-10 per row foot in wheat throughout southwest area. (Munson). ARKANSAS - Averaged less than 100 per 100 sweeps in small wheat in northwest area. (Boyer). MISSISSIPPI - This grain pest and other aphids light in wheat field in Noxubee County week ending March 9; no damage seen. (Robinson).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Preliminary overwintering survival survey indicates survival much lower than normal (less than 50 percent) in Henderson and Knox Counties. This area had heaviest second-generation population in State in 1972. Survival appears normal (80-85 percent) in east district. (Cooley). KANSAS - Larval winter survival generally less than 25 percent in cornfields checked in Stevens County. (Bell).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - WISCONSIN - Collected August 18, 1970, near Mauston, Juneau County, and August 20, 1970, near Nabob, Washington County. Determinations confirmed by R.E. White. These are new county records. (Wis. Ins. Sur.).

A WIREWORM (Melanotus communis) - FLORIDA - All larval instars on sugarcane; more pupae and adults present than larvae, which is unusual for so early in season. Pupae and adults usually do not develope until May and June on sugarcane in Palm Beach County. (Fla. Coop. Sur.).

GRASS THRIPS (Anaphothrips obscurus) - IDAHO - This species and Thrips tabaci (onion thrips) collected in cornfield near Shoshone, Lincoln County, August 3, 1968, by R. Portman. Determined by K. O'Neill. These are new county records. (Portman).

TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Annual winter survey, including 57 counties, completed March 9. Total of 219 bunch grass samples taken. Samples generally indicated non-economic infestations. Moderate to near severe populations found in at least one sample in McPherson and Montgomery Counties. Heaviest count, 914 per square foot, taken in little bluestem from Montgomery County. Number of bugs surviving until early March 1973 generally lower than 1971 and 1972 in north-central and central districts. Counts in 1973 remained about same as 1972 in northeast and south-central districts, counts slightly higher in east-central and southeast districts. (Bell).

AN ANTHOCORID BUG (Orius tristicolor) - IDAHO - Collected from bluegrass at Post Falls, Kootenai County, July 1, 1970, by R. Portman. Determined by J.L. Herring. This is a new county record. (Portman).

STRIPED MEALYBUG (Ferrisia virgata) - ARIZONA - Collected on Texas sage at Mesa, Maricopa County, by R. Toth February 9, 1973. Determined by T. Halstead. This is a new State record. (Ariz. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Percent terminal infestations in alfalfa in south-central counties ranged as follows (number of fields in parenthesis): Bryan 11 (2); Marshall 48 (1); Johnston 92 (1); Carter 52 (1); Murray 88 (1); Garvin 30-48 (3); and Pontotoc 24 (1). Adults light in most fields, some fields in Bryan County treated. Foliage damage averaged less than 10 percent except in Bryan County where loss ranged 15-20 percent. Larvae ranged 20-30 and adults 6-8 per square foot in Caddo, Washita, Grady, and Garvin Counties; larvae ranged 30-40 per square foot in Stephens County. Adults averaged 15 and larvae 1 per 25 sweeps in Wagoner County; 16 percent of terminals infested in Lincoln County. (Okla. Coop. Sur.). ARKANSAS - Survey continued negative in Washington County. (Boyer). MISSOURI - Larvae observed in all alfalfa in southern areas. Counts in southwest ranged 3-11 larvae per 10 stems. Infested plants averaged 30 percent in south-central area. (Munson).

INDIANA - H. postica egg counts ranged 200-300 per square foot in some alfalfa in Knox and Harrison Counties. Larvae ranged 0-4 per 50 stems in Daviess, Dubois, Spencer, Crawford, Harrison, and Washington Counties. First through third instars predominant. One field with 20 percent feeding damage in Spencer County. (Wilson, Meyer). KENTUCKY - Larvae, mostly first instar, and adults active in alfalfa in Warren and Barren Counties. Larvae infested 75 percent of alfalfa tips. Adults averaged 68 per 100 sweeps. (Barnett, Parr). VIRGINIA - Survey conducted on 9 fields of alfalfa (51 acres) in Washington, Powhatan, Roanoke, Bedford, Wythe, and Hanover Counties. Based on 5 samples of 10 tips from each field, infestation averaged 12.6 percent. Defoliation less than one percent. (Allen et al.).

TENNESSEE - Surveys in western part of State indicate H. postica major "hatchout" not yet occurred. Counts per 50 tips per field by county as follows: Madison (1 field) - larvae 2, tips infested 2, no damage; Tipton (3 fields) - larvae 4, tips infested 4, no damage; Lauderdale (1 field) - larvae averaged 2.5, 80 percent of tips infested 65 percent damaged; Franklin - 10 percent of tips infested. (Cagle). MISSISSIPPI - Vacuum samples from alfalfa near Scott, Bolivar County, indicated 3,500 adults and 8,700 immatures per acre week ending March 9. (Schuster).

CLOVER LEAF WEEVIL (Hypera punctata) - MISSOURI - Counts in alfalfa in southwest area ranged 0-8 larvae (averaged 3.5) per square foot. (Munson).

PEA APHID (Acyrthosiphon pisum) - OKLAHOMA - Ranged 5-25 per 10 sweeps of alfalfa in Bryan County and 10-12 per linear foot in Caddo, Washita, Grady, and Garvin Counties. Very light (less than 5 per square foot) in Murray, Carter, Marshall, Johnston, Pontotoc, Lincoln, and McCurtain Counties. (Okla. Coop. Sur.). ARKANSAS - Numbers remain low, 100-150 per 100 sweeps, in alfalfa in Washington County. (Boyer). ALABAMA - Light, 5-15 per 5 sweeps of bur and crimson clovers in lawns and fields in Lee County. (McQueen).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Light, up to 1 per 10 sweeps in alfalfa in most south-central counties. (Okla. Coop. Sur.).

SUGAR BEETS

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae ranged 0-30 per 100 whorls in sugar beets in Yuma County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

TOMATO PINWORM (Keiferia lycopersicella) - FLORIDA - Heavy on tomatoes at Homestead, Dade County. (Fla. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - FLORIDA - Averaged about 1 late-instar larva per row foot in unsprayed bell peppers at Delray Beach, Palm Beach County. (Fla. Coop. Sur.).

GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Required controls to maintain quality standards on some lettuce in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Required controls on lettuce in parts of Yuma County. (Ariz. Coop. Sur.).

ORNAMENTALS

APHIDS - IDAHO - Nasonovia pallida and Capitophorus elaeagni collected September 12, 1972, at Paris, Bear Lake County, by Johnson. Determined by L.M. Russell. N. pallida is a new State record, C. elaeagni a new county record. (Portman).

FOREST AND SHADE TREES

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - OREGON - Incidence of polyhedrosis virus in first-instar larvae low (averaged less than 1 percent) throughout infested area in eastern counties. Heavy defoliation expected this season. (Larsen).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Survey of 183 randomly selected pines in Hermiston, Umatilla County, revealed 30 trees attacked; 6 of total trees sampled contained live larvae. Based on above data, winter mortality appears near 80 percent. Lowest temperature was -11 degrees F. for week of December 8-15. Infestations difficult to find in Hermiston due to extremely small size of tents and pitch exudations. Larvae easily found at McNary Dam. (Larson, Bowman).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Additional groups of 2-10 pine trees observed dying along highways in Cleburne, Randolph, Chambers, and Lee Counties. Nature of recent mortality indicates D. frontalis and Ips spp. (engraver beetles) active. Woodpeckers very active on several recently dead trees feeding on larvae, pupae, and adults. (Barwood et al.).

CALIFORNIA FLATHEADED BORER (Melanophila californica) - CALIFORNIA - Population explosion of this pest of Jeffrey pine observed on private and forest land in vicinity of Cleveland National Forest, San Diego County. About 6,000 trees severely damaged. Salvage operations planned. (Cal. Coop. Rpt.).

PINE BARK APHID (Pineus strobi) - TENNESSEE - Heavy on white pine in 2 Nashville locations. (Schmitt).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - KENTUCKY - Egg hatch noted in southern areas of State and as far north as Woodford, Fayette, Franklin, and Shelby Counties. (Barnett). MISSISSIPPI - Eggs hatched in most counties in lower two-thirds of State. Webs noted with young larvae feeding on wild plum, peach, and apple trees. (Robinson). ALABAMA - First hatch of season noted on black cherry trees in Lee County; 8-10 days earlier than usual. First-instar larvae and 3 to 5-inch tents present. (McQueen). FLORIDA - Larvae nearly full grown on wild plum at Gainesville, Alachua County, March 16. (Fla. Coop. Sur.). OKLAHOMA - First larvae of season noted on wild plum in Love County March 13. (Okla. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - MINNESOTA - Male and female moths reported from several locations in St. Paul and Minneapolis in areas where infestations moderate to heavy during 1972. (Minn. Pest Rpt.).

ELM LEAF BEETLE (Pyrrhalta luteola) - KENTUCKY - Adults emerged from hibernation and nuisance to homeowners in Washington County. (Barnett, Scheibner). COLORADO - Overwintering adults active in Loveland area, Larimer County. (Fronk).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - MINNESOTA - Survey of elm along St. Croix River north of Stillwater, Washington County, and along Crow River in Hennepin and Wright Counties revealed that only galleries of this species were numerous, especially in areas where Dutch elm disease had killed many trees. (Minn. Pest Rpt.).

AN APHID (Chaitophorus populifolii) - IDAHO - Collected by Edmiston on black cottonwood at Mackay, Custer County, August 18, 1972. Determined by L.M. Russell. This is a new State record. (Edmiston).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - OKLAHOMA - Damaged live oak trees in Stephens and Kiowa Counties. (Okla. Coop. Sur.).

A TREEHOPPER (Platycotis vittata) - FLORIDA - Adults and full-grown nymphs collected on water oak at Gainesville, Alachua County, March 13. First report of season. (Fla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - There were no confirmed cases reported in the continental United States during the period March 4-10. Light case incidence in previous weeks of 1973 provides indication that confirmed cases are still at low ebb. Total of 52 confirmed cases reported in Mexico. Number of sterile flies released in U.S. this period totaled 70,956,000, all in Texas. Total of 192,372,000 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 2.1 on backs of untreated Holstein dairy cows of various ages, 11 on calves (300-600 lbs), 8.4 on bred heifers, and 46 on five Holstein heifers in Fayette County. Of those observed, 41 percent were H. lineatum and 59 percent were H. bovis. (Barnett, Knapp).

HORN FLY (Haematobia irritans) - MISSISSIPPI - First emergence in State noted March 4-10 in southern counties. Infestation in Forrest County ranged 15-20 per head on 25 beef cattle. First emergence noted in Oktibbeha and Monroe Counties March 12. Counts in 4 beef herds ranged up to 15 per animal. (Robinson).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Overwintering adults located in late February currently observed on nearby beef cattle; herd of 50 head with up to 5 (average 2) flies per animal. (Robinson).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), still heavy on several cattle herds in Payne County; moderate in Coal County. (Okla. Coop. Sur.).

AN ITCH MITE (Cheyletiella yasguri) - CALIFORNIA - Taken on dog at Stockton, San Joaquin County, during March 1973. Collected and determined by D.C. Olin, confirmed by Ben Keh. This ectoparasite of dogs has been known to cause dermatitis of man in Europe and the Midwest and Northeast United States, as was the case with this dog owner. This is a new State record. (Cal. Coop. Rpt.).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - DELAWARE - First adult swarms of season noted in New Castle County. (Burbutis).

MISCELLANEOUS WILD PLANTS

A NYMPHALID BUTTERFLY (Vanessa carye) - ARIZONA - Adults heavy from Yuma, Yuma County, to Tucson, Pima County. Food source, Malva parviflora (cheeseweed), abundant throughout area. (Ariz. Coop. Sur.).

STORED PRODUCTS

RICE WEEVIL (Sitophilus oryzae) - NORTH CAROLINA - Checks at 10 feed mills (30 bins sampled) in Sampson, Lenoir, Pitt, Franklin, and Person Counties indicate this pest is of primary concern in stored corn. Weevils ranged 5-100 per cup of corn near bottoms of bins in 8 of 10 feed mills. Bins swept and treated prior to filling. (Hunt, March 2).

BENEFICIAL INSECTS

A EULOPHID WASP (Diglyphus intermedius) - IDAHO - This parasite of Liriomyza spp. (leafminer flies), collected from bluegrass at Rathdrum, Kootenai County, June 1, 1970, by R. Portman. Determined by B.D. Burks. This is a new State record. (Portman).

HONEY BEE (Apis melifera) - SOUTH DAKOTA - Overwintering mortality light in eastern area. Honey stocks expected to be lower than normal, due in part to mild winter. Supplemental feeding probably will be necessary earlier than usual to keep bee losses at minimum. (Walstrom, Mar. 9). OKLAHOMA - Active about wild plum blossoms in Atoka County. (Okla. Coop. Sur.).

A LADY BEETLE (Coleomegilla maculata) - MISSISSIPPI - Heavy overwintered adult populations in Delta counties dispersing; vacuum samples in Bolivar County indicated 58,000 per acre in alfalfa. (Schuster).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Ranged light to moderate in wheat and alfalfa in Washita County. Some adults seen in alfalfa in south-central counties. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BLACK IMPORTED FIRE ANT (Solenopsis richteri) - ALABAMA - Winged mating forms reported from 25-30 percent of mounds in Randolph and Chambers Counties for first flights of season. Flights also observed in Crenshaw County. (Barwood et al.).

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Activity due to unseasonably warm weather observed in southwest area week ending March 11. Feeding signs on wild grasses at these sites also observed. This is about 30 days earlier than normal. (Berger).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Two properties found infested in survey in San Leandro area, Alameda County. All other inspections negative. (Cal. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/9-15, BL, ARMYWORM (Pseudaletia unipuncta) 1, BLACK CUTWORM (Agrotis ipsilon) 1, GRANULATE CUTWORM (Feltia subterranea) 42, YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) 2. KENTUCKY - Lexington, 3/13-15, BL, VARIEGATED CUTWORM (Peridroma saucia) 1, YELLOWSTRIPED ARMYWORM 1.

HAWAII INSECT REPORT

Corn - CORN EARWORM (Heliothis zea) moderate on mature sweet corn at Omaopio, Maui; one or more young larvae in 30 percent of ears. Eggs heavy on silks; one or more eggs on about 100 percent of ears. (Miyahira).

General Vegetables - CHINESE ROSE BEETLE (Adoretus sinicus) caused light damage to nearly mature and seedling bush beans at Hoolehua, Molokai. BEAN FLY (Melanagromyza phaseoli) light in bush bean planting at Hoolehua; infested 7 percent of petioles. Negligible in adjacent nearly mature and seedling bush beans. ONION THRIPS (Thrips tabaci) nymphs and adults ranged 3-11 (light) per plant in planting of bulb onions at Pulehu, Maui. Also light in 10 acres at Kaunakakai, Molokai; ranged 0-14 per plant. Older leaves show effect of previous heavy infestation. BEAN POD BORER (Maruca testulalis) larval activity heavy in snap beans at Kurtistown, Hawaii Island; about 75 percent of pods affected. Trace in bush beans at Hoolehua, Molokai; adults light. (Matayoshi, Kawamura). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum), LEAFMINER FLIES (Liriomyza spp.), and CARMINE SPIDER MITE (Tetranychus cinnabarinus) trace in snap beans at Haleiwa, Oahu; greenhouse whitefly and larval mines of Liriomyza spp. light in adjacent plantings of seequa and bittermelon. Larval mines of Liriomyza spp. heavy in greenhouse tomatoes at Pupukea, Oahu. (Kawamura).

DETECTION

New State Records - APHIDS - Chaitophorus populifolii - IDAHO - Custer County (p. 168). Nasonovia pallida - IDAHO - Bear Lake County (p. 167). A EULOPHID WASP (Diglyphus intermedius) - IDAHO - Kootenai County (p. 169). AN ITCH MITE (Cheyletiella yasguri) - CALIFORNIA - San Joaquin County (p. 169). STRIPED MEALYBUG (Ferrisia virgata) - ARIZONA - Maricopa County (p. 165).

New County Records - AN ANTHOCORID BUG (Orius tristicolor) IDAHO - Kootenai (p. 165). AN APHID (Capitophorus elaeagni) IDAHC - Bean Lake County (p. 167). GRASS THRIPS (Anaphothrips obscurus) IDAHO - Lincoln (p. 165). ONION THRIPS (Thrips tabaci) IDAHO - Lincoln (p. 165). WESTERN CORN ROOTWORM (Diabrotica virgifera) WISCONSIN - Juneau, Washington (p. 165).

CORRECTIONS

CEIR 22(49-52):781 - AN ENCYRTID WASP (Aphycus fumipennis) - ARIZONA - Line 3: "Determined by D.R. Miller," should read "Determined by B.D. Burks."

CEIR 23(7):72 - SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Line 5: "... million board feet ..." should read "... thousand board feet ..."

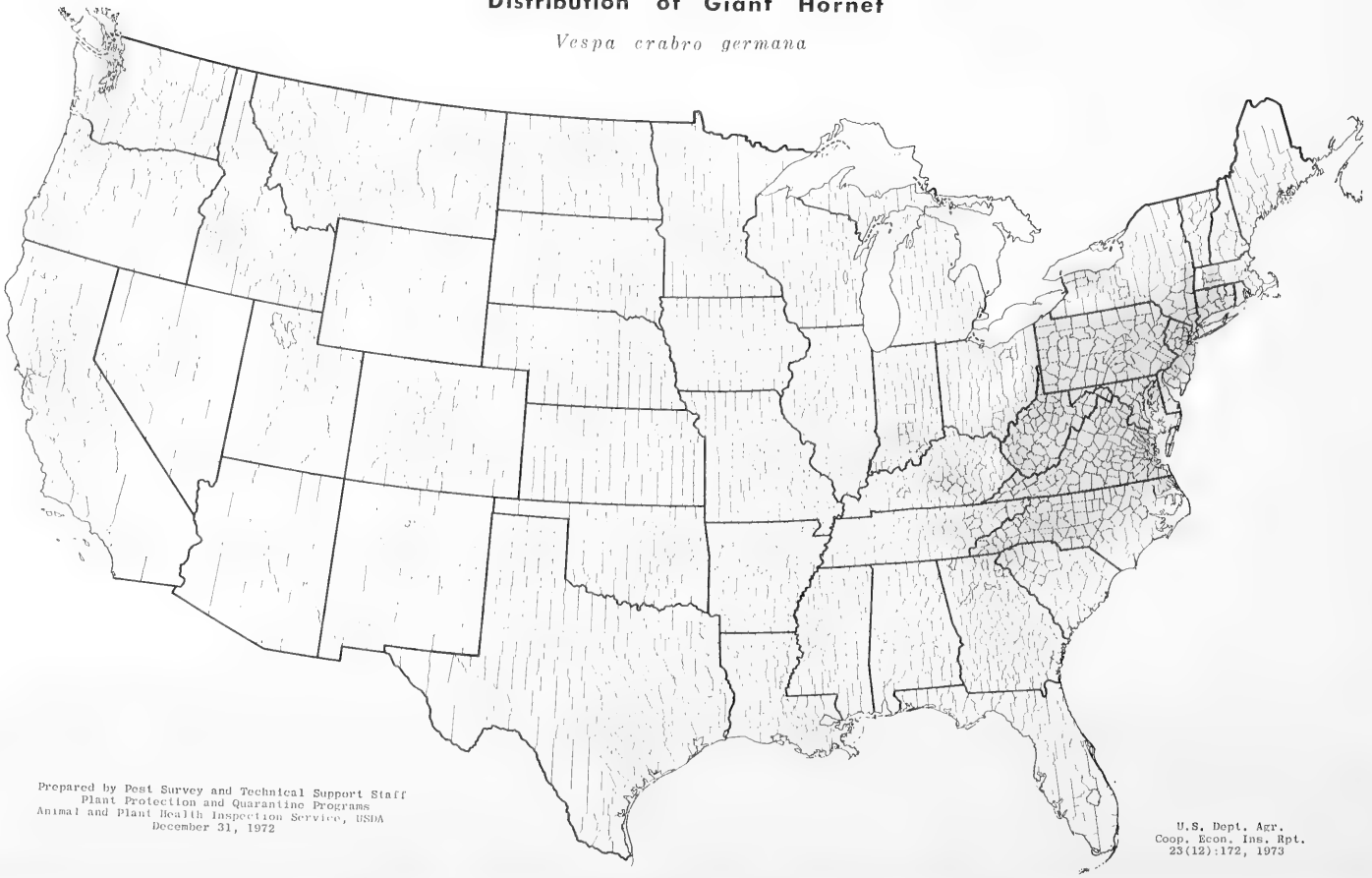
CEIR 23(7): CENTERFOLD - JAPANESE BEETLE QUARANTINES (map) - ILLINOIS - Delete red dot in Kane County; not a regulated area. Red dots in Rock Island, Madison, and St. Clair Counties should be changed to green dots; these counties are not regulated, but are suppressive areas. INDIANA - Delete red dot in Blackford County; this is not a regulated area. (PPQ).

CEIR 23(10):129 - MISCELLANEOUS WILD PLANTS - A BILLBUG (Sphenophorus minimus) - VIRGINIA - " ... Carduus mutans (bristlethistle) ..." should read " ... Carduus acanthoides (bristlethistle) ..." (Allen).

CEIR 23(11):148 and 149 - NEW UNITED STATES RECORDS and NEW STATE RECORDS, respectively - Callosobruchus albocallosus Pic should read Callosobruchus pulcher Pic. (Kawamura).

Distribution of Giant Hornet

Vespa crabro germana



Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
December 31, 1972

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
23(12):172, 1973

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1972
(Continued from page 161)

FOREST INSECT HIGHLIGHTS 1/

Situation in the West

BARK BEETLES were probably the most damaging forest insects in the Western States in 1972. Major epidemics were reported for mountain pine beetle, Douglas-fir beetle, and spruce beetle.

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) activity was reported in WASHINGTON, OREGON, CALIFORNIA, IDAHO, MONTANA, WYOMING, UTAH, SOUTH DAKOTA, and COLORADO. Greatest losses occurred on the Targhee National Forest of IDAHO and WYOMING where more than 200 million board feet of prime timber is dying. This infestation already has destroyed several hundred million board feet of timber over the past decade. It has now spread deep into Yellowstone National Park and is progressing into the Gallatin and Beaverhead National Forests of MONTANA. A mountain pine beetle outbreak has killed nearly 25 million board feet of timber on the Wallowa-Whitman National Forest in OREGON. Also in Oregon significant lodgepole pine killing occurred on the Deschutes, Fremont, Umatilla, and Winema National Forests and Crater Lake National Park. Heavy losses to western white pine occurred on the Clearwater, St. Joe, Coeur d'Alene, and Kaniksu National Forests of northern IDAHO. Here mountain pine beetle activity seems to be enhanced by white pine blister rust weakened trees. Dense, second growth ponderosa pine stands near Missoula, MONTANA, sustained epidemic beetle populations for the third consecutive year. Some control is being realized by silvicultural thinning, a practice that reduces stand susceptibility to attack. Overstocked second-growth ponderosa pine also is being attacked in the Black Hills of SOUTH DAKOTA. Over 400,000 trees were reported as killed in 1972 in this area. Smaller centers of mountain pine beetle activity occurred throughout the western host type.

DOUGLAS FIR BEETLE (Dendroctonus pseudotsugae) activity was at a high level in 1972. The massive outbreak in the North Fork Clearwater River area of IDAHO continued at an epidemic level killing an additional 24 million board feet of prime sawtimber. An estimated 22 million board feet was killed in OREGON and WASHINGTON. A spotty but extensive infestation occurred on the Targhee National Forest in IDAHO and WYOMING. This outbreak probably resulted from storm damaged trees. Scattered patches of Douglas fir beetle activity were common in most western regions. A pheromone, methylcyclohexanone, was field tested in WASHINGTON, OREGON, and IDAHO to repel Douglas fir beetle from selected trees and areas. Though test results have not been completely evaluated, it appears this may be a usable tool in manipulating beetle populations.

1/ The following summary is the highlights section of the "Forest Insect Conditions in the United States - 1972" 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 177 in this issue of the CEIR.

SPRUCE BEETLE (Dendroctonus rufipennis) damage was at a lower level in most western forests than the level reported in 1971. An exception was ALASKA where heavy mortality on approximately 70,000 acres, near Grading Bay, was detected. Smaller outbreaks (5,000-6,000 acres) occurred near Cook Inlet. An estimated gross volume of 1.7 billion board feet was killed in 1972 in the Cook Inlet basin. Most of this was on State and private land and the Kenai National Moose Range. An infestation on the Kenai Peninsula has increased tenfold since 1970 and now encompasses 60,000 acres. An estimated one million board feet of timber was killed in high elevation spruce stands in OREGON and WASHINGTON. A high percentage of the merchantable spruce volume in the Manti-LaSal National Forest, UTAH, has been destroyed by an outbreak that has persisted since 1969. It is expected to continue until most of the larger trees are killed. Outbreaks in WYOMING, COLORADO, and NEW MEXICO decreased dramatically in 1972 from natural factors. However, recent windstorms have created conditions that may enhance new outbreak centers next year in these States.

WESTERN PINE BEETLE (Dendroctonus brevicomis) was very active in parts of CALIFORNIA; specifically on the Shasta-Trinity, Sequoia, Mendocino, and Lassen National Forests. Some increased activity was also reported on the Ochoco, Fremont, and Malheur National Forests of OREGON.

Major defoliation problems in the West were caused by the WESTERN SPRUCE BUDWORM, DOUGLAS FIR TUSSOCK MOTH, PINE BUTTERFLY, LARCH CASEBEARER, and HEMLOCK SAWFLY.

WESTERN SPRUCE BUDWORM (Choristoneura occidentalis) infested areas increased significantly in size throughout most of its range. In MONTANA and northern IDAHO over 4.5 million acres are infested. A survey on the Nezperce National Forest showed 138,000 acres have been permanently damaged (top kill and/or tree mortality). Regeneration is being seriously impaired by budworm injury that prevents cone production or causes cone destruction. In eastern WASHINGTON, defoliation spread from 18,000 acres in 1971 to over 200,000 acres in 1972. Outbreaks are continuing in OREGON, southern IDAHO, western WYOMING, COLORADO, and northern NEW MEXICO.

The most acute defoliation problem in the West is the DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata). This insect is capable of killing trees in one or two years. The situation in OREGON and WASHINGTON is critical. Visible defoliation was observed on 196,000 acres. Surveys made during fall 1972 indicate the infestation may approach 500,000 acres in 1973. It's estimated that up to one billion board feet of timber may be killed as a result of this outbreak. Increased activity is also reported in IDAHO, NEVADA; and parts of CALIFORNIA. Isolated reports of Douglas fir tussock moth also came from COLORADO, MONTANA, NEW MEXICO, and ARIZONA.

PINE BUTTERFLY (Neophasia menapia) severely defoliated ponderosa pine in MONTANA and IDAHO. About 40,000 acres of defoliation occurred in the Bitterroot National Forest, Montana. Another 36,000 acres were defoliated on the Nezperce and Payette National Forests in IDAHO.

LARCH CASEBEARER (Coleophora laricella) continued to inflict heavy damage, primarily growth reduction, throughout northern IDAHO. It is continuing to spread in OREGON and WASHINGTON and is expected to eventually infest all larch stands in these States. Attempts at biological control were accelerated in 1972 by the release of two new species of parasites in OREGON, WASHINGTON, IDAHO, and MONTANA.

An outbreak of HEMLOCK SAWFLY (Neodiprion tsugae) has spread to 23,000 acres in southeast ALASKA. One season of defoliation has caused hemlock and spruce mortality on some acres. Evaluations indicate the outbreak will persist through 1973.

Some mortality of true firs occurred on 82,000 acres in OREGON and WASHINGTON from BALSAM WOOLLY APHID (Adelges piceae) injury.

WESTERN HEMLOCK LOOPER (Lambdina fiscellaria lugubrosa) caused noticeable defoliation on 10,000 acres of grand fir in IDAHO. This is the first documented report of this insect building up in Idaho since a devastating outbreak in the late 1930's.

An ADELGID (Pineus pini), introduced into HAWAII in 1970, is threatening pine plantations throughout the State. Attempts at control are underway using chemicals and biological agents.

Situation in the East

SOUTHERN PINE BEETLE in the South, and GYPSY MOTH and SPRUCE BUDWORM in the North are the most damaging insects in the Eastern United States. Other major insects include ENGRAVER BEETLES, BLACK TURPENTINE BEETLE, BALSAM WOOLLY APHID, SAWFLIES, OAKWORMS, TENT CATERPILLARS, VARIABLE OAKLEAF CATERPILLAR, LARGE ASPEN TORTRIX, and a PINE LOOPER.

SOUTHERN PINE BEETLE (Dendroctonus frontalis) increased in intensity and area throughout most of the South. Control efforts largely were directed at removal and salvage of infested trees. Evaluations indicate the infestation will continue in 1973. The table on the following page shows the reported acreages infested and volumes salvaged.

Additional tree mortality due to the southern pine beetle was reported occurring in TENNESSEE, MARYLAND, and DELAWARE.

ENGRAVER BEETLES (Ips spp.) caused an estimated loss of 2 million trees in northern FLORIDA. Increased activity was also noted in NORTH CAROLINA, TEXAS, AND ARKANSAS.

The range of established GYPSY MOTH (Porthetria dispar) infestations increased somewhat to the west and south of the 1971 boundary of infestation. However, total acreages defoliated by the gypsy moth in 1972 were slightly less than in 1971. Male moths were trapped as far west as MICHIGAN, IOWA, and MISSOURI and south into NORTH CAROLINA, SOUTH CAROLINA, and TENNESSEE. Small spot infestations have been located in southern MICHIGAN and northern OHIO. Chemical control, primarily with carbaryl, was applied to 174,180 acres in cooperative projects with the States of NEW YORK, NEW JERSEY, and PENNSYLVANIA. This was about half the area treated in 1971.

State	Acres infested	Volume salvaged in 1972 through September
Alabama	15,000,000	17,000,000 bd. ft.
Arkansas	400,000	600,000 bd. ft.
Georgia	9,000,000	3,000,000 bd. ft.
Louisiana	8,000,000	31,800,000 bd. ft. and 32,000 cords
Mississippi	1,600,000	4,005,000 bd. ft.
North Carolina	6,700,000	3,600,000 bd. ft.
South Carolina	4,300,000	3,000,000 bd. ft.*
Texas	8,685,000	18,200,000 bd. ft.
Virginia	4,600,000	1,600 cords

*From Federal lands only.

SPRUCE BUDWORM (Choristoneura fumiferana) outbreaks intensified in 1972. About 2.5 million acres of spruce-fir type were defoliated in MAINE, and another 1.5 million acres in MINNESOTA. Sizable areas in MICHIGAN also were damaged. Mexacarbate was aerially sprayed on 500,000 acres of spruce budworm infested forests in Maine with satisfactory control. Additional acreage will require treatment in 1973 to prevent significant losses. Balsam fir saplings and reproduction have been killed over a 10,000-acre area on the Superior National Forest, MINNESOTA, due to 3 to 5 years of defoliation.

A BALSAM WOOLLY APHID (Adelges piceae) infestation continued in the 60,000 acres of Fraser fir type in the southern Appalachian Mountains. Suppression measures were carried out in high-use, high-value acreages on the Pisgah National Forest and Mount Mitchell State Park in NORTH CAROLINA.

SAWFLIES defoliated several species of conifers in both the North and South. JACK PINE SAWFLY (Neodiprion pratti banksianae) defoliated about 30,000 acres of jack pine in upper MICHIGAN. EUROPEAN PINE SAWFLY (Neodiprion sertifer) was found for the first time in WISCONSIN. It was responsible for defoliation in MICHIGAN, ILLINOIS, OHIO, and MISSOURI in 1972. A LOBLOLLY PINE SAWFLY (Neodiprion taedae linearis) caused damage in portions of MISSOURI and ILLINOIS. REDHEADED PINE SAWFLY (Neodiprion lecontei) defoliated over 3,000 acres of red pine in NEW YORK as well as some in VERMONT, MICHIGAN, and WISCONSIN.

FOREST TENT CATERPILLAR (Malacosoma disstria) was epidemic throughout much of the East. The most extensive outbreaks occurred in the Southern States. About 415,000 acres were defoliated in LOUISIANA and another 30,000-50,000 acres of heavy defoliation occurred in the Tensaw and Mobile River Basins of ALABAMA. Smaller outbreaks occurred in FLORIDA, KENTUCKY, NORTH CAROLINA, and TEXAS. Forest tent caterpillar activity declined greatly in the Northeastern States in 1972. The largest outbreak reported was in PENNSYLVANIA where 22,000 acres were moderately defoliated.

A REDHUMPED OAKWORM (Symmerista canicosta) caused defoliation on 600,000 acres of oak in MICHIGAN. This is the third consecutive year for this outbreak in some areas. A smaller outbreak in IOWA increased from 1,000 acres in 1971 to 5,000 acres in 1972.

LARGE ASPEN TORTIX (Choristoneura conflictana) caused moderate to severe defoliation of aspen in the northern part of the Lake States and MAINE. The gross area affected in the Lake States is about 2 million acres. Although the outbreak is in its fourth year in some areas, no tree mortality has occurred.

REGIONAL AND AREA OFFICE ADDRESSES

U.S. FOREST SERVICE

Region	
1	U.S. Forest Service Federal Building Missoula, Montana 59801
2	U.S. Forest Service Federal Center, Building 85 Denver, Colorado 80225
3	U.S. Forest Service Federal Building 517 Gold Avenue, S.W. Albuquerque, New Mexico 87101
4	U.S. Forest Service Federal Office Building 324 - 25th Street Ogden, Utah 84401
5	U.S. Forest Service 630 Sansome Street San Francisco, California 94111
6	U.S. Forest Service P.O. Box 3623 Portland, Oregon 97208
10	U.S. Forest Service Federal Office Bldg. P.O. Box 1628 Juneau, Alaska 99801

Area	
NA	Northeastern Area U.S. Forest Service 6816 Market Street Upper Darby, Pennsylvania 19082
SA	Southeastern Area U.S. Forest Service Suite 800 1720 Peachtree Road, N.W. Atlanta, Georgia 30309

Weather of the week continued from page 164.

The blizzard raged across the Dakotas leaving 4 feet of new snow in the Black Hills. Rapid City, South Dakota, and Lander, Wyoming, had 14 inches of snow. Later Wednesday, the storm subsided but not before it picked up a large quantity of dust in western Texas and carried it to the shores of Lake Michigan. Wednesday visibility at Milwaukee, Wisconsin, was 5 miles due to Texas dust that the storm brought. While fair skies graced much of the Nation Thursday, a cold front strung along the southern Appalachians generated heavy rains and thunderstorms throughout the lower Mississippi Valley eastward into the northern and central Atlantic States. Local heavy rains resulted in the lower Mississippi Valley of Tennessee. Early Friday, several tornadoes ripped through Alabama and Mississippi downing trees and power lines. The storm dumped torrential rains throughout northern Mississippi and Alabama and northward through Tennessee and Virginia. Significant rainfalls on Friday included: Greenwood, Mississippi, 6.46 inches; Muscle Shoals, Alabama, and Chattanooga, Tennessee, 4.49 inches. Flash floods occurred from Mississippi to Virginia. The storm's main fury moved over the Atlantic but rainfall continued along portions of the Atlantic coast to New York and New England. Another Low intensified early Saturday, moving northeast across southern Ohio toward Pennsylvania. Early Saturday, snow fell over southern Michigan and Indiana. By late Saturday, 15 inches had accumulated at Jackson, Michigan, and paralyzed much of Lower Michigan. The Low moved into Upstate New York causing high waves on Lakes Erie and Ontario. Sunday brought flooding to Tennessee at Chattanooga. The Low in New York brought snow there and to Pennsylvania, West Virginia, and western Maryland. Snow also fell in the West. Sunday evening, the Low moved northeast but left 4 inches of snow at Binghampton, New York, .3 inches at Wilmington, Vermont.

TEMPERATURE: Temperatures averaged up to 15 degrees above normal in eastern and central parts of the Nation. West of the Rockies went from slightly below normal along the west coast to 9 degrees below average around Flagstaff, Arizona. Monday brought fair weather to much of the lower Mississippi Valley and was like spring over most of the east-central area. Temperatures were in the 80's as far north as Oklahoma, Arkansas, and Virginia. To the west, winter maintained its grip. Temperatures remained low in the West on Tuesday. In Colorado another cold front stretched through New Mexico south into Mexico. To the east, warmer weather prevailed. The east coast continued springlike as did the Midwest Tuesday and Wednesday. Wednesday, temperatures hit 87 degrees in Richmond, Virginia, and 71 degrees in Nebraska, Missouri, and southeast Texas. Thursday it reached Wisconsin and extended across Lake Huron. Meanwhile, record high temperatures occurred in New York and Ohio. As the Low moved into Canada Thursday and Friday, the cold front extended along the Appalachians and the middle Gulf States into Texas. Cold took over the east coast Friday and Saturday. Freeze warnings were issued in Georgia, northern Alabama, and western Pennsylvania. Cold continued in the West, with freezing temperatures over most of the Midwest. Saturday an intense Low pressure system encompassing the eastern third of the Nation ended early spring for the east coast. Temperatures registered in the high 30's and low 40's east of the Appalachians Sunday, but fell below freezing to the west. Further west, winter prevailed all week with a nationwide low of 10 degrees.

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Cooperative Economic Insect Report

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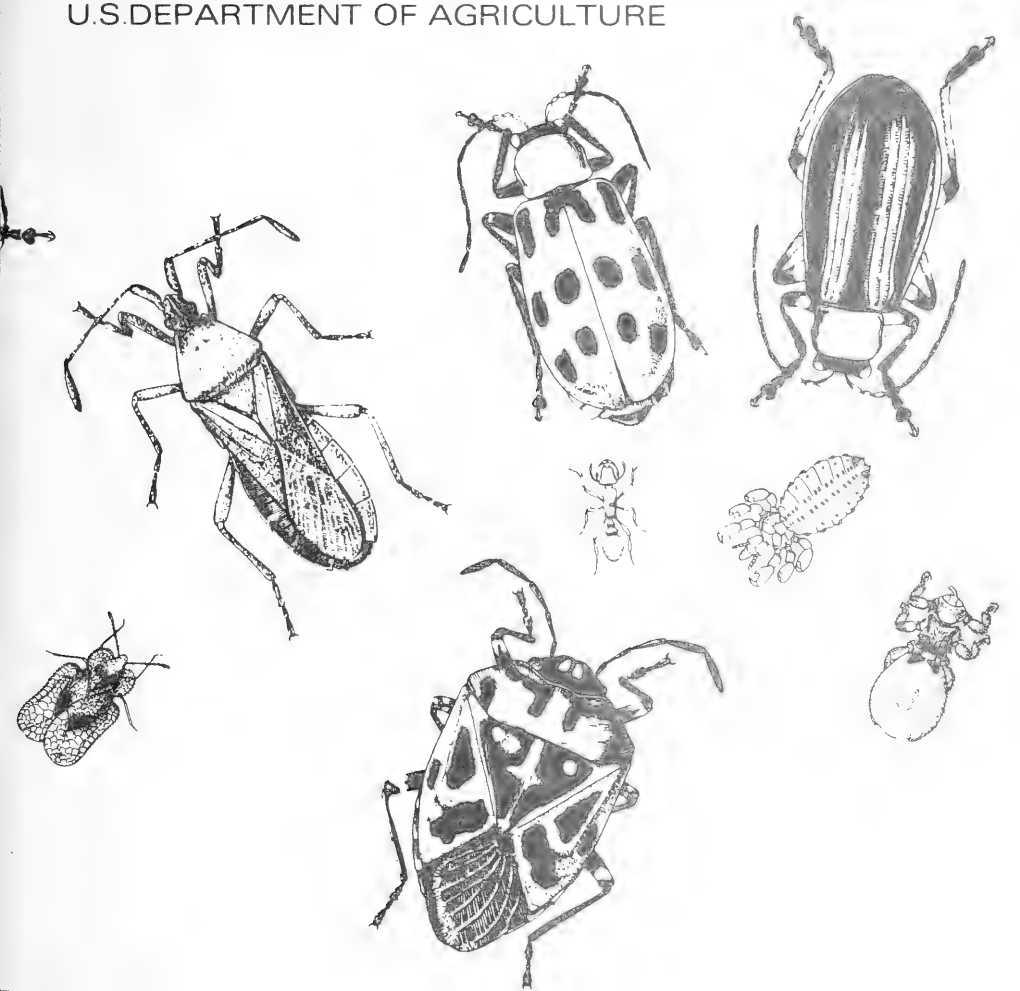
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U.S.DEPARTMENT OF AGRICULTURE



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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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

ALFALFA WEEVIL activity increased in Rolling Plains of Texas, infestation heavy in south-central Oklahoma; populations lighter than expected in southern Illinois. EGYPTIAN ALFALFA WEEVIL built up in alfalfa on west side of Salt River Valley in Arizona. (pp. 181-182).

CITRUS RED MITE buildup heavy on citrus in southwest Arizona. (p. 183).

For second consecutive week, no confirmed SCREWWORM cases reported in continental U.S. (p. 184).

Prediction

FALL CANKERWORM expected to cause heavy defoliation of forest trees in Dolly Sods area of West Virginia this season. (p. 184).

Detection

New State records include CUBAN LAURAL THRIPS in New Mexico (p. 183) and two SOFT SCALES in Hawaii (p. 187).

For new county records see page 186.

Special Reports

Summary of Insect Conditions in the United States - 1972
Federal and State Plant Protection Programs (pp. 188-194).
Contributors (pp. 194-195).

Distribution of Cereal Leaf Beetle. Map. (p. 189).

Insects Not Known to Occur in the United States
Red Pumpkin Bug (*Coridius janus* (Fabricius)). (pp. 197-198).

Some First Occurrences of the Season

ARMY CUTWORM larvae in Kansas. CLOVER LEAF WEEVIL in Kansas, Missouri, Illinois, Wisconsin. LESSER CLOVER LEAF WEEVIL larvae in Wisconsin. CLOVER ROOT CURCULIO adults in Kansas. WESTERN YELLOWSTRIPED ARMYWORM adults in Washington. ALFALFA CATERPILLAR larva in Idaho. Adults of several FRUITWORMS in Ohio. FOREST TENT CATERPILLAR larvae in Kentucky. SPRING CANKERWORM female and male moths in Kansas.

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

CONTENTS

WEATHER OF THE WEEK ENDING MARCH 26

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

PRECIPITATION: Four inches of rain soaked the already wet soils of the lower Mississippi River Delta late last week and Sunday, March 25. The same storm dumped 2 to 4 inches in sections of Texas, Mississippi, Alabama, and Florida. Further north, Missouri recorded almost record amounts of rainfall for this time of year. Meanwhile, Flagstaff, Arizona, set a new snowfall record; 177 inches of snow so far this winter topping the old record of 167 inches in the winter of 1948-49. Nationwide, the first week of spring was moderate precipitation wise. Monday, three storms highlighted the last day of winter. One Low, northeast of Maine, caused 6 foot waves in Lake Ontario and spread clouds over the East. A second Low spread rain and thunderstorms over much of the middle Mississippi River Valley and the Plains. A third dumped rain from central California through western Washington. Spring began on a rainy Tuesday. A Low moving from Oklahoma to Tennessee brought over 2 inches of rain to the Mississippi River Valley, thunderstorms to the gulf coast, saturated soils, and flooded rivers to northern Georgia. Mobile, Alabama, reported 1.42 inches of rain. Over the Rockies and the Plains, high pressures maintained fair skies. Wednesday, a Low brought rain and snow to the West. The Nation's midsection enjoyed a fair Canadian High. A rainy Low passed through the Carolinas into the Atlantic. Thursday, a large complex storm covered the West. Winds gusted to 45 m.p.h. over the western Great Plains. Ogden, Utah, accumulated 13 inches of snow. Friday, a storm gave Flagstaff, Arizona, 12 inches of new snow. A cold front scattered showers and thunderstorms over the northern Plains and the Mississippi Valley. Weather of the week continued on page 196.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Larvae ranged 0-2 per drill row foot in wheat in Finney County for first report of season. (Bell).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light, 0-6 per linear foot on wheat in Curry and Roosevelt Counties. Heavy populations appeared on barley near Cotton City, Hidalgo County, week ending March 16. Built up in few small grain fields in Curry and Roosevelt Counties week ending March 23. (N.M. Coop. Rpt.). TEXAS - Populations very light in most small grain fields in Rolling Plains area. Ranged 5-12 per row foot in Knox, Archer, Haskell, Throckmorton, Wilbarger, and Foard Counties. Spiders, nabids, and green lacewing larvae important in keeping pest populations in check. (Boring). OKLAHOMA - Very light (4-5 per linear foot) in wheat in Washita and Beckham Counties. (Okla. Coop. Sur.). KANSAS - Wingless forms averaged 0.6 per row foot in field of 6-inch wheat in Cherokee County. None found in two other fields nor in Labette, Montgomery and Finney Counties. (Bell).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Overwintering survival survey completed. Of 4 main areas surveyed survival low in west district, 52 percent. Average "normal" range is 70-90 percent. Survival in northeast, east, and southwest districts averaged 79, 89, and 82 percent, respectively. (Ill. Ins. Rpt.). MARYLAND - Pupation expected to start within next 21 days; none to date. (U. Md., Ent. Dept.).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Activity continued to decrease throughout Rolling Plains area. Populations ranged 1-3 per row foot in Haskell, Throckmorton, Archer, and Foard Counties. Light populations present in most fields in Archer and Young Counties. (Boring).

TURF, PASTURES, RANGELAND

BERMUDAGRASS MITE (Eriophyes cynodoniensis) - FLORIDA - All stages heavy and severely damaged Bermuda grass in isolated spots in Pompano Beach area, Palm Beach County. (Fla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Activity increased in Rolling Plains area past 2 weeks. March 9 survey showed Wilbarger, Foard, and Hardeman Counties with 1-10 percent of terminals infested in most fields with 12-20 percent damage in occasional fields. Wilbarger and Foard Counties averaged 30 percent terminal damage with up to 70 percent in some fields March 23. Controls applied. Larvae collected in Harris and Austin Counties March 4-16. Determined by E.E. Latham. Hardeman, Harris, and Austin are new county records. (Boring, Green, Latham). OKLAHOMA - Terminal infestations averaged 12 and 20 percent in 2 fields in Mayes County. Infestation heavy in south-central counties. Moderate (31 larvae per square foot) in McCurtain County. Light (4-5 larvae per square foot), scattered, and spotted in Lincoln, Garfield, Jackson, Muskogee, and Wagoner Counties. Terminal damage ranged

10-40 percent in Washita and Beckham Counties. Adults moderate in Comanche County. (Okla. Coop. Sur.). ARKANSAS - H. postica present in alfalfa in all areas. Larvae first detected March 8 in Miller County, March 22 in Washington County. First adults in east-central area detected March 13, first larvae March 16. Treatments underway in Chicot County. (Boyer). MISSISSIPPI - Vacuum samples indicate 4,360 adults and 47,500 larvae per acre of alfalfa in Bolivar County. Light damage evident. (Schuster). MISSOURI - Larvae ranged 0-5 (average 2.1) per 10 stems and adults 0-6 (average 2.7) per 10 sweeps in southwest area. (Munson). ILLINOIS - Populations in southern area alfalfa slightly lower than expected. Heaviest infested field (Hardin County) showed 20 percent tip feeding and 4 larvae per 100 stems. Alfalfa height ranged 5-8 inches. (Ill. Ins. Rpt.).

INDIANA - Average number of H. postica larvae per 100 stems by county as follows: Daviess 48, Dubois 45, Harrison 15, Washington 9. First-instar larvae still slightly predominant. (Meyer). KENTUCKY - Alfalfa ranged 6-8 inches in height with 45 percent of tips infested in Simpson County. Larvae averaged 1.4 per tip. In Warren County, 35 percent of tips infested with larvae averaging 1.3 per infested tip. (Barnett). TENNESSEE - Larvae continued to damage alfalfa in Knox County field. No damage seen on other fields checked in county. (Bennett). NORTH CAROLINA - Larval threshold levels noted in scattered alfalfa throughout Piedmont area second week of March. Current cold weather caused larvae to retreat to litter, but light mortality expected. Where warrented, controls should be applied about April 1. (Kimbrough).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Populations built up in alfalfa on west side of Salt River Valley, Maricopa County. Ranged 200-500 larvae per 100 sweeps at Dome Valley, Yuma County. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Larvae averaged 1 per square foot in alfalfa field in Montgomery County, zero and 1.3 per square foot, respectively, in two fields in Elk County. Adults averaged 0.3 per square foot in Elk County field. (Bell). MISSOURI - Very light in southwest area; ranged 0-4 (average less than 1) larvae per square foot. (Munson). ILLINOIS - First and second-instar larvae averaged one per 10 sweeps in 3-inch alfalfa in Adams County. (Ill. Ins. Rpt.). WISCONSIN - Few first-instar larvae observed in alfalfa in Grant County. (Wis. Ins. Sur.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - WISCONSIN - Few first-instar larvae observed in Grant County alfalfa. (Wis. Ins. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidulus) - KANSAS - Adults active in alfalfa in Elk and Montgomery Counties. (Bell).

PEA APHID (Acyrthosiphon pisum) - OKLAHOMA - Ranged 30-40 per terminal in Beckham County, averaged 10 per terminal in Jackson County. (Okla. Coop. Sur.). TEXAS - Populations ranged 50-200 per square foot in several alfalfa fields in Wilbarger County. (Boring). ARKANSAS - Active in alfalfa in all areas; ranged 700-800 per 100 sweeps March 22. (Boyer).

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - WASHINGTON - First adults of season trapped March 14 in central and northeast areas. (Halfhill).

ALFALFA CATERPILLAR (Colias eurytheme) - IDAHO - Late-instar larva and chrysalis found in 15-acre alfalfa seed fields at Weiser, Washington County, March 16. (Bolz).

COLE CROPS

BEET ARMYWORM (Spodoptera exigua) - NORTH CAROLINA - Collected on cabbage November 4, 1972, near Wagram, Scotland County, by D.L. Stephan and near Weeksville, Pasquotank County, on September 20, 1972, by K.A. Sorensen. Both determined by D.L. Stephan. These are new county records. (Hunt).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Largest overwintered populations of adults noted since 1965 (no previous records) in Chelan, Douglas, and Okanogan Counties; up to 1,800 per 25 trap sample. (Burts).

FRUITWORMS - OHIO - Adults taken in blacklight trap at Wooster County, March 8-15; Orthosia hibisci 16, Lithophane laticinerea 1, L. unimoda 1. (Rings).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Heavy and rapid buildup in progress on citrus with treatments underway at Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy on new flush of growth and in blooms at Yuma Mesa, Yuma County; prebloom treatments underway. Salt River Valley citrus groves should be watched during next few weeks. (Ariz. Coop. Sur.).

SMALL FRUITS

A LEAFHOPPER (Scaphytopius magdalensis) - NORTH CAROLINA - Collected on cultivated blueberries near Charity, Duplin County, on July 27, 1972, by T.N. Hunt. Determined by D.A. Young. Taken on same host August 15, 1972, near White Lake, Balden County. Collected and determined by T.N. Hunt. These are new county records. (Hunt).

ORNAMENTALS

OYSTERSHELL SCALE (Lepidosaphes ulmi) - OREGON - Heavy on Pachysandra sp. in Salem, Marion County, many parasitized. Occurrence on ornamentals, particularly in heavy numbers, uncommon in State. This is first record on this host in State. (Long, Westcott).

AN ARMORED SCALE (Phenacaspis cockerelli) - ALABAMA - Infestations problem on 1,000+ palm plants in containers at nursery in Mobile County. (Lockhart).

CUBAN LAURAL THRIPS (Gynaikothrips ficorum) - NEW MEXICO - Moderate on Ficus nitida at wholesale florist in Albuquerque, Bernalillo County. Collected January 12, 1973, by D.C. Heninger. Determined by K. O'Neill. This is a new State record. (N.M. Coop. Rpt.).

FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NORTH CAROLINA - First larvae and tents of season observed in Winston-Salem, Forsyth County, March 15 and at Raleigh, Wake County, March 19. Hatch above 2,000 feet usually 2-3 weeks later than in Piedmont. (Bowers, Hunt). MISSISSIPPI - Larvae present thoughout State; continued to increase in southern counties. First larvae of season found in Clay, Benton, Grenada, Lafayette, Montgomery, Pontotoc, and Webster Counties feeding on wild hosts; few webs on peach and pear trees around houses. (Robinson). TENNESSEE - Egg hatch occurred with large populations present in central area during week ending March 16. (Jennings). ARKANSAS - Eggs hatched in northern areas week of March 11; second and third-instar larvae observed same period in southern part of State. (Boyer). KANSAS - Most eggs hatched on black cherry in Cherokee County with up to 8 small webs per tree. Little foliage available for food at present. (Bell). OKLAHOMA - Larvae on plum trees as far north as Mayes County by March 18. (Okla. Coop. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - KENTUCKY - Egg hatch 50 percent in McLean County; should continue next 7 days. (Barnett, Nordin).

FALL CANKERWORM (Alsophila pometaria) - WEST VIRGINIA - Caused about 1,900 acres of moderate to heavy defoliation in Dolly Sods area of Grant County during 1972. Egg sampling survey based on Fall Cankerworm Sequential Plan conducted during February showed about 2,000 acres will be heavily defoliated in 1973. Defolation predicted to be concentrated in north-south direction along eastern front of Dolly Sods area. (Miller).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Females active in Butler County; males in flight past 14 days in Barton County; males still flying to lights in Riley County. (Bell).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - For second consecutive week (March 11-17) no confirmed cases reported in continental U.S. Total of 120 confirmed cases reported from Mexico; more than twice number reported previous period. Number of sterile flies released in U.S. this period totaled 68,456,000, all in Texas. Total of 150,091,500 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Ranged 20-30 per head on cattle in Oktibbeha and Monroe Counties due to cool weather. First of season in Grenada and Lafayette Counties, up to 30 per animal seen on pastured beef stock. (Robinson). OKLAHOMA - Ranged 10-20 per animal in Payne County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Averaged less than 2 per head on pastured beef animals in Chickasaw County. First of season in Monroe County ranged 1-2 on 6 of 50 pastured beef cattle. (Robinson).

CATTLE LICE - TEXAS - Haematopinus eurysternus (shortnosed cattle louse) and Linognathus vituli (longnosed cattle louse) heavy on cattle in several Rolling Plains counties during week ending March 16. Light to moderate infestations continued in Wilbarger County. Controls being applied. (Boring). OKLAHOMA - Infestations, mainly H. eurysternus remain scattered and heavy in Mayes County. Heavy in Comanche and Craig Counties, moderate in Lincoln County. (Okla. Coop. Sur.).

GULF COAST TICK (Amblyomma maculatum) - OKLAHOMA - Ranged 3-8 per ear on 3 calves in Chouteau area, Mayes County. Light, 2-5 per head on 3 of 60 cows checked at sales barn in Mayes County. Mostly males with some unengorged females found. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Averaged 50 per animal on 2 dogs in Locust Grove area, Mayes County. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - OKLAHOMA - Caused much concern in homes in north-central counties. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND - Swarms reported throughout State. Season peak expected within 14 days. (U. Md., Ent. Dept.). ALABAMA - Swarming observed in school building in Blount County. First report of season. (Conway).

BENEFICIAL INSECTS

LADY BEETLES - MISSISSIPPI - Vacuum samples indicate heavy populations of Coleomegilla maculata in Bolivar County alfalfa; estimated 27,500 adults per acre. Probably feeding on heavy population of Acyrthosiphon pisum (pea aphid). C. maculata first-generation eggs noted. (Schuster). ARIZONA - Hippodamia convergens (convergent lady beetle) very heavy in plum, apricot, and peach trees at Queen Creek, Maricopa County. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BLACK IMPORTED FIRE ANT (Solenopsis richteri) - ALABAMA - Winged mating forms emerged from about 30 percent of mounds in Clay County area; flights heavy. (Barker).

GRASSHOPPERS - NEVADA - Collected Ageneotettix deorum in Big Creek Canyon at 6,700 feet, Lander County, August 25, 1972; Cratypedes neglectus neglectus taken 16 miles southeast of Yerrington, Lyon County, August 2, 1972; Trachyrhachys kiowa kiowa taken at Red Rock, Washoe County, August 10, 1972; Trimerotropis gracilis gracilis taken in Big Creek Canyon at 6,700 feet, Lander County, August 25, 1972, and in Mineral County September 2, 1972; T. latifasciata taken at Panaca, Lincoln County, August 23, 1972, and at Major's Place, White Pine County, August 24, 1972. All collected by G.M. Nishida. T. latifasciata collected at Diana's Punch Bowl, Nye County, September 7, 1972, by R.C. Bechtel and G.M. Nishida. These are all new county records. (Bechtel).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Total of 125 infested properties found near Carlsbad, San Diego County. Control operations now in progress. Survey moving into Oceanside area. (Cal. Coop. Rpt.).

DETECTION

New State Records - CUBAN LAURAL THRIPS (Gynaikothrips ficorum) - NEW MEXICO - Bernalillo County (p. 183). SOFT SCALES - HAWAII - Saissetia neglecta on Oahu and Hawaii Islands, S. oleae on Hawaii Island (p. 187).

New County Records - BEET ARMYWORM (Spodoptera exigua) NORTH CAROLINA - Scotland, Pasquotank (p. 183). GRASSHOPPERS - NEVADA - Ageneotettix deorum Lander, Cratypedes n. neglectus Lyon; Trachyrhachys k. kiowa Washoe; Trimerotropis g. gracilis Lander and Mineral; T. latifasciata Lincoln, White Pine, and Nye (p. 185). A LEAFHOPPER (Scaphytopius magdalensis) NORTH CAROLINA - Duplin, Baldin (p. 183).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/16-22, BL, BLACK CUTWORM (Agrotis ipsilon) 2, GRANULATE CUTWORM (Feltia subterranea) 9, YELLOW-STRIPED ARMYWORM (Spodoptera ornithogalli) 1. KENTUCKY - Lexington, 3/16-23, BL, VARIEGATED CUTWORM (Peridroma saucia) 1, yellowstriped armyworm 1. TEXAS - Waco, 3/9-15, ARMYWORM (Pseudaletia unipuncta) 38, BEET ARMYWORM (Spodoptera exigua) 1, black cutworm 1, BOLLWORM (Heliothis zea) 5, granulate cutworm 9, variegated cutworm 48, yellowstriped armyworm 29; 3/16-21, BL, armyworm 25, black cutworm 2, granulate cutworm 1, variegated cutworm 80, yellowstriped armyworm 7.

New State Records - BLACK SCALES (Saissetia spp.) - In a 1971 paper, G. DeLotto (Bull. Entomol. Res. 61(2):325-326) pointed out that the "black scale" of North and Central America is a complex of three species - S. miranda (Cockerell and Parrott), S. neglecta DeLotto, and S. oleae (Olivier). These three species all posses the characteristic raised dorsal "H" mark formerly thought to be diagnostic of S. oleae (black scale). Re-examination of slide-mounted specimens of Hawaiian S. oleae material by J.W. Beardsley, using DeLotto's paper, revealed S. miranda and S. neglecta, as well as S. oleae, occur in the State. Based on specimens examined by J.W. Beardsley and S. Nakahara, distribution and host records for these species in Hawaii are as follows:

S. miranda - Oahu and Molokai Islands on Erythrina sp., E. sandwicensis, Agave sisalana, Amaranthus spinosus, Crotalaria sp., Dianthus caryophyllus, Diospyros ferrea, Nerium sp., and Schinus terebinthifolius.

S. neglecta - Oahu and Hawaii Islands on Stephanotis floribunda, "orchid," and "tree fern."

S. oleae - Hawaii Island on Vaccinium sp. and Dodonaea sp.

S. miranda and S. neglecta are new State records. (Beardsley).

Fruits and Nuts - GREEN PEACH APHID (Myzus persicae) heavy on several virus-infected papaya trees at Pahala, Hawaii. Infected trees being destroyed to prevent spread of disease. (Yoshioka). FULLER ROSE BEETLE (Pantomorus cervinus) caused heavy foliar damage to 25+ backyard citrus trees at Olinda, Maui. (Miyahira).

Man and Animals - Mosquito collections during February from 58 light traps on Oahu totaled 214 Aedes vexans nocturnus and 7,094 Culex pipiens quinquefasciatus. Aedes catches ranged 0-105 at Sunset Beach, Culex catches ranged 0-4,872 at Waipahu. (Mosq. Control Br., State Dept. Health).

Beneficial Insects - LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) moderate to heavy on 1,000+ acres of lantana at Hana and Ulupalakua, Maui. Defoliation ranged up to 50 percent at Hana. LANTANA HISPID (Uroplata girardi) moderate in same host situation at both areas. (Miyahira). Field examination of Malastoma malabathricum at various locales on Hawaii showed 36 and 61 percent infestation of terminals and fruits, respectively, by MELASTOMA BORER (Selca brunella). (Yoshioka).

Miscellaneous Pests - Due to abnormally dry conditions during February no GIANT AFRICAN SNAIL (Achatina fulica) activity observed in infested areas on Hawaii and Kauai. Preparations progressing for air drop of bait at Poipu, Kauai. (Yoshioka, Sugawa).

(Continued from page 177)

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

Due to 3 years of negative surveys regulations for BROWNTAIL MOTH (Nygmia phaeorrhaea) will be amended to remove New Hampshire from the list of States quarantined for this pest.

BURROWING NEMATODE (Radopholus similis) detection surveys conducted on 12,129 acres in FLORIDA, mainly at the request of grove owners, revealed initial infestations on 246 acres. A total of 109,883 root samples were processed at the laboratory at Winter Haven. State personnel pushed and treated 383 acres of citrus, and established 32,463 linear feet of barriers.

CEREAL LEAF BEETLE (Oulema melanopus) was found for the first time in MISSOURI and TENNESSEE during May. During spring surveys ending June 30, this leaf beetle had been detected in 7 Tennessee Counties and in 3 Missouri Counties. These counties border infestations in Kentucky and Illinois. The find in St. Charles County, Missouri, is the first known infestation west of the Mississippi River. Cereal leaf beetle is generally but lightly distributed in all but 14 of the 102 counts in ILLINOIS. Minor extensions of infested areas were detected in INDIANA, KENTUCKY, MARYLAND, MICHIGAN (one county in the Upper Peninsula), NEW YORK, TENNESSEE, VIRGINIA, and WEST VIRGINIA.

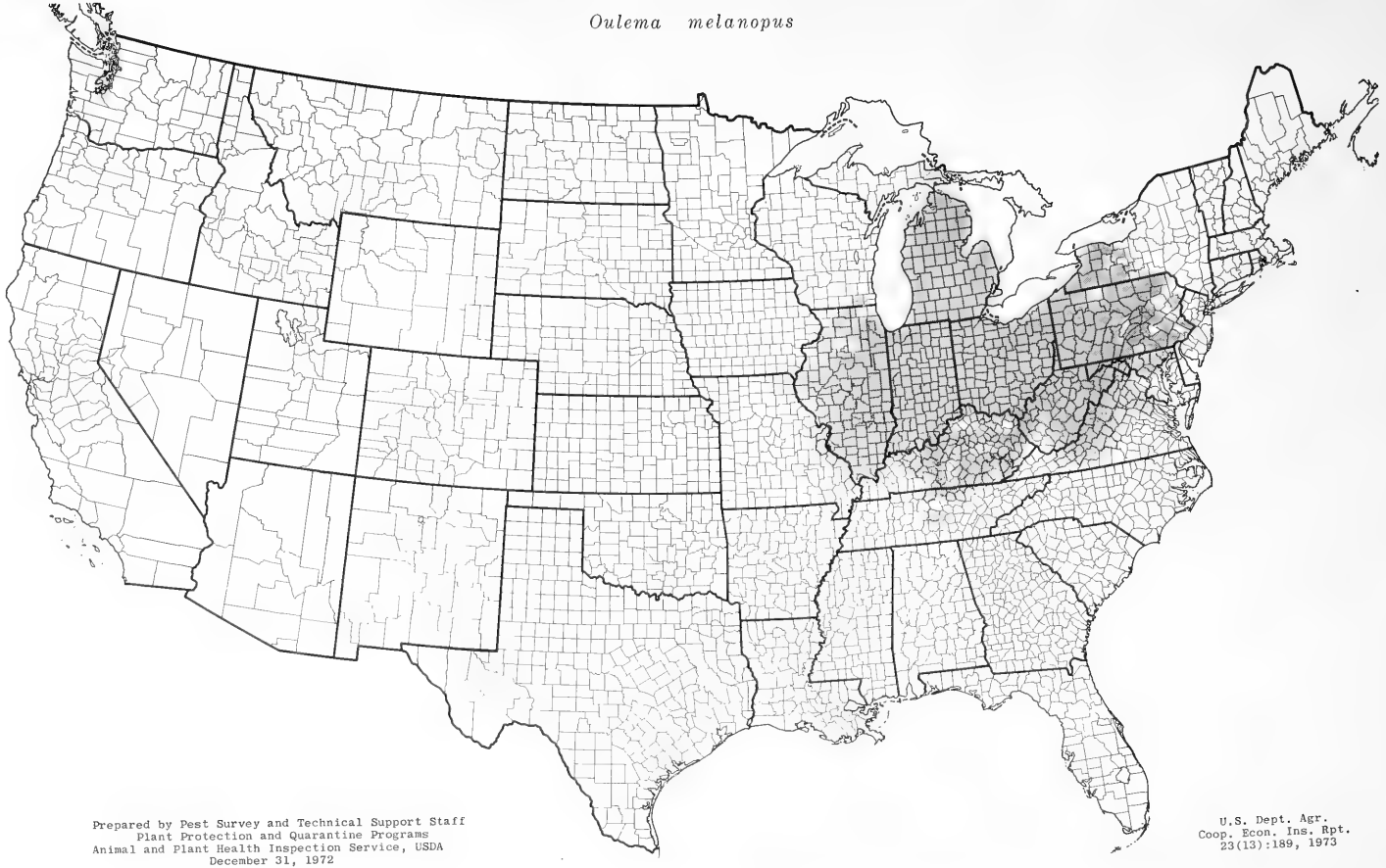
Release of parasites to suppress cereal leaf beetle populations continued during the year. In an attempt to increase parasite production, 13 new field insectaries were established and seeded with larval parasites of this leaf beetle. This brought the total to 17. Attempts to produce large numbers of these parasites in the laboratory were unsuccessful. Of five species of parasites released in recent years four are now established. These include a MYMARID WASP (Anaphes flavipes), an egg parasite of cereal leaf beetle, and 3 larval parasites--a EULOPHID WASP (Tetrastichus julis) and 2 ICHNEUMONID WASPS (Diaparsis carinifer and Lemophagus curtus). In 1972, A. flavipes was released at 112 sites in 52 counties over an 8-State area. In this same general area, the larval parasites were released as follows: T. julis at 62 sites in 43 counties, D. carinifer at 12 sites in 12 counties, and L. curtus at 4 sites in 3 counties.

Eradication treatments against CITRUS BLACKFLY (Aleurocanthus woglumi) have been underway in the lower Rio Grand Valley area of TEXAS and in Tamaulipas, Mexico, since April 1971. In September 1972, infestations were found near Los Fresnos in Cameron County, Texas, and in October throughout the city of Mission in Hidalgo County. Trees on infested and adjacent properties were treated.

An intensive biometric survey was initiated in southern Texas and border areas of Mexico in November to detect any new citrus blackfly infestations that may have existed. A new infestation was found November 30 on one leaf of a sour lime tree in a dooryard planting at San Benito in Cameron County, Texas. A second tree, with 80 infested leaves, was found in San Benito December 8, about 0.8 mile southeast of the original infestation. All life stages were present. Control measures were immediately initiated on the 9 city blocks surrounding each find. Infestations were detected in Harlingen, Cameron County, Texas, and in Rio Bravo, Tamaulipas, Mexico. Delimiting surveys are still in progress.

Distribution of Cereal Leaf Beetle

Oulema melanopus



Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
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EUROPEAN CRANE FLY (Tipula paludosa) continued to infest some pasture and lawn areas near Blaine in Whatcom County, WASHINGTON, during 1972. An adult male taken at a golf course near Renton, King County, September 7 was a new county record and constitutes the southernmost collection of this pest in the State.

GIANT AFRICAN SNAIL (Achatina fulica) infestations were detected at two locations in the greater Miami area of Dade County, FLORIDA, as a result of an intensive survey and publicity program. Surveys have been negative in 4 of the 8 areas found infested in the Miami area since the beginning of the program in September 1969. Surveys have been negative for 16 months at the site of the original infestation. The number of properties being treated has decreased from 759 to 81.

GOLDEN NEMATODE (Heterodera rostochiensis) was found in 22 potato fields totaling 935 acres on Long Island, NEW YORK. Soil fumigant was applied to 932 acres at the rate of 20 gallons per acre. Post-fumigation sampling revealed viable cysts in 11 fields. Portions of 10 of these fields were retreated.

Damage by GRASS BUGS of native and introduced grasses in UTAH ranged from occasional feeding spots to complete destruction of leaves. Infestations were variable on most range areas from 4,000 to 10,000 feet elevation, although no damage was reported in a few northern areas of the State. Labops spp. and Irbisia spp. damaged several thousand acres of planted grass ranges over much of Utah. Labops hirtus caused extensive damage to wet meadow grass and sedges. Stenodema spp. and Leptopterna spp. caused much spotting of planted grasses and small grains in agricultural Valley areas of Utah. Irbisia brachycera caused heavy damage to a large acreage of crested wheatgrass in White Pine County, NEVADA, and severely damaged bluegrass lawns in southern Washoe County in May.

Adult GRASSHOPPER surveys made in the fall of 1971 indicated heavy infestations could occur in 1972. The infested rangeland areas totaled approximately 11 million acres in 15 Western and Mid-western States where economic populations of 8 or more grasshoppers per square yard were found. Delimiting surveys conducted in the spring of 1972 revealed that extensive acreages could require control.

A total of approximately 2,205,000 acres of rangeland was treated in 7 Western States in calendar year 1972. IDAHO and OREGON accounted for approximately 2 million acres. Control was generally good.

Melanoplus sanquinipes, M. bivittatus, Oedaleonotus enigma, Camnula pellucida, and several other species were severe pests of gardens during the late spring, summer, and early fall throughout central and eastern WASHINGTON. Surveys showed 1,044,780 acres of rangeland heavily infested throughout 16 central and eastern counties. Due to heavy populations and a very mild fall in 1972, populations may reach high levels in 1973. Egg hatch began in eastern OREGON in mid-May and economic populations were present in parts of Grant, Baker, and Malheur Counties by late May. By mid-June economic numbers had been found on 2.7 million acres. The fall adult survey revealed economic populations on more than 2 million acres.

Populations were generally below economic levels in NEVADA except in areas of Elko, Eureka, Humboldt, Lander, and Washoe Counties. In these areas populations were comprised mostly of Melanoplus bivittatus and M. sanguinipes on cropland and Aulocara elliotti, Oedaleonotus enigma, and M. sanguinipes on rangeland. Infestations were up sharply from 1970 and 1971 levels. Cropland infestations averaged up to 70 grasshoppers per square yard. Chemical controls were applied to 61,705 acres of cropland and 16,600 acres of rangeland. The 1972 adult grasshopper survey indicated potential infestations on 8,300 acres of rangeland and 750 acres of cropland. First hatch was observed in Adams County, IDAHO, on April 30. Cool, dry, spring weather throughout the State set back general egg hatch and reduced host plant growth but by the end of June populations ranging up to 200 per square yard developed. Over 1,200,000 acres were treated this year. The 1972 fall surveys indicate that over 2 million acres will require control treatments in 1973. The infested areas extend throughout the Snake River plains.

Populations and damage were below average in UTAH with only spotty range injury in several counties. Fall adult surveys indicated 213,760 acres of rangeland economically infested in WYOMING.

Egg hatch started in mid-May in most areas of NORTH DAKOTA, about 14 days later than in 1971. First damage occurred to sunflowers, sugar beets, and small grains during late May in Pembina County. Heavy infestations occurred in untilled stubble fields in Bottineau and McHenry Counties with up to 50 grasshoppers per square yard. Economic populations developed on about 139,000 acres of cropland in parts of Williams, McHenry, Morton, Grant, Emmons, Cass, Richland, and Ransom Counties. About 16,000 acres of rangeland had economic infestations in Richland and Ransom Counties. The dominant cropland species were Melanoplus bivittatus, M. sanguinipes, and M. femurrubrum, and the principal rangeland species was M. sanguinipes. Infestations are expected to increase again over much of the State next season. Grasshoppers were non-economic in most parts of NEBRASKA, but some locally intense concentrations were observed. Nymphs ranged up to 25 per square yard in field margins and roadside ditches in eastern counties in June and July. By August 3 from 40 to 50 grasshoppers per square yard were observed on alfalfa in several central counties, but lush growth stimulated by above average rainfall, held them in ditches and waste areas surrounding most fields. Some damage to field margins of row crops was reported in Dodge, Burt, and Thurston Counties by August 29. Statewide annual fall grasshopper surveys indicated infestations were heaviest along the North Platte River Valley from Hershey, Keith County, west to Oshkosh, Garden County, and in southern Dundy County. No widespread problems are anticipated in 1973.

Grasshoppers caused economic damage on 200,000 acres of rangeland in southern Meade and southeast Seward Counties, KANSAS, during late June. Agenotettix deorum, Aulocara ellioti, Phlibostroma quadrimaculatum, and Dissosteira longipennis were the dominant species. Localized economic infestations involving 150,000 acres were found in Commanche, Barber, Kiowa, and Edwards Counties. Egg hatch began in the south-central and southwest areas of OKLAHOMA in mid-March and in the Panhandle in mid-April. Heavy numbers were present in most areas by mid-May. Fall surveys showed 1,485,000 acres of rangeland in 31 counties were economically infested. Dominant species were Drepanopterna femoratum, Ageneotettix deorum, Aulocara elliotti, and Melanoplus occidentalis.

An expanded GYPSY MOTH (Porthetria dispar) detection survey was used in noninfested areas. Disparlure baited traps were placed in biometrically designed grid arrays in 17 States. This was supplemented by selected trapping at suspect introduction sites in 34 States. About 120,000 traps were involved in this effort. Male moths were caught for the first time in 55 counties in NEW YORK, PENNSYLVANIA, VIRGINIA, WEST VIRGINIA, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, OHIO, MICHIGAN, and IOWA. Established infestations were found in Isabella County, MICHIGAN, and Lorain County, OHIO.

Treatments for IMPORTED FIRE ANT (Solenopsis spp.) were continued in those areas where these pests are troublesome and where there is State and/or local financial interest in a cooperative control program. During calendar year 1972, 18,688,000 acres were treated in 8 of the 9 infested States.

Six new counties came under the JAPANESE BEETLE (Popillia japonica) regulated area in ALABAMA, one county and the City of St. Louis in MISSOURI, and 6 counties in GEORGIA.

A single gravid female MEXICAN FRUIT FLY (Anastrepha ludens) was trapped in Sarasota County, FLORIDA, February 23, 1972, and an intensified trapping program was placed into effect immediately. Trapping continued long enough to span 3 life cycles but no additional specimens were collected.

Since October 10, six native females and 3 native males have been trapped in southwest CALIFORNIA in 5 different areas between National City and La Jolla. Fifty additional traps were set around each of the areas where native flies had been trapped. One female and one male were trapped in San Diego November 27. Fruit cutting was conducted through the area, but no larvae were detected. To protect California from infestation, approximately 700,000 sterile flies per week are released between May and November each year in the Tijuana, Baja California, MEXICO, area to mate with any native Mexican fruit flies that cross the regulatory barriers. In TEXAS, Jim Hogg and Zapata Counties were added to the regulated areas.

A single male ORIENTAL FRUIT FLY (Dacus dorsalis) was taken in a trap in Tustin, Orange County, CALIFORNIA, October 10, 1972. The fly was estimated to be 3 to 7 days old. The last oriental fruit fly found in California was trapped in Santa Barbara June 1, 1972. An attractant and insecticidal baiting program was conducted at Santa Barbara, California, during the period July 10 to August 8, following the trapping of a single male fly June 1. The area covered by this program was 9 square miles. Four applications of bait were applied at weekly intervals. With the initial catch site as the center, 340 traps were placed in an 81-square mile trapping area. The traps were placed 2 weeks before the baiting began and were operated for 3 months. Other than the original catch, no additional flies were found.

Large-scale testing of the sterile moth technique for eradication or control of PINK BOLLWORM (Pectinophora gossypiella) in the San Joaquin Valley of CALIFORNIA continued promising. In June 1972, about 44,000 traps was placed in the cotton-growing area at the rate of one trap per 20 acres of cotton. As of November 10, 1972, when the sterile releases were completed, 31 native moths had been trapped in Kern County and 5 in Tulare County. Limited

boll examinations were made at 3 of the most highly suspect sites. No larvae were found. The numbers of moths and locations exceeded previous seasonal totals. This was expected with the increased trap density and uniformity of placement throughout the valley. Sterile Moth production was increased to 1,250,000 moths per day. This resulted in the release of about 100 million sterile moths in the San Joaquin Valley in 1972.

The sterile insect technique was substituted for the destruction of wild cotton in FLORIDA to prevent spread of pink bollworm to the Southeastern States. Releases of sterile moths began November 13 in Everglades National Park and the Florida Keys. A total of 2,400,000 moths were dropped each week. A trapping survey has been initiated in the wild cotton areas to monitor the effectiveness of the program.

RANGE CATERPILLAR (Hemileuca oliviae) infested about one million acres of rangeland in Union, Harding, Colfax, Chaves, and Lincoln Counties, NEW MEXICO.

During 1972, only 51 new properties were found to be infested with SOYBEAN CYST NEMATODE (Heterodera glycines); however, one of these properties was a new State record for ALABAMA.

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) larval damage to citrus trees in the Apopka area of Orange County, FLORIDA, was on the decline during 1972. Only 20 trees required removal. This compares with about 1,600 trees which showed serious decline symptoms or mortality during the first three years of the program. However, there was some spread of the infestation. In the Apopka area, 49 properties, totaling 404 acres were found infested for the first time during the period January 1 through October 25. Also, three dooryard properties were found infested. Of the properties found infested, 5 totaling 61 acres were outside of the regulated area.

There are now 14,600 acres within the regulated area of which 6,196 acres are in citrus production. Adult West Indian sugarcane root borers have been detected in 238 groves comprising 2,146 acres since the beginning of the program. Surveys in 1972 were conducted within and outside the regulated area on a total of 18,614 acres. Adults were found on 1,466 acres.

Adults were found on nine species of plants during the September survey conducted on alternate hosts. These were hackberry, laurel oak, live oak, pignut hickory, Hercules club, winged sumac, blackberry, gallberry, and wax myrtle. These plants ranged up to 0.3 mile from infested citrus groves. There is no way to check the tops of some of the taller trees such as oak and hackberry. It is felt that since the adults prefer to feed in the tops of citrus trees, this may also be true with other hosts.

WHITEFRINGED BEETLE (Graphognathus spp.) infestations have now been recorded in all 67 counties in ALABAMA. Estimated damage by these pests in 1972 to selected crops are as follows: Cotton $100,000, peanuts $300,000, corn $352,000, soybeans $180,000, home and commercial vegetables $210,000. Cost of insecticides and application is estimated at $280,000 or a total loss estimated at $1,422,000 for 1972. First damage of the year was reported in a large greenhouse in Houston County February 4 where larvae damaged

root systems of tomato plants. Whitefringed beetles were collected for first time in Pierce County, GEORGIA; McCracken County, KENTUCKY; Vernon, Winn, Red River, and Natchitoches Parishes, LOUISIANA; Barnwell County, SOUTH CAROLINA; and Hardin County, TEXAS during 1972.

The following quarantines were revoked during the past year: KHAPRA BEETLE (Trogoderma granarium) July 2; EUROPEAN CHAFER (Amphimallon majalis) July 30; SOYBEAN CYST NEMATODE (Heterodera glycines) September 30, and EUROPEAN CRANEFLY (Tipula paludosa) December 7, 1972.

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Weather of the week continued from page 180.

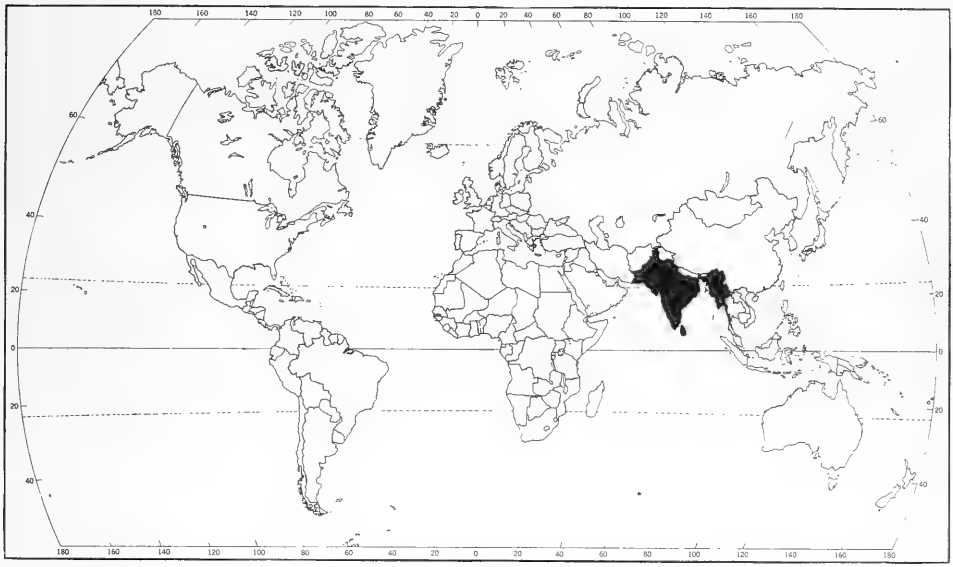
Pushing into the warm moist air over the southern Plains, it unleased heavy rains and tornadoes. Golf-ball sized hail struck Galveston, Texas, which also received nearly 2.50 inches of rain in an hour and 3 inches in 24 hours. The upper Coastal Plain of Texas received rainfall ranging from 1.25 to 3.25 inches. Saturday, tornadoes struck northwest and southeast Texas. Northward, Dodge City, Kansas received 2.05 inches of rain. A contrast to the springlike weather graced the Nation's eastern and western thirds. Sunday, torrential rains spread from Texas into the Deep South. Excessive rainfall aggravated the existing flood conditions there. Mobile, Alabama, reported 2.53 inches rain. A storm moved into the middle Mississippi River Valley where it weakened and calmed somewhat.

TEMPERATURE: Warmer temperatures than average prevailed over the Midwest and central United States last week while in the northern Great Plains, temperatures averaged as much as 15 degrees above normal. Most of the east-coast temperatures averaged lower than the seasonal normal with daily highs in the 40's and 50's. The west coast also stayed on the cooler side with daily highs mainly in the 40's and 50's. A mild Monday started the week. Temperatures remained below freezing at midday in only a few areas and shot into the 70's along the gulf coast. Tuesday morning, temperatures dropped below freezing over much of the northern Midwest, the Plains, and the Mountain States. However, a cold front extending out of the Low in Nevada made it a colder day than Monday in much of the Nation's center. Wednesday morning saw the mercury dip below 32 degrees across the northern half of the Nation from southern Pennsylvania through the Corn Belt and Plains into Nevada and eastern California and Oregon. The northeast stayed fairly cold throughout the day. The national low at Bradford, Pennsylvania, was 10 degrees while it averaged warmer in the West. Thursday morning much of the western Corn Belt parts of the Plains saw their last freezing temperatures for the week. Friday through Sunday, many locations recorded daily lows in the mid and high 30's and low 40's. Winter reigned in New England and Upstate New York. Temperatures there generally fell below freezing every night through Sunday. The mid-Atlantic region had lows in the 30's and 40's and highs in the 50's and 60's. Late in the week, temperatures in the western Plains and Rockies dropped to the 20's and 30's and peaked in the 40's and 50's.

RED PUMPKIN BUG (Coridius janus (Fabricius))

Economic Importance - This pentatomid has caused severe damage to pumpkins in India, pumpkins and gourds in Burma, and is a major pest of several cucurbits in West Pakistan. It also attacks eggplant, melon, and beans. The nymphs and adults are gregarious and often become so numerous as to almost cover the host plant. A heavily infested plant wilts and may die due to the large amount of sap sucked from the stem and leafstalks by both nymphs and adults.

Distribution - Burma, India, Ceylon, and West Pakistan.

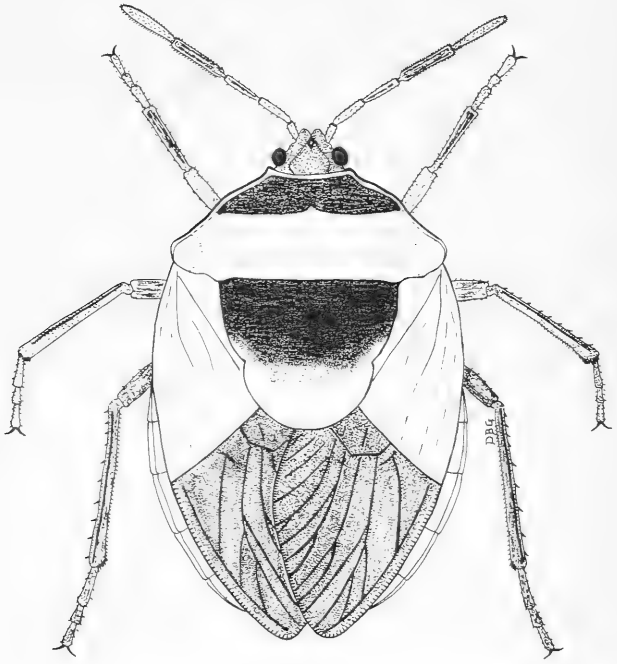


General Distribution of Red Pumpkin Bug

Hosts - Principally a pest of cucurbits including pumpkin, gourd, melon, and cucumber. It has also been recorded on eggplant and beans.

Life History and Habits - These bugs overwinter as adults, emerging around mid-May. Mating takes place only once a year, this occuring during the rainy season, July to September. Oviposition begins 3-4 days after mating, with each female capable of producing up to 100 eggs. The eggs are laid in strings of 18-20 on the ventral surface of the leaves of the host plant. The ventral side of the leaves are rough and hairy which probably aids in keeping the eggs from falling to the ground. The average incubation period is 5-6 days. There are 5 nymphal instars which require a total of 23-29 days to mature. The adults do not fly extensively and congregate on the host with the nymphs. Both stages suck the sap from the plant causing it to wilt and die.

Description - The eggs are barrel-shaped, 1.78 mm long, with fine, spiny, surface projections. First instar nymphs are almost oval, 1.8-2.0 mm in length and deep red in color. There is an increase in size with each molt, the fifth instar nymph reaching 11.5-15 mm. The adults average 20.0-22.2 mm in length, the females being slightly larger. The thorax and abdomen are orange-red with the eyes and head black. The basal portions of the hemelytra are yellow and the membranes black. The head is broader than long and the antennae are 5 segmented. The pronotum has a transverse black band near the anterior margin. (Prepared in Pest Survey and Technical Support in cooperation with other agencies). CEIR 23(13):197-198, 1973.



Adult of Coridius janus

Major references: Gentry, J.W. 1965. Crop insects of Northeast Africa-Southwest Asia. U.S.D.A. Agr. Handbook No. 273. p. 147. Rastogi, S.C. and Krishna Kumari, 1962. Observations on the life-history of the red pumpkin bug, Coridius janus (F.). Heteroptera: Dinidorinae. Zool. Pol. 12(1):69.

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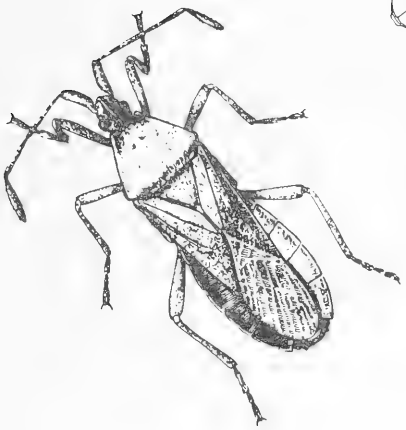

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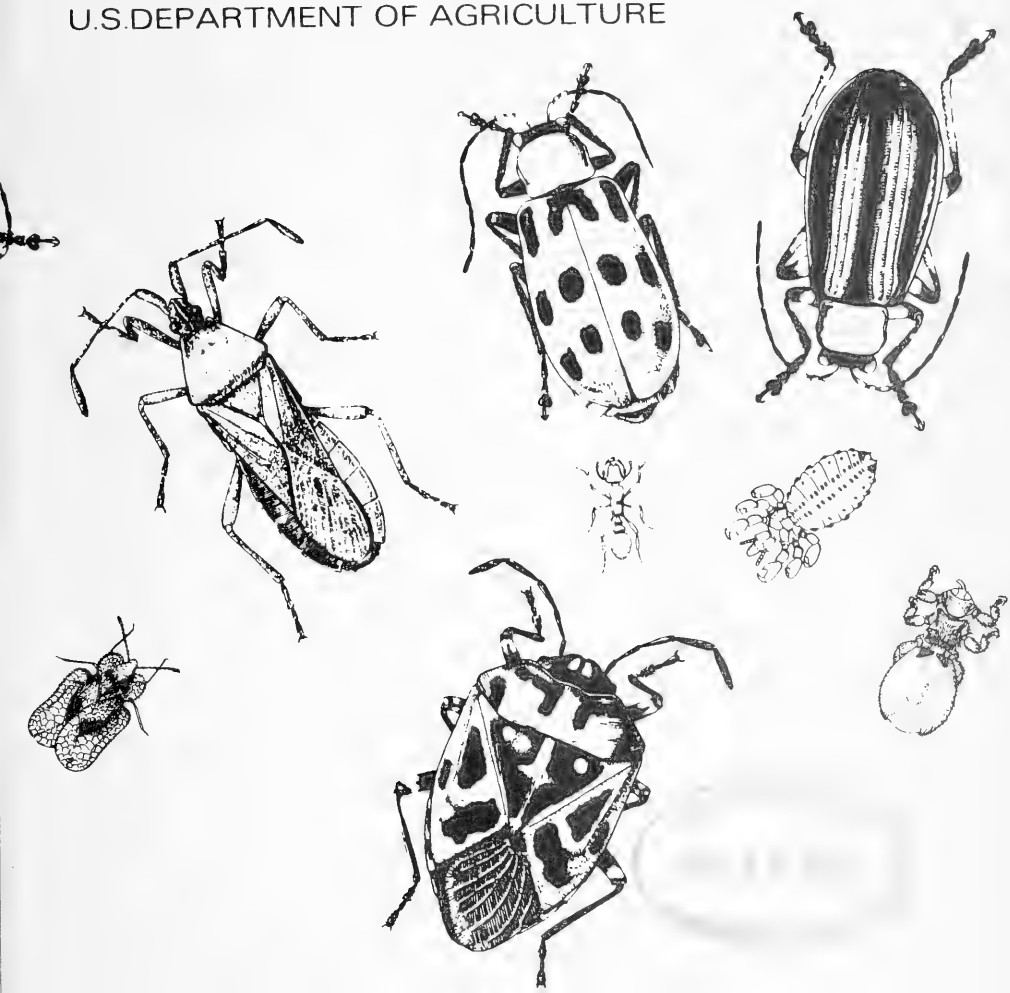

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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Volume 23 April 6, 1973 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

Conditions for BEET LEAFHOPPER reproduction appear favorable in breeding areas in California. (p. 201).

HESSIAN FLY flaxseeds heavy in volunteer wheat in western areas of Kansas. (p. 201).

ALFALFA WEEVIL larval and adult activity increased in southern Illinois alfalfa; infestation above economic level in areas of Virginia. PEA APHID heavy on legumes in southeastern New Mexico. (pp. 201-202).

GREEN PEACH APHID overwintering eggs on peach heavier than in 1972 on Western Slope of Colorado. (p. 202).

SOUTHERN PINE BEETLE moderate to heavy with outbreaks expanding in already affected areas of the South. (p. 203).

Detection

New State records include a CONOPID FLY in Nevada (p. 205) and a WEEVIL in Ohio (p. 204).

For new county records see page 205.

Some First Occurrences of the Season

ALFALFA WEEVIL larvae in Maryland. CLOVER LEAF WEEVIL larvae in Illinois. Larvae of a PINE SAWFLY in Arkansas. EASTERN TENT CATERPILLAR larvae in New Jersey and Maryland. MOSQUITO larvae in Minnesota and Maryland. SUBTERRANEAN TERMITES in Idaho, Kansas, and Tennessee; activity in Idaho earliest recorded in State.

Reports in this issue are for week ending March 30 unless otherwise indicated.

CONTENTS

WEATHER OF WEEK ENDING APRIL 2

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

PRECIPITATION: Rain drenched the Deep South, the western half of the Corn Belt, Kansas, and the Wheat Belt this week. From 2 to 4 inches of rain soaked soils and flooded rivers from northern Florida to Virginia west to the Mississippi. Torrents of rain turned fields to mud in Kansas, western Missouri, and Oklahoma. The week brought from 2 to over 2.50 inches of rain. A pleasant springlike day graced most of the Nations interior Monday March 25 while coastal areas received scattered showers. Tuesday began with generally fair weather--cloudy, dry. Rain returned to the Plains during the afternoon. A Low pushed showers into west-central Texas, showers later spread into the Mississippi Valley. Snow fell in Colorado and northern New Mexico.

TEMPERATURE: Temperatures warmer than average covered the East, Midwest, and North Central United States last week. The area around Buffalo, New York, averaged 10 degrees or more above normal while large sections of the Atlantic coast, Deep South, Corn Belt, and Northwest ran from normal to 6 degrees above normal. Much of the central and western Corn Belt remained frost free all week. The west coast remained cooler than normal for the second week in a row. Some mountain State areas were as much as 9 to 12 degrees below normal. The week began on the mild side. Midday temperatures were in the high 40's, 50's, and 60's all along the Canadian border. Tuesday was cooler due to a cold front moving across the North Central States and northerly winds blowing into New England. Wednesday morning the freeze line moved into the western Plains and as far south as North Carolina in the east. Thursday's frost line embraced only the Rockies and northern Plains. However, midday Highs along the Canadian border ranged in the 30's and 40's in the Nation's midsection, the 40's and 50's closer to the coasts. Friday's temperature story was almost the same. The day's high at St. Petersburg, Florida was 86 degrees, the low at Lander, Wyoming 9 degrees. Weather of the week continued on page 206.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Spring nymphal emergence progressing in Kern County. Gravid adult females still present throughout most overwintering areas. Conditions for beet leafhopper reproduction appears favorable in Elk Hills Range, Buena Vista Hills, Twenty-five Hills, and Symria area near Taft and McKittrick, Kern County. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Moderate to heavy populations in most small grain fields required chemical controls at Clovos, Curry County. (N.M. Coop. Rpt.). TEXAS - Light on small grains in Reeves and Pecos Counties. Ranged 5-10 per row foot in barley and wheat. Light, ranged 1-8 per row foot in small grains in Martin County. Populations of 2-40 per row foot seen in Archer, Throckmorton, Haskell, Knox, Wilbarger, and Foard Counties. (Neeb, Boring). ARKANSAS - Survey negative in wheat in Washington County. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Survey negative in northwest areas. No infestations expected under extremely wet conditions. (Boyer).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, 5-8 per row foot, reported from few small grain fields in Archer and Foard Counties. (Boring).

HESSIAN FLY (Mayetiola destructor) - KANSAS - Heavy flaxseed infestations found in large volunteer wheat in Russell, Sheridan, and Wichita Counties. Flaxseeds ranged 10-12 per plant in Russell (2 fields) and Sheridan (3 fields) and 6-7 per plant in Wichita County field. No flaxseeds found in planted or small volunteer wheat in these counties nor in large and small volunteer and planted wheat in Sherman, Wallace, and Greeley Counties. (Bell).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Damaged alfalfa in Wilbarger County where controls not applied. Terminal damage ranged 50-80 percent in many fields. Damage also reported from Clay County; about 50 percent terminal damage reported from one field. (Boring). ARKANSAS - Increase light in northern area. In Boone County, 20 adults and 13 larvae taken in 10 sweeps in one field. In Washington County field one adult and 20 larvae taken in 10 sweeps. (Boyer). KANSAS - Larvae infested 48 percent of alfalfa terminals in one field in Chautauqua County. In Montgomery County field, 4 percent of green stems contained fresh egg masses. (Bell). MISSOURI - Larval counts decreased in southwest area due to heavy rain and hail; averaged less than 1 per alfalfa stem. No adult counts made because of moisture. (Munson). ILLINOIS - Larval and adult activity increased noticeably during past week in alfalfa in southern third of State. Stem tip feeding averaged 21 percent, adults and larvae averaged 17 and 25 per 100 sweeps, respectively. Most larvae were first and second instar with some third. Alfalfa ranged 6-8 inches in height. (Ill. Ins. Rpt.). KENTUCKY - Larvae averaged 1.23 per alfalfa tip in Caldwell County, 90 per square foot in Barren County, and 125 per square

foot in Warren County. Eggs averaged 13 and 26 per square foot at 2 locations in Fayette County, and 72 per square foot in Barren County. (Barnett, Parr). TENNESSEE - Up to 63 larvae per 50 tips with 90 percent tip damage in Franklin County; 70 per 50 tips (no tip damage) in Crockett County. Controls needed when larvae number one per tip or with 50 percent tip damage. (Gordon). MARYLAND - First larvae of season collected in Harford and Frederick Counties. First instar larval counts averaged 1 per 50 tips. Larval surveys in Howard, Baltimore, Prince Georges, and Carroll Counties negative. (U. Md., Ent. Dept.). VIRGINIA - Infestation exceeded economic threshold (25 of 50 tips infested) in following counties: Hanover 36, Powhatan 42, and Roanoke 29. (Allen). SOUTH CAROLINA - Appeared on old alfalfa in all counties; damage 50+ percent in most fields. Tip damage ranged 5-20 percent on newly seeded stands. Parasitism negative. (Thomas, March 23).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae averaged 500 per 100 sweeps in fields of wet alfalfa at Salt River Valley, Maricopa County. Ranged 30-100 per 100 sweeps at Yuma Valley, Yuma County. (McHenry).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Light in red clover and alfalfa in southern areas. Larvae averaged 2 per square foot in 2 Pulaski County red clover fields. Up to 10 larvae per 100 sweeps in alfalfa in Johnson County. (Ill. Ins. Rpt.).

PEA APHID (Acyrthosiphon pisum) - NEVADA - Averaged 50 per sweep in alfalfa in Las Vegas area of Clark County. (Joy). NEW MEXICO - Populations very heavy on legume crops in Eddy and Chaves Counties. Controls applied. (N.M. Coop. Rpt.). TEXAS - Ranged 10-25 per square foot in alfalfa fields in Glasscock, Martin, and Midland Counties. Moderate to heavy in some fields in Wilbarger County. (Neeb, Boring). ARKANSAS - Counts stable, 700-800 per 100 sweeps in alfalfa in northwest area. (Boyer). ILLINOIS - Averaged 50 per 100 sweeps in alfalfa in southern areas. Occasional winged forms found. (Ill. Ins. Rpt.).

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - WASHINGTON - Adult flight general in lower Yakima Valley; 14 taken in 8 of 10 pheromone traps week ending March 21. In Walla Walla County, adults averaged 9 (range 1-37) per trap in 29 of 50 traps. (Halfhill).

REDLEGGED GRASSHOPPER (Melanoplus femurrubrum) - MINNESOTA - Egg pods ranged 4-5 per square foot along State Highway 25 in Sibley County. No egg development indicated. (Minn. Pest Rpt.).

COLE CROPS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - MISSISSIPPI - Immatures damaged 15 acres of commercial cabbage in Lamar County. Controls applied. (Robinson).

DECIDUOUS FRUITS AND NUTS

GREEN PEACH APHID (Myzus persicae) - COLORADO - Overwintering egg counts on peach show increase over 1972. Eggs and nymphs averaged 20 per 100 fruiting buds; 33 percent of eggs hatched by March 12 compared to 95 percent in 1972. Sixty percent hatched to date with all fruits still in dormant stage going into delayed dormant stage. (Bulla).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Treatments underway at Yuma Mesa, Yuma County. Spread more general in groves than in past years. (Ariz. Coop. Sur.).

SMALL FRUITS

BLUEBERRY BUD MITE (Acalitus vaccinii) - NORTH CAROLINA - Infestations slightly heavier than winter of 1971-1972. Damaging numbers observed in untreated blueberries in Pender and Bladen Counties. Counts during November 1972, January, and March 1973 averaged 51 percent of terminal buds infested. (Hunt).

ORNAMENTALS

ARMORED SCALES - FLORIDA - Adults of Lepidosaphes maskelli and Carulaspis minima moderate on 2,000 Juniperus sp. plants at Hudson, Pasco County. Collected March 20, 1973, by D.E. Dickson. All stages of Duplaspidiotus tesseratus and MINING SCALE (Howardia biclavis) collected on Camellia japonica by G.P. Lamb at Arcadia, De Soto County on March 15, 1973. These are all new county records. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - Activity and population levels remained moderate to heavy with outbreaks expanding in areas already affected. Although salvage efforts hampered by very wet fall and winter suppression efforts continued to stress removal of infested trees before beetles become active in spring. Beetle populations little affected by mild winter throughout the South; increase in size and intensity of outbreaks expected during spring and summer. Suppression efforts included 108.4 million board feet and 195,351 cords of timber salvaged since July 1972. (South. For. Pest. Rptr., March).

BLACK PINELEAF SCALE (Nuculaspis californica) - CALIFORNIA - Infesting pine trees, 5 scales per needle, in Vacaville, Solano County. Infestation increased in native pines over past 2 years. (Cal. Coop. Rpt.).

A PINE SAWFLY (Neodiprion taedae linearis) - ARKANSAS - Hatch began in south-central counties about 2 and one half weeks later than normal. (Boyer).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NEW JERSEY - First hatch of season observed March 28 in crab apple trees at New Brunswick, Middlesex County. Few larvae observed on each egg mass. First hatch of 1972 season occurred April 14. (Ins.-Dis. Newsltr.). MARYLAND - First larvae of season reported from Montgomery County. Most egg hatch expected to be completed in 7-14 days in central area. (U. Md., Ent. Dept.). SOUTH CAROLINA - Larvae moderate to severe in most central and Piedmont counties. (King, Pollet). FLORIDA - Larvae abandoning most tents in Prunus spp. in search of pupation sites at Gainesville, Alachua County. (Fla. Coop. Sur.). ARKANSAS - Heavier in southern area than for many years. (Boyer).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - MISSISSIPPI - Populations stable on beef cattle in Oktibbeha County; averaged 30 per head. (Robinson). TEXAS - Light on cattle in Pecos County. (Neeb).

MOSQUITOES - MINNESOTA - First Aedes spp. larvae of season collected March 21 by personnel of Metropolitan Mosquito Control District (Minneapolis, St. Paul, and 6 surrounding counties). Field collection of larvae on March 29 revealed mostly second instar with occasional third. (Minn. Pest Rpt.). MARYLAND - Larvae heavy in roadside ditches along Susquehanna River near Havre de Grace, Harford County. A. canadensis second and third instar larvae ranged 12-20 per dipper. (U. Md., Ent. Dept.).

SCREWWORM (Cochliomyia hominivorax) - During the period March 18-24 there were 4 confirmed cases reported in the continental U.S. as follows: Texas - Jim Hogg 2, Brooks 1, Hidalgo 1. Total of 97 confirmed cases reported from Mexico. Number of sterile flies released in U.S. Totaled 76,715,000, all in Texas. Total of 116,199,500 sterile flies released in Mexico. (Anim. Health).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - IDAHO - Alates collected from home in Moscow, Latah County, March 28. This is earliest alate activity recorded in State. (Futter). KANSAS - First swarms of season reported March 12 and March 21 in Topeka, Shawnee County. (Bell). TENNESSEE - R. flavipes (eastern subterranean termite) swarmed in Bradley County for first report of season. (Mullett). MISSOURI - R. flavipes swarmed at several locations in southwest area. (Munson).

MISCELLANEOUS WILD PLANTS

A WEEVIL (Polydrusus sericeus) - OHIO - Collected from nettle at Oak Openings Park, part of Toledo Metropolitan Park System in Lucas County, June 25, 1972, by G. Firebaugh. Trees in area include oaks, black cherry, sassafrass, pines, spruce, fir, and witchhazel. Determined by R.E. Warner. This is a new State record. (Firebaugh).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARIZONA - Heavy in small grains in Cochise County and one field of wheat in Yuma County. (Ariz. Coop. Sur.).

ALKALI BEE (Nomia melanderi) - WASHINGTON - Emergence of Meloe sp. (a blister beetle) adults heavy from N. melanderi nesting sites in Lowden and Touchet area, Walla Walla County. Emergence apparently began first week of March. Up to 15 adult emergence holes per square foot noted in one bee bed; up to 10 Meloe sp. adults per square foot in concentrated areas along edges of bed sites. Bee beds in Lowden and Touchet area heavily infested; few beetles in beds on west and north fringes of area. Small numbers of Meloe sp. adults noted emerging from N. melanderi beds in Touchet area in April 1972. It is strongly suspected Meloe sp. is adapting to alkali bee as a host. (Johansen).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Alate-producing broods appeared for first time this season in Gadsden County; 68 percent of mounds have sexual larvae and 17 percent have sexual pupae. (Fla. Coop. Sur.). TEXAS - Collected in Brazos County February 8 by W.T. Williamson, in Washington County February 15 by B.B. Smith, and in Wilson County March 6 by H.C. Massey. Determined by D.R. Smith. These are new county records. (PPQ).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Infestation spread into Oceanside area, San Diego County. Counts averaged 4 nymphs per leaf. Area to be included in treatment program in progress. Two properties found infested at San Clemente, Orange County, for a new county record. (Cal. Coop. Rpt.).

DETECTION

New State Records - A CONOPID FLY (Dalmannia pacifica) - NEVADA - Adults collected at Reno, Washoe County, on June 1, 1964, by R.C. Bechtel. Determined by R.C. Bechtel. (Bechtel).

A WEEVIL (Polydrusus sericeus) - OHIO - Lucas County. (p. 204).

New County Records - A CONOPID FLY (Dalmannia picta) NEVADA - Adults collected at Reno, Washoe County, June 27, 1960 by F.D. Parker; Cave Valley, Lincoln County, June 2, 1962 by R.C. Bechtel; Gardnerville, Douglas County, May 9, 1969 by C.A. Heringer; Preston, White Pine County, May 20, 1969 by C.A. Heringer; Kingston Canyon, Lander County, July 1, 1971 by R.C. Bechtel and P.C. Martinelli. Determined by R.C. Bechtel. (Bechtel).

ARMORED SCALES - FLORIDA - Lepidosaphes maskelli, Carulaspis minima Pasco, Duplaspidiotus tesseratus, MINING SCALE (Howardia bicavis) De Soto (p. 203). RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Brazos, Washington, Wilson (p. 205). WOOLY WHITEFLY (Aleurothrixus floccosus) CALIFORNIA - Orange (p. 205).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/23-29, BL, ARMYWORM (Pseudaletia unipuncta) 1, BEET ARMYWORM (Spodoptera exigua) 2, BLACK CUTWORM (Agrotis ipsilon) 1, BOLLWORM (Heliothis zea) 2, GRANULATE CUTWORM (Feltia subterranea) 13, TOBACCO BUDWORM (H. virescens) 1, YELLOWSTRIPED ARMYWORM (S. ornithogalli) 2. TEXAS - Waco, 3/22-30, BL, Armyworm 82, beet armyworm 1, black cutworm 2, bollworm 6, granulate cutworm 2, SALTMARSH CATERPILLAR (Estigmene acrea) 3, VARIEGATED CUTWORM (Peridroma saucia) 53, yellowstriped armyworm 6.

CORRECTIONS

CEIR 23(12):169 - BENEFICIAL INSECTS - HONEY BEE (Apis melifera) should read (Apis mellifera).

CEIR 23(13):186 - DETECTION - New State Records - SOFT SCALES should read BLACK SCALES. Also, S. oleae should read S. miranda. (PPQ).

HAWAII INSECT REPORT

Corn - CHINESE ROSE BEETLE (Adoretus sinicus) damage generally light in 3-foot tall corn seedlings at Waimanalo, Oahu; moderate on 50 percent of older leaves. Plants nearest perimeter most adversely affected. CORN EARWORM (Heliothis zea) light in adjacent nearly mature corn; about 15 percent of ears infested with young larvae. (Kawamura).

General Vegetables - Larval mines of LEAFMINER FLIES (Liriomyza spp.) very heavy in mature cucumber at Waimanalo, Oahu; about 50 percent of older leaves affected. Many leaves with 10+ adults per leaf. All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on young leaves. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) increased on 100+ coconut trees at Hawaii Kai, Oahu; colonies light and spotty in late November 1972 and in early February 1973 now at moderate levels. Nymphs and adults of Telsimia nitida (a lady beetle) light amid scale colonies. (Kawamura).

Weather of the week continued from page 200.

Late in the week a Pacific cold front pushed into Washington, Oregon, and northern California. Late Sunday, it embraced the whole of western third of the Nation. Sunday afternoon temperatures ranged from 77 degrees at Key West, Florida, to 20 degrees at Laramie, Wyoming. Wednesday, a poorly organized Low extending from the upper Great Lakes to the southern Plains generated showers and thundershowers over the mid-Mississippi Valley. Warm, moist air flowing toward the emerging storm caused thundershowers over southern Texas and the Louisiana coast. Thursday, Lows centered over Illinois, the Rockies, and one south of New Mexico stirred up weather over much of the Nation. Heavy rains swelled flooded rivers from the gulf coast to the mid-Mississippi Valley. Flagstaff, Arizona, added 13 inches of snow to its already record snowfall for the year. Friday, snow fell in the central Rockies east into Colorado. Goodland, Kansas, recorded 1 inch of new snow. Severe weather extended eastward. Baseball sized hail fell near Texarkana, Arkansas. Montgomery, Alabama, had 1.83 inches of rain. Tornadoes hit near Durant, Oklahoma, Friday night, the storm dumped 4 to 6 inches of rain on southern Alabama and 1.50 inches over parts of Georgia and South Carolina. Saturday, nine tornadoes touched down in central Missouri, five in northern Georgia, three in Illinois. In northern Georgia several people were killed and a large number injured. Sunday, rains caused flooding in the Carolinas. Tornadoes touched down in central Florida, Lower Michigan, and the Washington, D.C., suburbs. The tornado in Washington destroyed a shopping center, tore roofs off a school, and an apartment house.

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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 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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Volume 23 April 13, 1973 Number 15

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

SOUTHERN CORN ROOTWORM severely damaged seedling grain sorghum in Coastal Bend area of Texas. (p. 209).

ALFALFA WEEVIL larvae exceeded economic threshold in Piedmont and Coastal Plain areas of Virginia and in western and central areas of Tennessee. Infestations increasing in other areas of Nation. (pp. 209-210).

VEGETABLE WEEVIL infested spearmint and peppermint in Oregon for a new State record. (p. 211).

WESTERN FLOWER THRIPS moderate to heavy in citrus groves in Salt River Valley of Arizona. (p. 212).

NORTHERN FOWL MITE moderate on large chicken flock in Mississippi, heavy on large flock in Oklahoma. (p. 214).

Prediction

SPRING CANKERWORM problems expected to increase in Nebraska. Spring cankerworm and FALL CANKERWORM expected to cause severe defoliation of trees in North Dakota. (p. 212).

Detection

New State records include VEGETABLE WEEVIL in Oregon (p. 211), a BRACONID WASP parasite of alfalfa weevil adults in Ohio (p. 214), and a EULOPHID WASP parasite of scale insects in Colorado (p. 214).

For new county and island records see page 215.

Some First Occurrences of the Season

BLACK CUTWORM moths in Ohio. BOLL WEEVIL adults in Texas. EASTERN TENT CATERPILLAR in Delaware. CEREAL LEAF BEETLE adults and eggs in West Virginia. A GRASS BUG in Nebraska. GRASSHOPPER nymphs in Oklahoma.

Special Reports

Mediterranean Fruit Fly. Selected References 1929-1949. (pp. 217-220).

Reports in this issue are for week ending April 6 unless otherwise indicated.

CONTENTS

WEATHER OF THE WEEK ENDING APRIL 9

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

PRECIPITATION: The eastern Corn Belt and a strip extending from Kentucky through Arkansas into East Texas received heavy rains ranging from 0.8 to 2 inches which worsened the already bad flood situation. Throughout parts of the Deep South and northern Florida 2 to 4 inches of torrential rain soaked soils. By contrast, most of the west coast and almost all areas west of the Rockies received no precipitation. The Mountain States and western Great Plains had unseasonal snow and blizzards due to frigid arctic air. Monday brought one inch of snow to Wisconsin, Iowa, eastern Nebraska, and Kansas. Rain increased flooding from Illinois to Louisiana. The Ohio River at Cairo, Illinois, crested at 16 feet above flood stage, less than 4 feet below the record of 1937 crest. Tuesday, rain fell over most of the Nation. A Low in southeastern Louisiana set off intense thundershowers over the Gulf States. These reached severe proportions as the storm traveled east. Torrential rains struck southern Georgia and northern Florida. Wednesday morning, Jacksonville, Florida, had received 7.57 inches of rain, Brunswick, Georgia, 2.33 inches. Scattered showers continued all day Wednesday throughout the Southeast, extremely heavy showers throughout Florida. Sun City, 17 miles north of Tampa, Florida, received 5.50 inches of rain in a 2-hour period. Locally heavy rains caused flash flooding in Georgia. Late Wednesday and early Thursday, the Mississippi flood crest moved into lower Mississippi. The river was 6.5 feet above flood stage as it passed through Memphis, Tennessee. A near record flood of 7 feet above flood stage raged along the Suwannee River in northern Florida. Thursday, the storm brought winter back to New England blanketing Maine, Vermont, and New Hampshire with snow. The storm also spread rain down the Ohio Valley, otherwise most of the Nation enjoyed fair weather. Friday, light rains and snows fell over New England, the Applachians, and westward into Minnesota. Heavier snows prevailed over Montana and North Dakota. Weather of the week continued on page 216.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Threatening numbers on roadside Chenopodium, April 1. Treatments necessary to protect Imperial Valley croplands from damaging populations. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - TEXAS - Generally light throughout Rolling Plains. Ranged 1-10 per row foot of small grains in Knox, Haskell, Throckmorton, Wilbarger, and Foard Counties. Ranged 20-34 per row foot in some fields in Haskell and Wilbarger Counties. Little or no activity reported from Young and Baylor Counties. Some controls applied in Hall County. Beneficial species, mainly spiders and nabids, still active in small grains in Wilbarger County. (Boring).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Ranged 5-10 per square foot in alfalfa near Carlsbad, Eddy County. (N.M. Coop. Rpt.).

CORN, SORGHUM, SUGARCANE

SOUTHERN CORN ROOTWORM (Diabiotica undecimpunctata howardi) - TEXAS - Heavy populations caused severe damage to seedling grain sorghum in Calhoun, Victoria, and Matagorda Counties. (Cole).

BLACK CUTWORM (Agrotis ipsilon) - OHIO - Adults collected in blacklight traps on March 30 for first emergence of season. (Rings).

EUROPEAN CORN BORER (Ostrinia nubilalis) - OHIO - Populations of overwintering larvae generally lower than past 2 years. Heavy populations may develop in some isolated fields. (Musick).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, ranged 3-11 per row foot in small grains in Knox and Foard Counties. In Haskell County, 28 per row foot taken from one field. Number of infested fields and populations remained light in Rolling Plains area. (Boring). OKLAHOMA - Present in most wheat fields in Logan and Kingfisher Counties; ranged up to 15 per linear foot. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - FLORIDA - Nymphs and adults taken as follows: 75 per 100 sweeps of wheat and 140 per 100 sweeps of oats (both hosts in green seedhead stage) at Gainesville, Alachua County. (Fla. Coop. Sur.).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Active in margins of winter wheat at Petersboro, Cache County. (Knowlton).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Infestations heavy on roadside clover in Wood County. This is a new county record. Also noted on burr clover 4 miles west of Marble Falls and active in Donley and Collingsworth Counties. Larvae caused some terminal damage to alfalfa in Fisher County. Terminal damage ranged 5-10 percent in several fields near Roby, Fisher County. (Tapscott et al.). OKLAHOMA - Terminal infestations ranged 25-75 percent

in alfalfa in Washita, Caddo, and Beckham Counties, and averaged 44 percent in Logan County and 14 percent in Washington County. Larvae ranged 60-100 per square foot in Tulsa County, 60-75 in Greer County, and 1-20 in Roger Mills County. Heavy in Payne and Bryan Counties and light in Pawnee and Pontotoc Counties. (Okla. Coop. Sur.). ARKANSAS - Development slow in northwest area, probably due to low temperatures. One adult and 31 larvae taken in 10 sweeps in Washington County fields. Expected to increase rapidly with warm weather. (Boyer). MISSOURI - Larvae infested alfalfa throughout State. Ranged 0.5-2.1 per stem in southwest area. Terminal damage ranged 5-30 percent. (Munson).

INDIANA - All H. postica eggs laid prior to March 1 now hatched in southern third of State. No hatch to date in northern half of State but expected to begin as far north as Indianapolis next 7 days. Larvae per 100 stems by county as follows: Daviess 58, Dubois 127, Harrison 63. (Huber, Meyer). OHIO - Egg counts taken in 2 to 4-inch tall alfalfa in southwestern and central areas showed average of 11 per square foot in Clinton County and 36 per square foot in Franklin County. No larvae seen. (Horn, Flessel). KENTUCKY - Larvae averaged 3.4 per alfalfa tip in Warren and Barren Counties; 78 percent of tips infested. In Nelson County, 40-50 percent of tips infested with average of 1.2 larvae per tip; damage evident on 90 percent of tips. In northern areas, 20-30 percent of tips infested; larvae averaged less than one per tip. (Barnett). MARYLAND - H. postica larval surveys negative in Cecil, Kent, and Queen Annes Counties. Egg hatch continued in Baltimore, Frederick, Carroll, and Prince Georges Counties, but larvae likely to be killed by frosts. Peak hatch expected within next 2 weeks. (U. Md., Ent. Dept.).

VIRGINIA - Survey conducted on 138 acres of alfalfa in 15 fields in 8 counties showed infestations exceeded economic threshold (25 of 50 tips infested) in 7 fields. Defoliation by H. postica averaged 10.1 percent. Larvae growing rapidly; growers in Piedmont and Coastal Plain areas should treat soon. (Allen). TENNESSEE - Infestations exceeded economic threshold in 6 counties; Warren, Grundy, Obion, Franklin, Fayette, and Hardeman. (Gordon, Bruer). NORTH CAROLINA - Larvae averaged 5 per alfalfa plant in 3 Rowan County fields. About 80 percent of foliage damaged. Total loss expected if fields not treated. (Bowers). MISSISSIPPI - Vacuum sample of 100 square feet of alfalfa in Bolivar County yielded estimated 197,000+ larvae per acre. This is 5-fold increase in last 14 days. Averaged 1+ larvae per plant. Ragging of terminals evident. (Schuster).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae per 100 sweeps of alfalfa ranged 10-200 in Yuma Valley and 10-80 at Wellton, Yuma County; averaged 131 in Maricopa County. (Ariz. Coop. Sur.).

CLOVER HEAD WEEVIL (Hypera meles) - ARKANSAS - One adult per 10 sweeps taken in Washington County. Species usually not numerous in northwest area. (Boyer).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - WEST VIRGINIA - Collected in alfalfa at Morgantown, Monongalia County, November 2, 1971, by B.D. Wojcik. Determined by Butler. This is a new county record. (Hacker).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Ranged 50-100 per square foot in alfalfa at Carlsbad, Eddy County, with some fields treated. Populations still very light in Dona Ana County. (N.M. Coop. Rpt.). TEXAS - Light on alfalfa in Donley and Collingworth Counties. (Clymer). OKLAHOMA - Light in most alfalfa fields in Beckham, Caddo, and Washita Counties but ranged 30-40 per stem in a few fields. Ranged up to 200 per square foot in Roger Mills County. (Okla. Coop. Sur.). ARKANSAS - Increased to about 2,000 per 100 sweeps in alfalfa in northwestern area. (Boyer). MISSOURI - Ranged 3-18 per 10 sweeps of alfalfa in southwest and south-central areas. Counts very light but could increase rapidly if cool weather continues. (Munson).

REDBACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - Full-grown larvae found April 3 in soil of alfalfa seed field 20 miles north of Pasco, Franklin County; maturity probably result of unusually warm weather during February and March. (Johansen).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - MARYLAND - Surveys negative Statewide. (U. Md., Ent. Dept.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Emerging from ground trash in Calhoun, Victoria, and Guadalupe Counties. Total of 115 taken in pheromone traps throughout south-central and Coastal Bend areas. (Green).

MISCELLANEOUS FIELD CROPS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - OREGON - Larvae and pupae collected on March 22, 1973, in spearmint field at Dever, Linn County, by R.R. Robinson. Determined by P. Ritcher. Delimiting surveys showed about 250 acres of spearmint and peppermint infested, heavy in some areas. This is a new State record. (Westcott, Penrose).

COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Larvae very heavy on unsprayed cabbage, caused severe damage at Belle Glade, Palm Beach County. (Fla. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Adults and eggs observed on pear at Storrs, Tolland County, March 29. Egg laying probably began 3 or 4 days earlier. (Savos, Apr. 3). MICHIGAN - Adult activity and egg laying reported from Grand Rapids, Kent County, south since March 27; much earlier than usual. Many orchardists applied sprays by March 31. (Sauer). WASHINGTON - Nymphs (one alive, one dead) seen on Bartlett pear at Wapato, Yakima County. (Gregorich).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Damaged new peach growth in many locations over State. Treatment problem due to excessive moisture in orchards. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TENNESSEE - Tents noted on peach, cherry, and apple in Davidson, Rutherford, Sumner, Robertson, Cheatham, Bradley, Hamilton, Monroe, Polk, Marion, Fayette, and Hardeman Counties. Light feeding noted. (Greene et al.).

EUROPEAN RED MITE (Panonychus ulmi) - MARYLAND - No hatch to date; egg counts heavy in two 50-acre orchards in Baltimore and Washington Counties. Overwintered eggs light in other orchards surveyed. (U. Md., Ent. Dept.).

CITRUS

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Ranged moderate to heavy in citrus groves in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Surveys indicate very light infestations in groves at Deer Valley and Chandler Heights, Maricopa County. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Few heavy counts still found in groves on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

SMALL FRUITS

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - WASHINGTON - Damaged 5 acres of strawberries at Pasco, Franklin County. (Anderson).

FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - DELAWARE - Eggs hatched on most hosts throughout State. (Burbutis). MARYLAND - Eggs hatched in Somerset County. Based on overwintering egg counts, light to moderate infestations expected this season. (U. Md., Ent. Dept.). NORTH CAROLINA - Larvae and tents observed throughout State. First observed in mountain counties April 4. First reports of season from Wake and Forsyth Counties March 16. (Lott, Hunt). MISSISSIPPI - Egg hatch about complete in Oktibbeha County. Larvae about full grown. (Robinson). KENTUCKY - Major egg hatch this year occurred March 22 compared to early April in 1972. Larvae hatched before leaf buds opened in 1973. Current activity heaviest in Simpson, Logan, Barren, and Warren Counties. (Barnett). TEXAS - Heavy populations damaged shade trees in Brazos and Tom Green Counties. (Green, Jones).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Severe damage to oaks and other trees reported in Matagorda, Calhoun, and Colorado Counties. Some trees completely defoliated in area. (Green).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Male moths active in Fargo, Cass County, March 18. Females present in tanglefoot bands by March 25. (Anderson). Males evident in Minot, Ward County, by March 15. Females emerged in Minot March 21. (Kaatz). Peak emergence at both locations appears earlier than in 1972. P. vernata along with Alsophila pometaria (fall cankerworm) expected to cause severe defoliation in State again this season. (Brandvik). NEBRASKA - P. vernata males unusually heavy at lights

in Lincoln, Lancaster County. Problems expected to increase due to cessation of Dutch elm disease spray program (Roselle, Keith). TEXAS - Heavy infestations defoliated elm trees in Mexia, Limestone County. (Brown).

ELM SPANWORM (Ennomos subsignarius) - CONNECTICUT - Due to an egg parasite Ooencyrtus clisiocampae (an encyrtid wasp) this defoliator not excepted to be problem except for few localized infestations. (Savos, Apr. 4).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - WEST VIRGINIA - Larvae and pupae collected by A.R. Miller from Virginia pine in 15-acre plantation at Foster, Boone County, on March 20, 1973. Determined by A.R. Miller. This is a new county record. (Hacker).

WHITE PINE WEEVIL (Pissodes strobi) - PENNSYLVANIA - Adults on white pine at Glosgow, Cambria County; up to 50 percent of leaders on 6 acres showed feeding damage March 28. (Adams, Mallis).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Adults heavy and very active in southern area. (Boyer).

EASTERN SPRUCE GALL APHID (Adelges abietis) - PENNSYLVANIA - Overwintering nymphs light to heavy on 25 percent of Norway spruce and white spruce in 2-acre block at Glasgow, Cambria County. Some of these trees unsalable unless controls applied. (Adams, Mallis).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - There were no confirmed cases reported in the continental United States during the period March 25-31. Total of 257 confirmed cases reported in Mexico. This is largest weekly total reported there this year. Total of 66,798,000 sterile flies released in U.S. this period, all in Texas. Total of 107,854,500 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - Examination of 1,331 head of cattle at 5 livestock auction markets March 12-23, showed 21 percent of animals infested with 1-41 (average 7.4) grubs per animal. This is increase from 15 percent infested with 6.7 grubs per animal in 1972. (Brandvik). KENTUCKY - Averaged 1.3 larvae per back on untreated Holstein dairy cows of various ages in Fayette County. (Barnett).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Ranged up to 100 per cow in Oktibbeha, Clay, Monroe, and Noxubee Counties. (Robinson). OKLAHOMA - Averaged 20 per head on cows and 100 per head on a bull in Payne County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Ranged up to 20 per face on Hereford cattle in Lee County. Ranged 2-3 per face on cattle herd in Monroe County. (Robinson).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), averaged 8 per hair part on cattle checked in Payne County. About 1 of each 8 was Linognathus vituli (longnosed cattle louse). Heavy in Delaware, Pawnee, and Hughes Counties, moderate in Pontotoc and Greer Counties; light in Washington County. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Moderate on 3,000 white leghorn chickens in housed operation in Oktibbeha County. (Robinson). OKLAHOMA - Heavy on large flock of chickens in Greer County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - CONNECTICUT - First swarms of season occurred March 11-17, about 4 weeks later than in 1972. (Savos). TENNESSEE - First reported swarms of season in western area noted in Fayette County. (Locke).

BENEFICIAL INSECTS

A BRACONID WASP (Microctonus aethiops) - OHIO - Recovered from sample of 241 Hypera postica (alfalfa weevil) adults collected March 15, 1973, at Wooster, Wayne County. One M. aethiops pupa obtained March 19; female emerged March 30. This is a new State record. (Flessel).

A EULOPHID WASP (Coccophagus albicoxa) - COLORADO - Parasitized an unspecified scale insect infesting Arceuthobium cyanocarpum (a mistletoe) which in turn was parasitizing Pinus flexilis (limber pine) about 18 miles west of Fort Collins, Larimer County, at about 7,700 feet elevation. Collected August 5, 1972, by R.B. Penfield. Determined by B.D. Burks. This is a new State record. (Penfield).

AN ICHNEUMON WASP (Bathyplectes sp.) - MISSISSIPPI - Vacuum samples of alfalfa indicate 2,300+ adults of this parasite of Hypera postica (alfalfa weevil) per acre in Bolivar County. (Schuster).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Two adults taken in McPhail trap at Jacksonville, Duval County, March 23. This collection is at northern limit in range of this species. (Fla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - Adults and eggs observed in wild grasses and winter wheat in Mason, Putnam, and Jackson Counties. Eggs averaged 1 per square foot in winter wheat in Mason County. (Hacker).

A GRASS BUG (Labops hesperius) - NEBRASKA - First-instar nymphs noted in wheatgrass pastures at Fort Robinson, Dawes County. Egg hatch continued. Wheatgrass about 2-3 inches tall; no evidence of feeding. Damage should become evident within the next 14 days. (Hagen).

GRASSHOPPERS - OKLAHOMA - First-instar nymphs, first of season, active on rangeland in southern Kiowa and Tillman Counties March 29. Viable egg pods averaged 1.5 per square foot in rangeland areas economically infested in summer 1972 in Woodward, Ellis, Harper, Major, Texas, and Panhandle Counties week ending March 31. (Okla. Coop. Sur.).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Will be problem in many towns this season, particularly in central and eastern parts of State. If above normal temperatures continue, egg masses may begin hatching in late April. (Savos, Apr. 4).

Turf and Pastures - Adults of a SKIPPER (Hylephila phyleus) trace in grass areas and ornamental shrubbery in memorial parks at Kaneohe and residential areas at Hawaii Kai, Oahu; damage negligible. This hesperiid first recorded in State in 1970, but has not become the pest it is in the continental States. Does not occur on any of the other islands. (Kawamura).

General Vegetables - TARO LEAFHOPPER (Tarophagus proserpina) nymphs and/or adults averaged less than 3 per taro plant at Kahaluu, Oahu. Adults of an egg predator, Cyrtorhinus fulvus (a mirid bug), trace. (Kawamura).

General Pests - Nymphs and adults of FLATID BUGS (Melomenis antillarium and Siphanta acuta) fed on mulberry (Morus sp.) at Kaumana, Hawaii. M. antillarium heavy on terminals of eggplant and tangerine yard plantings at Nuuana; light on backyard Bougainvillea plants at Makiki. (Shiroma, Au). Several specimens of WHITE-MARGINED TREEHOPPER (Tricentrus albomaculatus) fed on mulberry at Kaumana, Hawaii, for new host record in State. T. albomaculatus first collected in State at Honolulu, Oahu, in 1912; subsequently collected on Hawaii (1963) on Metrosideros polymorpha and on Kauai (1972) at large, but not reported. (Shiroma).

Beneficial Insects - Larvae and damage of a HELIODINID MOTH (Schreckensteinia festaliella) and a TORTRICID MOTH (Apotoforma sp.) moderate in 50+ acres of blackberry at Waikamoi, Maui; activity and damage light at Olinda. (Miyahira).

DETECTION

New State Records - A NOCTUID MOTH (Euxoa oberfoelli Hardwick) - SOUTH DAKOTA - This new species, described and named by D.F. Hardwick (Canad. Entomol. 105(1):75-78), considered to extend as far east as Mitchell, Davison County, in central part of its range. A paratype, deposited in the Canadian National Collection, was selected from material collected 2 miles north of Deadwood, Lawrence County, September 9, 1964, at elevation of 4,900 feet. (Jones).

A BRACONID WASP (Microctonus aethiops) - OHIO - Wayne County. (p. 214). A EULOPHID WASP (Coccophagus albicoxa) - COLORADO - Larimer County. (p. 214). VEGETABLE WEEVIL (Listroderes costirostris obliquus) - OREGON - Linn County. (p. 211).

New County and Island Records - NORTHERN CORN ROOTWORM (Diabrotica longicornis) WEST VIRGINIA - Monongalia (p. 210). SOUTHERN PINE BEETLE (Dendroctonus frontalis) WEST VIRGINIA - Boone (p. 213). WHITE-MARGINED TREEHOPPER (Tricentrus albomaculatus) HAWAII - Hawaii, Kauai (p. 215).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/30-4/5, BL, BLACK CUTWORM (Agrotis ipsilon) 1, BOLLWORM (Heliothis zea) 2, GRANULATE CUTWORM (Feltia subterranea) 25, SALTMARSH CATERPILLAR (Estigmene acrea) 2, TOBACCO BUDWORM (H. virescens) 2, YELLOWSTRIPED ARMYWORM (Spodoptera exigua) 7. OHIO - Wooster, 3/31-4/6, BL, Black cutworm 1. TEXAS - Waco, 3/30-4/5, BL, ARMYWORM (Pseudaletia unipuncta) 65, black cutworm 1, bollworm 1, saltmarsh caterpillar 2, VARIEGATED CUTWORM (Peridroma saucia) 42, yellowstriped armyworm 1.

Weather of the week continued from page 208.

By Saturday, snow fell along the Canadian border from Minnesota to Montana. The storm extended southward. Lander, Wyoming, recorded 9 inches of snow. In the gulf, a Low pushed more rain into the Deep South. Mobile, Alabama, recorded 2.46 and Marietta, Georgia, 2.06 inches. By Sunday, an intense winterlike storm moved through the southern Rockies and southwest Texas. It spread gusty winds, unseasonably low temperatures, and snow into the Plains. Lander, Wyoming, recorded 10 inches of snow, Denver, Colorado, 9 inches, and Amariallo, Texas, 3 inches. Late Sunday, the storm edged its way into the upper Mississippi Valley. Early Monday, over a foot of snow had fallen over parts of Iowa and Wisconsin.

TEMPERATURE: Winter maintained its grip over most of the Rockies and the western Plains. Almost all of Wyoming had temperatures 9 degrees lower than normal, while large areas of Texas and New Mexico fell 10 degrees below normal. In general, most of the Nation's midsection had a week cooler than normal. Monday April 9, cold air pushed southward over the western Plains bringing freezing temperatures as far south as West Texas. Later in the week, a cold front moved out of Canada. Thursday, temperatures stayed in the 30's around Lake Superior. By Friday, winterlike weather began to spread across the Nation's northern half. Winter blizzards and winds had returned to the Rockies in force by Saturday. By Sunday, arctic air plunged the mercury to minus 2 degrees at Lander, Wyoming, breaking the alltime low record for such a late date. Other low records were Scottsbluff, Nebraska and Denver, Colorado, 6 degrees. Elsewhere in the Nation, spring continued to march north. Warmer than normal temperatures clung mainly to the ocean coasts, the Great Lakes area, and some areas in the north-central region. In the East, chilly mornings generally began the day. Temperatures ranged in the 30's and 40's in the North, the 40's and 50's in the South. Southern Florida usually began the day in the 70's. Temperatures generally rose to midday highs in the 50's and 60's for the North, 60's and 70's for the South. Parts of southern Florida reached the low and mid-80's. The west coast maintained higher than average temperatures. Southern California remained 3 degrees above weekly norm and northwards stayed about one degree above normal.

MEDITERRANEAN FRUIT FLY
Ceratitis capitata (Wiedemann)

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1929-1949

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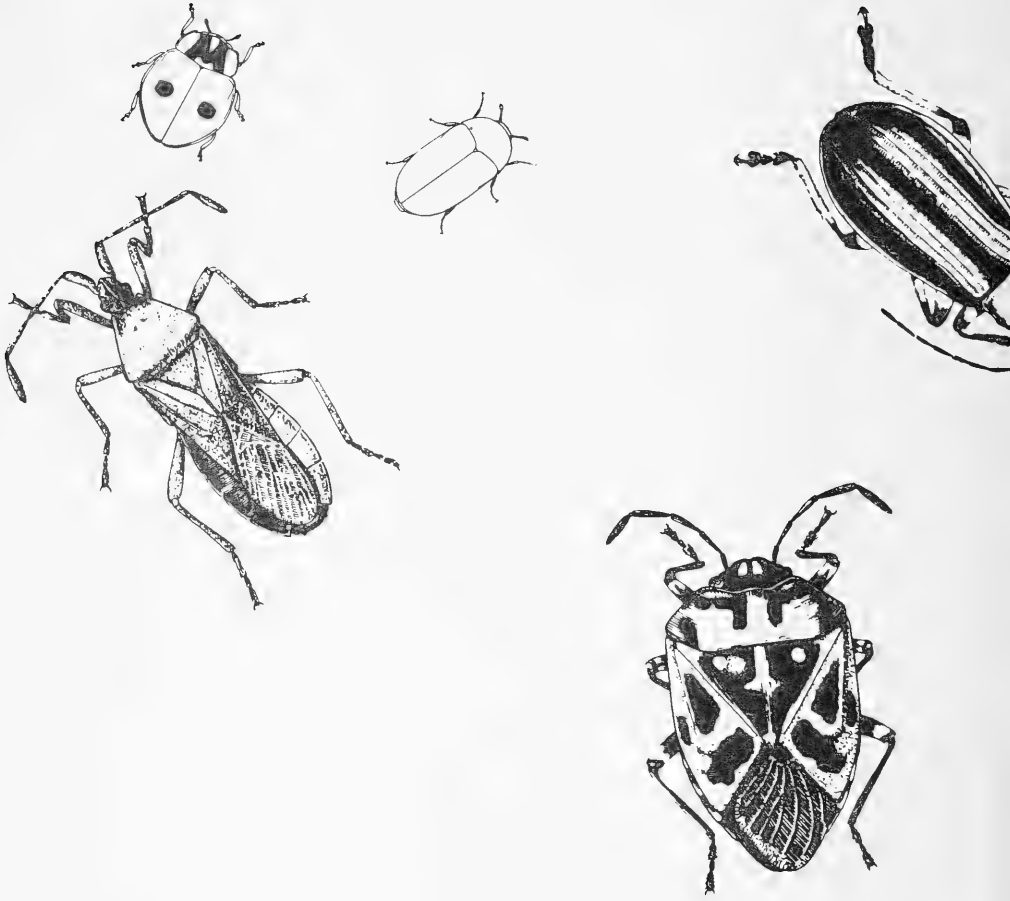

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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Volume 23 April 20, 1973 Number 16

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

SOUTHERN CORN ROOTWORM heavy in several coastal counties of Texas; severely damaged large acreage of seedling sorghum in Victoria County. HESSIAN FLY infested wheat in extreme southeastern Alabama; first report in State south of Tennessee River in past 10 years. (p. 223).

ALFALFA WEEVIL adult counts indicate larval populations may be unusually heavy and damaging to alfalfa in Willamette Valley of Oregon. Infestations light to heavy in areas of Oklahoma and Texas; generally light in some Northeastern States, controls suggested in Coastal Plain and Piedmont areas of Virginia. (pp. 223-224).

New growth on citrus trees in Deer Valley of Arizona should be ideal for rapid buildup of CITRUS THRIPS next few weeks. (p. 227).

EUROPEAN CRANE FLY larval infestations in pasture land much below suggested economic level in Washington. JAPANESE BEETLE larval populations in turf heavy and potentially damaging in infested area of Ohio. (p. 229).

Detection

A PLANT BUG reported from Scotch pine in Pennsylvania is a new United States record. A study to determine economic importance in U.S. is in progress. (p. 228).

New State records include a SAWFLY on alder in Washington (p. 228) and a saprophagic OTITID FLY in Pennsylvania (p. 230).

For new county records see page 230.

Special Reports

Imported Fire Ant Quarantines. Map. Centerfold.

Reports in this issue are for week ending April 13 unless otherwise indicated.

CONTENTS

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-APRIL TO MID-MAY 1973

The National Weather Service's 30-day outlook for mid-April to mid-May is for temperatures to average below seasonal normals from the central and southern Rocky Mountains eastward to the middle and south Atlantic coast. Above normal averages are indicated for the Pacific coast and the Northwest. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal in the Midwest and along the south Atlantic coast. Subnormal totals are indicated for the northern Intermountain Region, the northern Plains, the central and south Pacific coast, and the southern Intermountain Region. In unspecified areas near normal precipitation 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

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Larvae ranged 0-2 per drill row foot (averaged less than 1 per foot) in wheat in Kearny, Hamilton, and Greeley Counties (10 fields per county). No feeding damage noted. None seen in fields in McPherson, Ellsworth, Barton, Stafford, Barber, Sumner, and Sedgwick Counties. Localized damage reported in Ellsworth County alfalfa. (Bell).

GREENBUG (Schizaphis graminum) - TEXAS - Ranged 1-5 per row foot in most small grain fields in Wilbarger, Foard, Knox, Haskell, Throckmorton, Wichita, and Archer Counties. Heavier populations, 20-30 per row foot, reported from 3 of 4 fields in Wilbarger County. In 12 panhandle counties, S. graminum ranged 1-3,000 per row foot of wheat with heaviest populations found in Hale (1,000), Deaf Smith (1,000) and Castro (3,000) Counties. (Boring, Daniels). KANSAS - No greenbugs found in wheat surveyed in Kearny, Hamilton, Greeley, McPherson, Ellsworth, Barton, Stafford, Barber, Harper, Sumner, and Sedgwick Counties. (Bell).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Winter mortality in untilled corn fields in Cass, Ransom, and Richland Counties ranged 0-60 (averaged 32) percent. This is above 25 percent mortality found in spring 1972. (Brandvik). MINNESOTA - Overwintering larval mortality check showed mortality rate of about 50 percent in south-central district and 20 percent in west-central district. (Minn. Pest Rpt.).

SEEDCORN MAGGOT (Hylemya platura) - OKLAHOMA - Ranged 4-10 per seed in Marshall County cornfield; 90 percent of seed destroyed. (Okla. Coop. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - TEXAS - Heavy in several coastal counties including Victoria, Calhoun, and Jackson. Up to 3,000 acres of seedling grain sorghum in Victoria County severely damaged past 14 days. (McCombs, Cole).

SMALL GRAINS

HESSIAN FLY (Mayetiola destructor) - ALABAMA - From 2 to 12 larvae and pupae found in lower portions of 50-60 percent of all wheat stems in 2 fields totaling 35 acres in Houston County. First report in State in 10 years of this pest occurring south of Tennessee River. (Curtis et al.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, 1-17 per row foot, reported from small grain fields in Foard, Haskell, and Archer Counties. (Boring).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OREGON - First eggs found April 11 in Benton County. Adults ranged 4-20 times more abundant than this time last year. These higher numbers may result in unusually heavy and damaging larval populations in Willamette Valley alfalfa. (Ritcher). NEVADA - Eggs easily found in alfalfa in Fallon area,

Churchill County; difficult to find in southern Washoe County. (Adams et al., Apr. 6). UTAH - Few adults of Hypera postica active in alfalfa at North Logan, Cache County, April 4. (Davis, Nebeker). Vacuum samples indicated adults averaged 1 per square foot at Logan and Providence. (Parrish). TEXAS - Activity ranged light to heavy in Wilbarger County. Many fields in area treated. Heavy damage noted on dryland alfalfa where controls not applied. Virtually every terminal infested with larvae and no new growth found. In 2 Fisher County fields, terminal damage ranged 5-10 percent. H. postica also noted in Lampasas, Mills, and Brown Counties. In western part of Dickens County, 10 percent terminal damage noted. (Boring). OKLAHOMA - Larvae averaged 355 per 10 sweeps in untreated alfalfa in McCurtain County, 150 per square foot in Beckham, Roger Mills, Caddo, Custer, Washita, and Kiowa Counties, and up to 150 per 25 tips in Wagoner County; 80-100 percent of terminals infested in Lincoln County. Heavy in Craig, Muskogee, Seminole, Garvin, and Comanche Counties and light to moderate in Pawnee and Garfield Counties. (Okla. Coop. Sur.).

ARKANSAS - Feeding signs of H. postica light on 50 percent of alfalfa terminals in Washington County. (Boyer). KANSAS - Surveys revealed very few larvae in alfalfa in southern portion of central district and south-central district. Adults common in most fields. (Bell). MISSOURI - Larval counts light at 2 sample sites in south-central area due to extreme cold temperatures; totaled 58 and 84 per 100 stems. (Munson). ILLINOIS - Unseasonably cold weather continued to retard development in alfalfa throughout State. Although some hatch found in all areas in southern half of State, larval populations noticeable only in extreme southern tip. Counts averaged up to 275 and 250 larvae per 100 sweeps in Johnson and Jackson Counties, respectively. Alfalfa in area 10-12 inches high. (Ill. Ins. Rpt.). INDIANA - Larval counts remained steady, compared to previous week, in Dubois County (127 per 100 stems); increased from 60 to 80 per 100 stems in Daviess County with 48 percent still second instar. Parasitism nil. (Meyer). OHIO - Eggs averaged 30 per square foot in alfalfa in Wayne County. (Horn).

NEW YORK - Adult H. postica counts light in alfalfa in 2 Tomkins County fields and one Livingston County field surveyed. Egg data indicate no significant number of fall-laid eggs survived winter. Spring egg laying began during 2 warm weeks in March, then decreased due to cold weather and heavy rains. (N.Y. Wkly. Rpt., Apr. 9). MARYLAND - Larval counts remain light statewide. Counts heaviest in Frederick, Carroll and Prince Georges Counties; ranged 1-3 per 50 alfalfa tips. Adult counts statewide ranged 1-2 per 20 sweeps. (U. Md., Ent. Dept.). VIRGINIA - Survey conducted in 16 fields in 9 counties showed 47 percent of alfalfa tips infested. Defoliation averaged 8.3 percent. Treatment should begin in Coastal Plain and Piedmont areas. (Allen et al.). KENTUCKY - Larvae averaged 4.26 per alfalfa tip in Caldwell County and 6-8 per tip in Barren County; defoliation ranged 25-30 percent. Fifty percent of alfalfa in Barren County treated. Larvae ranged 1-2 per tip in Hardin County with 5-10 percent defoliation. Damage light in Meade and Hickman Counties. (Barnett et al.). TENNESSEE - Surveys showed percent tips infested by county as follows: Washington 86, Dyer and Warren 80, Henry 73, Knox 72. Lowest counts in Chester and Van Buren Counties (5 percent) where effective controls applied. (Gordon).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Larvae light in some alfalfa in central and south-central districts. (Bell).

PEA LEAF WEEVIL (Sitona lineatus) - WASHINGTON - Observed notching leaves of new alfalfa seeding at Walla Walla, Walla Walla County, April 3. Adults swept from alfalfa plots at Mt. Vernon, Skagit County, same date. (Stambaugh, Eide).

ALFALFA SNOUT BEETLE (Otiorhynchus ligustici) - NEW YORK - Adults on soil surface in Wayne County but little damage to alfalfa apparent. Up to 6 adults per square foot in some fields; counts will increase as adults continue to emerge. Adults still below surface in Jefferson County; ranged 0-2 per square foot. (N.Y. Wkly. Rpt., Apr. 9).

PEA APHID (Acyrthosiphon pisum) - NEVADA - Light on alfalfa, 20 per sweep in most heavily infested fields, in Moapa and Virgin Valleys, Clark County; averaged 3 per sweep in Pahrump Valley, Nye County. (Hoff et al.). NEW MEXICO - Populations still 300+ per square foot in untreated alfalfa in Chaves County. (N.M. Coop. Rpt.). OKLAHOMA - Averaged 1,200 per 10 sweeps in alfalfa in McCurtain County. Still light in most of west-central area, some fields heavily infested. Light in Pawnee, Garfield, and Garvin Counties. (Okla. Coop. Sur.). MARYLAND - Counts in alfalfa ranged 10-30 per sweep in Wicomico, Dorchester, and Talbot Counties. Various hymenopterous parasites active and account for 5 percent parasitism rate. (U. Md., Ent. Dept.).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Two adults collected in pheromone traps in Walla Walla area, Walla Walla County, week ending April 5; also one fifth-stage larva swept from alfalfa foliage, apparently overwintered. (Halfhill). IDAHO - First adults of season taken in pheromone trap March 23 at Huston and March 30 at Nampa, Canyon County. (Homan).

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - WASHINGTON - Forty-four adults taken in 18 of 50 pheromone traps in Walla Walla area, Walla Walla County, week ending April 3. (Halfhill).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Up to 3 per 10 sweeps in alfalfa in McCurtain County; first of season. (Okla. Coop. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - NEVADA - Heavy on alfalfa with bud and leaf damage seen in Moapa Valley, Clark County. (Bechtel, Zoller).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Larvae ranged 3-8 per square foot in some sugarbeet fields in Larimer and Weld Counties. Pupation less than 1 percent. (Jenkins).

MISCELLANEOUS FIELD CROPS

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Adults moved from alfalfa to hybrid sunflowers on Yuma Mesa, Yuma County; averaged about 60 per square foot. About 50 percent of sunflower stems girdled; plants dying. (Ariz. Coop. Sur.).

STRAWBERRY ROOT WEEVIL (Otiorhynchus ovatus) - OREGON - Severely infested 30 to 40-acre peppermint planting near Jefferson, Marion County. Larvae ranged 5-52 per half square foot in 15 soil samples; averaged 41 per square foot over field. (Berry).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - OREGON - Larvae (2) found in peppermint field east of Jefferson, Marion County. This is a new county record. (Berry).

SPOTTED CUTWORM (Amathes c-nigrum) - WASHINGTON - Light larval populations caused minor damage to 10 acres of spearmint at Prosser, Benton County. (Klostermeyer, Hudson).

POTATOES, TOMATOES, PEPPERS

AMERICAN COCKROACH (Periplaneta americana) - GEORGIA - Cut off seedling tomato and pepper plants in greenhouse in Spalding County. (Tippins).

BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Based on 1972 populations, adult activity this spring greatly reduced from that expected. This may be reflection of abnormal low temperatures in Palouse pea-growing area of Latah County and surrounding area past winter. (Portman, O'Keeffe).

DECIDUOUS FRUITS AND NUTS

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Emerged from peach terminals, may cause more than normal damage due to wet weather preventing treatment. Some controls applied. (Cal. Coop. Rpt.).

SPOTTED CUTWORM (Amathes c-nigrum) - WASHINGTON - Mature larvae caused 5 percent damage on apple nursery stock in green tip stage at Gleed, Yakima County. (Klostermeyer, Hudson).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - Adult males averaged about 8 per sex pheromone trap placed in peaches in bloom at Parker, Yakima County. (Keenan, Grant).

EYESPOTTED BUD MOTH (Spilonota ocellana) - CONNECTICUT - Overwintered larvae feeding on developing fruit buds. (Savos, Apr. 11).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - MARYLAND - Adults emerged statewide, egg laying underway; counts light. Egg hatch not expected for at least 7 days due to cold weather. (U. Md., Ent. Dept.).

FALL CANKERWORM (Alsophila pometaria) - MARYLAND - Egg mass counts heavy in 2 orchards (20 acres) in Washington County; controls expected to be applied within 14 days. (U. Md., Ent. Dept.).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Nymphs found on Bartlett pear in pre-pink stage at Zillah, Yakima County. (Chandler). PENNSYLVANIA - Adults collected on pear in many Adams County orchards during late March and early April. No current damage noted. (Tetrault). CONNECTICUT - Adults active in orchards; limited egg laying underway past 14+ days. (Savos, Apr. 11).

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:*

1. Bulk soil.
2. Used mechanized soil-moving equipment.
3. 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 imported fire ant and the person in possession thereof has been so notified.

* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

** Information as to designated laboratories and processing plants may be obtained from an inspector.

*** Exempt if not exposed to infestation after cleaning or other prescribed handling.

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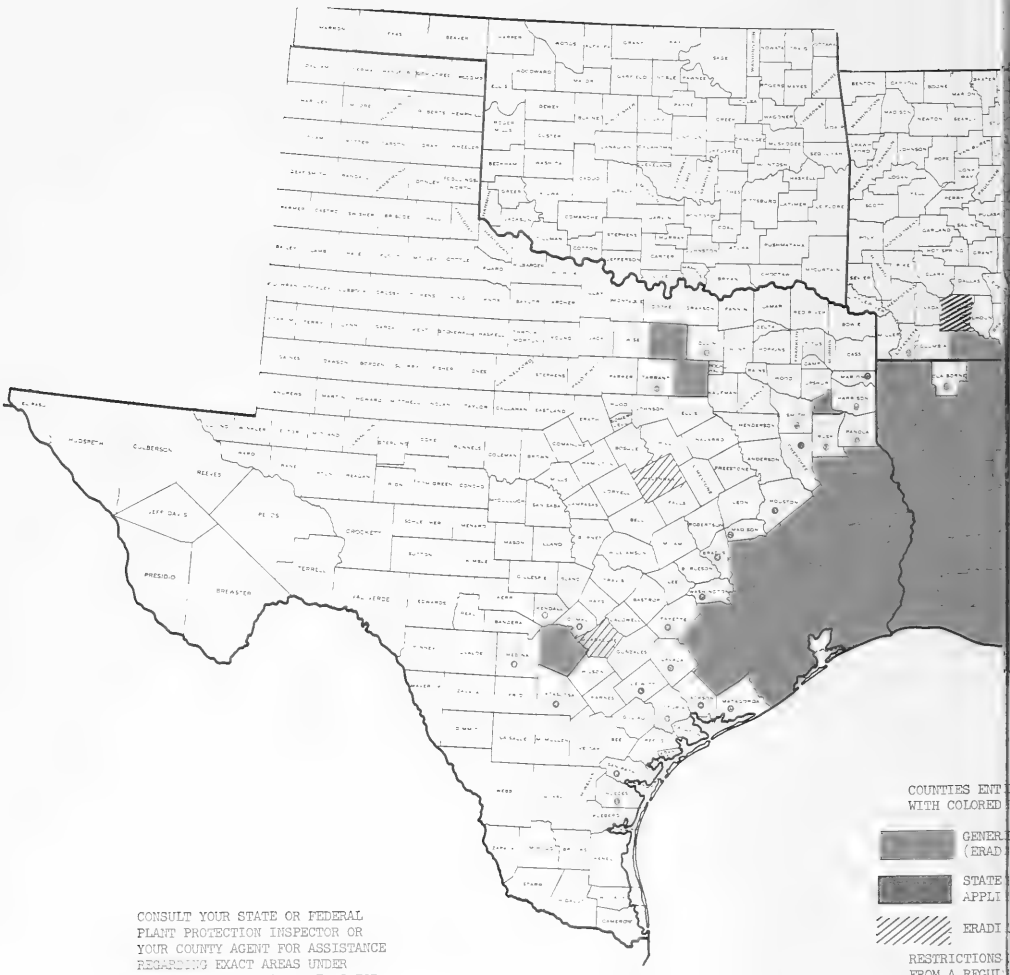

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CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

REVISED SEPTEMBER 15, 1972

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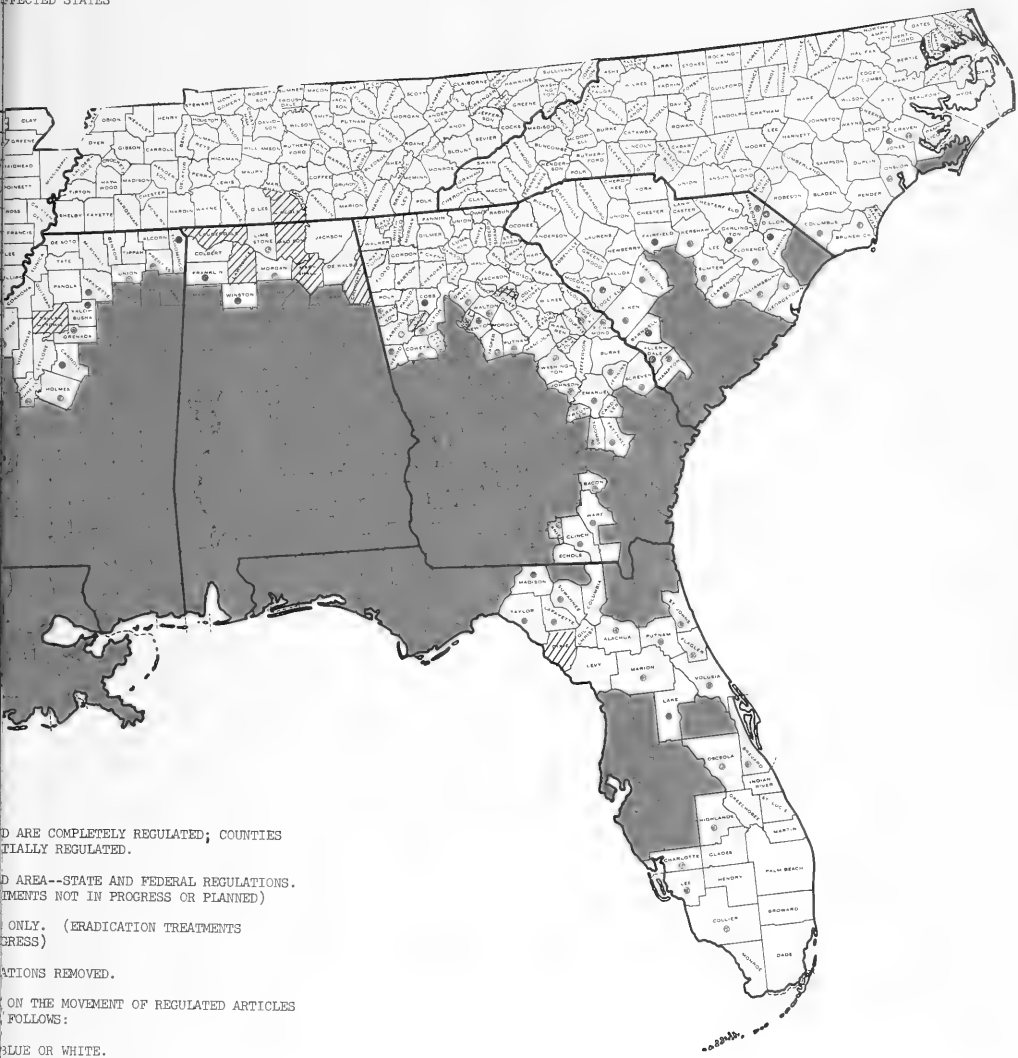

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THE FOLLOWING REGULATED ARTICLES MOVED FROM GENERALLY INFESTED AREAS (RED) REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:*

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.

   Soil samples shipped to approved laboratories do not require attachment of certificate or permit.**
   Compost, decomposed manure, humus, and peat are exempt***if dehydrated, ground, pulverized, or compressed.

2. Plants with roots.
3. Grass sod.
4. Hay and straw.

   Hay and straw are exempt***if used for packing or bedding.

5. Logs, pulpwood, and stumpwood.

   Logs and pulpwood are exempt***provided the railroad loading site has been treated.
   Stumpwood, if free of excessive amounts of soil, is exempt***provided the railroad loading site has been treated and the stumpwood is consigned to a processing plant.**

6. Used mechanized soil-moving equipment.

   Used mechanized soil-moving equipment is exempt***if cleaned and repainted.

7. 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 imported fire ant and the person in possession thereof has been so notified.

LYGUS BUGS (Lygus sp.) - WASHINGTON - Severely damaged apple tree flower buds in Yakima area, Yakima County. Damage spotty to apple and pear buds on southern exposed slopes at Royal Slope, Grant County, and Babcock Ridge near Othello, Adams County. (Anthon, Hunter).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Some orchardists applied control for overwintered eggs. (Savos, Apr. 11).

CITRUS

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Light on citrus trees on south side of Deer Valley, Maricopa County. Trees still mostly in prebloom stage; new growth should be ideal for rapid buildup next few weeks. Apis mellifera (honey bee) pollinating few flowers that are open. Treatments still underway on citrus in Yuma County. (Ariz. Coop. Sur.).

SMALL FRUITS

GRAPELEAF SKELETONIZER (Harrisina americana) - FLORIDA - Adults observed in vicinity of grapevines at Gainesville, Alachua County, April 7 for first report of season. (Fla. Coop. Sur.).

ORNAMENTALS

AMERICAN COCKROACH (Periplaneta americana) - GEORGIA - Severely damaged bark of poinsettia and kalanchoe plants in Spalding County greenhouse. (Tippins).

A DIASPIDID SCALE (Morganella cueroensis) - FLORIDA - Adults collected by W.H. Pierce heavily infested Myrica cerifera (wax myrtle) growing in deep shade at Yeehaw Junction, Osceola County, March 16, 1973. This is a new county record. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - GEORGIA - Light but expected to increase on wild cherry across southern area of State. Infested shrubbery in Dougherty and Jeff Davis Counties. (French, Barry). INDIANA - Hatch occurred as far north as Indianapolis by April 6 with 4 to 6-inch webs observed in southwest district by April 9. (Schuder, Meyer).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Infestation widespread and heavy on oak trees in Jackson County. (Wilson). KENTUCKY - Continued to damage blue beech, oak, sweetgum, and persimmon in McLean, Hopkins, and Muhlenberg Counties. (Barnett, Nordin).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Eggs hatched on elms in southeast district. Larvae ranged from trace to 35 per 100 leaf rosettes in Crawford County, up to 25 per 100 rosettes in Labette County. No larvae seen in Riley and Coffee Counties. Several female moths noted on elms in Coffey County; indicates egg laying still underway in area. (Bell, Apr. 6).

FALL CANKERWORM (Alsophila pometaria) - KANSAS - Larvae light on elms in localized area of Crawford County. (Bell, Apr. 6).

A PSYLLID (Trioza magnoliae) - FLORIDA - Nymphs and galls collected from Persea borbonia (red bay) at Suwannee, Dixie County, April 7, 1973, by L. O'Berry. This is a new county record. (Fla. Coop. Sur.).

A SAWFLY (Eriocampa ovata) - WASHINGTON - Damaged foliage of young alder trees (Alnus sp.) on property in Bellingham, Whatcom County. Five larvae and one pupa collected August 16, 1972, by V. Welch. Determined by D.R. Smith. This is a new State record. (Welch). Specimens of this tenthredinid were collected in Massachusetts in 1936 and in New York in 1967. Also known to occur in British Columbia, Ontario, and Quebec, Canada. E. ovata has a palearctic distribution including Germany and Italy. Also recorded from Corylus sp. and Ulnus sp. in Europe. (PPQ).

A PLANT BUG (Camptozygum aequale (=pinastri)) - PENNSYLVANIA - Adults and nymphs collected mainly on Scotch pine seedlings and trees in 10 western and 2 central counties during 1971 and 1972. Determined by J.L. Herring. This is a new United States record. In Europe this species apparently restricted to feeding on pines, particularly Scotch pine. A preliminary paper summarizing distribution and seasonal history in Pennsylvania being prepared by A.G. Wheeler, Jr. and T.J. Henry. A study to determine whether this plant bug injures pine is in progress. (Wheeler, Henry).

AN ADELGID (Adelges tsugae) - PENNSYLVANIA - Heavy infestation on hemlock, 77 percent eggs, 20 percent nymphs, and 3 percent adults, found in Montgomery County; damage 75 percent. (Tetrault).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - During period April 1-7 there were 3 confirmed cases reported in the continental U.S., all from Texas. Total of 178 confirmed cases reported from Mexico. Number of sterile flies released in U.S. totaled 63,946,000, all in Texas. Total of 116,572,500 sterile flies released in Mexico. (Anim. Health).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 2 per head on beef cattle in Payne County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), infested cattle in Payne, Pawnee, Craig, Comanche, Garvin, and Atoka Counties. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OHIO - Heavy on sows, gilts, and young pigs in Franklin County. Up to 500 eggs per hog common. (Fox).

MOSQUITOES - MARYLAND - Aedes canadensis, A. triseriatus, and A. hendersoni larvae (first instar) active in western and central areas. (U. Md., Ent. Dept.).

CHICKEN MITE (Dermanyssus gallinae) - OHIO - Infested about 40 percent of Leghorn chickens examined at 3 Franklin County poultry houses. (Fox).

HOUSEHOLDS AND STRUCTURES

ELM LEAF BEETLE (Pyrrhalta luteola) - IDAHO - Adults collected on doorway and windows of Coeur d'Alene, Kootenai County, home April 6. This is a new county record. (Stranahan). First adults of season seen on Parma, Canyon County, sidewalk April 10. (Scott).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - This species and Nabis spp. (damsel bugs) increased in alfalfa in west-central area; H. convergens still light in McCurtain County alfalfa. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Larvae ranged 4-20 per square foot in pasture land near Blaine and Lynden, Whatcom County, April 7. This is much below suggested economic level. Dry fall weather and sudden cold period in early December 1972 following warmer autumn weather probably severely reduced populations. (Campbell).

GRASSHOPPERS - ARIZONA - Adults moderate in desert area where recent rains caused lush plant growth. Could be source of concern if food supply dries up forcing movement into cultivated areas of Salt River Valley. (Ariz. Coop. Sur.).

JAPANESE BEETLE (Popillia japonica) - OHIO - Favorable breeding conditions in 1972 and low overwintering mortality produced heavy, potentially damaging populations. Grubs in final instar. Untreated area in Wooster, Wayne County, with average of 17 grubs per square foot of turf. (Lawrence).

RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Adults collected by L.W. Wilson and T.E. Gilliland from median of U.S. Highway 19, one mile south of Otter Creek, Levy County, on April 6, 1973. This is a new county record. Determined by H.A. Denmark; confirmed by D.R. Smith. (Fla. Coop. Sur.). TEXAS - Collected in grass median of U.S. Highway 181 north of Floresville, Wilson County, March 3, 1973, by H.C. Massey. Determined by V.H. Owens. Confirmed by D.R. Smith. This is a new county record. (PPQ).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae heavy; destroyed 4 acres of tomato transplants at Malvern, Geneva County. Grower to treat fields before replanting. (Wilson).

General Vegetables - SWEETPOTATO LEAFHOPPER (Aloha ipomoeae) heavy in sweetpotato at Waimanalo, Oahu; up to 13 nymphs and adults per leaf. Damage negligible. (Kawamura).

Man and Animals - Mosquito collections during March from 58 light traps on Oahu totaled 1,300 Aedes vexans nocturnus and 984 Culex pipiens quinquefasciatus. Aedes catches ranged 0-971 at Sunset Beach. Culex catches ranged from 0-287 at Ewa. (Mosq. Control. Br. State Dept. of Health).

Beneficial Insects - Several specimens of an ENCYRTID WASP (Clausenia purpurea) emerged from mummies of Pseudococcus citriculus (a mealybug) found infesting citrus twigs at Manoa, Oahu. C. purpurea purposely introduced from Virginia in 1946 to aid in control of mealybugs. This is first report of its recovery in Hawaii. This parasite is native to Japan where it parasitizes P. citriculus and P. comstocki (Comstock mealybug). (Beardsley).

Miscellaneous Pests - Dry conditions prevailed at Poipu, Kauai, through most of March and only limited GIANT AFRICAN SNAIL (Achatina fulica) activity occurred; 57 snails collected and destroyed. At Wahiawa, despite substantial rain, snail activity negative. Hand baiting continued at both areas. At Hanapepe, a 3-inch long specimen recovered but no additional snails found in preliminary surveys; additional surveys to follow in near future. (Sugawa).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 4/9-13, BL - BOLLWORM (Heliothis zea) 1, GRANULATE CUTWORM (Feltia subterranea) 1, TOBACCO BUDWORM (H. virescens) 1. TEXAS - Waco, 4/6-13, BL, ARMYWORM (Pseudaletia unipuncta) 65, BLACK CUTWORM (Agrotis ipsilon) 1, bollworm 1, granulate cutworm 1, SALTMARSH CATERPILLAR (Estigmene acrea) 2, VARIEGATED CUTWORM (Peridroma saucia) 42, YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) 1.

CORRECTIONS

CEIR (23)14:205 - Detection - New County Records - " ... MINING SCALE (Howardia bicavis) ..." should read "... MINING SCALE (Howardia biclavis) ..."

CEIR 23(15):215 - HAWAII INSECT REPORT - Turf and Pastures - Hylephila phyleus should read Hylephila phylaeus.

DETECTION

New United States Record - A PLANT BUG (Camptozygum aequale) - PENNSYLVANIA. (p. 228).

New State Records - AN OTITID FLY (Steneretma laticauda) - PENNSYLVANIA - Collected by sweeping at Danboro, Bucks County, June 28, 1972, by K.R. Valley. Determined by G.C. Steyskal. (Valley). Originally described from Texas, this species has been recorded from localities in Kansas, Nebraska, Iowa, North Carolina, and the District of Columbia. Little is known about bionomics, but the species is not known to be of economic importance. The larvae of most species in this family are saprofhagic. (PPD).

A SAWFLY (Eriocampa ovata) - WASHINGTON - Whatcom County. (p. 228).

New County Records - A DIASPIDID SCALE (Morganella cueroensis) FLORIDA - Osceola (p. 227). ELM LEAF BEETLE (Pyrrhalta luteola) IDAHO - Kootenai (p. 229). A PSYLLID (Trioza magnoliae) FLORIDA - Dixie (p. 228). RED IMPORTED FIRE ANT (Solenopsis invicta) FLORIDA - Levy. TEXAS - Wilson (p. 229). VEGETABLE WEEVIL (Listroderes costirostris obliquus) OREGON - Marion (p. 226).

WEATHER OF THE WEEK ENDING APRIL 16

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

PRECIPITATION: A late winter blizzard struck parts of the western Corn Belt Monday morning. By noon it had buried northeast Iowa and southwest Wisconsin in one foot of snow. During the afternoon, falling snow was carved into mountainous drifts by 60 m.p.h. winds and held visibility to zero. Dubuque, Iowa, recorded 18 inches of snow by the end of the day. Tuesday, the storm drifted northeast and weakened over the Great Lakes but not before it halted the baseball season in Milwaukee, Wisconsin. "The stadium looks like Disneyland," exclaimed a sports figure. A Low developed over New York and carried heavy snow across New York into New England. Tuesday afternoon, Burlington, Vermont, had 3 inches of snow. On the west coast, a Pacific system pushed clouds over the northern Pacific Northwest areas bringing some showers; drought plagued areas in the Northwest. Wednesday, a cold, dry air mass centered over the lower Mississippi Valley cleared skies over much of the Nation. A Low over Maine did cloud skies over much of the Northeast. Precipitation was scattered. One inch of snow accumulated in Buffalo and Rochester, New York, after the rain changed to snow. Thursday, several weak disturbances maintained pockets of rain or snow; mostly, fair weather prevailed. Up to 6 inches of snow fell in the central Appalachians. Friday, a complex storm developed over the Great Basin and scattered showers again graced drought areas in the Northwest. Saturday, the Great Basin storm moved snow into the Rockies and thunderstorms over the Plains. Weather of the week continued on page 232.

Weather of the week continued from page 231.

Shawnee, Kansas, reported 1.6 inches of rain. Several tornadoes sighted near Amarillo, Texas, were accompanied by 2 to 3-inch hail. Sunday, thundershowers rumbled over the Plains and Palm Sunday tornadoes broke out over the Midwest.

TEMPERATURE: A wintry week gripped most of the Nation. Temperatures averaged from 6 to 9 degrees below normal over the Corn Belt and the South, including much of Texas. In sections of the southern Appalachians, they plummeted 12 and 13 degrees below norm. Only parts of the Northwest, most of California, and part of Arizona had temperatures above normal for the week. The freeze line marched south. Western parts of the Carolinas, northern Georgia, Alabama, Mississippi, and Louisiana plus the northern two-thirds of Texas, experienced freezing temperatures. Monday, April 9, a frigid mass of air surged across the Plains in the wake of the storm. Record cold temperatures were felt that morning from Wyoming to Louisiana. The freeze line embraced all of Iowa and most of Missouri. A 24-degree reading at El Paso, Texas, marked the coldest April morning low since readings began in 1879. Tuesday morning, the freeze line stretched from western Pennsylvania across the Corn Belt, through Arkansas into Texas. A Wednesday morning Low situated over Maine and a High centered near the Texas-Louisiana border both sucked arctic air from Canada. Temperatures fell below freezing in the Deep South except areas near the Atlantic and the gulf. McComb, Mississippi, reported 30 degrees; Birmingham, Alabama, and Atlanta, Georgia, 26 degrees. Midday highs stayed in the 50's and 60's throughout the interior Deep South and closer to the coasts ranged in the 60's and 70's. A cold air mass hung over parts of the South and Northeast lowering average temperatures for the rest of the week. Greensboro, South Carolina, recorded a 32-degree temperature Friday morning; however, a warming trend prevailed over the Nation during the weekend.

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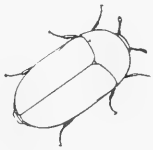

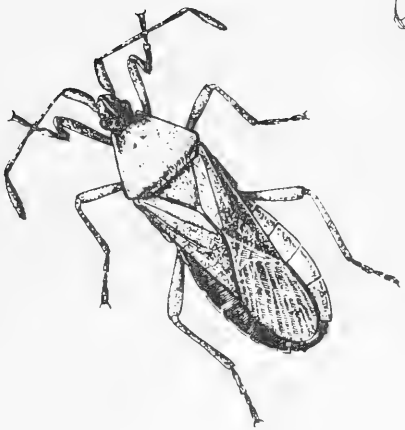

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VOL. 23 NO. 17 April 27, 1973

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

Volume 23 April 27, 1973 Number 17

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

BEET LEAFHOPPER nymphs heavy throughout overwintering areas in central California with possibility of additional hatch. HESSIAN FLY very heavy and damaging on wheat in central and south Alabama; some areas with 50-80 percent loss of stems. (p. 235).

PEA APHID infestations heavy in parts of New Mexico and Alabama; moderate to heavy in Oklahoma and increasing in Kansas. (p. 236).

ASPARAGUS BEETLE adults active in 1,500 acres of asparagus in Maryland; controls to be applied. (p. 238).

GYPSY MOTH reported hatching in Bucks County, Pennsylvania; egg parasites abundant in Schuylkill County. (p. 239).

Detection

- A CYLINDRICAL BARK BEETLE and a SEPSID FLY reported for first time from Hawaii. These are new United States records, but neither species is known to occur in continental United States. (p. 241).

For new county records see page 240.

Special Report

Boll Weevil Survival Survey. Spring 1973. (pp. 243-246).

Reports in this issue are for week ending April 20 unless otherwise indicated.

CONTENTS

WEATHER OF THE WEEK ENDING APRIL 23

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

PRECIPITATION: Monday a sprawling low extending from the Texas gulf coast to the Great Lakes drew moisture-laden tropical air into the central States and dropped heavy rains on the Nation's already water-logged midsection. Jackson, Mississippi was drenched with 5 inches of rain. Severe thunderstorms accompanied by tornadoes and high winds plagued the lower Great Lakes region. The Nation's eastern third enjoyed mostly fair skies as a result of a strong High centered over the middle Atlantic coast. On the Pacific coast there were showers in the north and clear skies in the south. Tuesday and Wednesday saw a lingering low pressure system continuing to dump rains on the Nation's central portion. Rainfall totaled nearly 12 inches at Beaumont, Texas and Morgan City, Louisiana. This excessive rainfall further aggravated the threat of flooding along almost all rivers and streams from eastern Texas through the lower Mississippi Valley. Tides 3 to 5 feet above normal along the north-central gulf coast produced some tidal flooding and slowed the flow of several rivers already at flood stage. Wednesday morning saw a spring snowstorm develop in the central Rockies. A Low centered over Utah supported a wide band of rain and snow from Arizona to Wyoming. By day's end Lander, Wyoming received 6 inches of snow to make a total of 12 inches on the ground. Thursday, cold air behind a front associated with a spring snowstorm in the northern Plains began colliding with a warm moist front located over the central States resulting in even more rain for the Mississippi and Ohio River Valleys plus a tornado area where the two fronts met. The northern Plains snowstorm intensified into a full-scale blizzard by nightfall. Snow up to 1 foot deep closed some roads in southwestern Montana. Friday, rains continued in the Midwest with severe thunderstorms stretching from Arkansas northward over Missouri to eastern Iowa and the western Great Lakes. A tornado ripped through northeast Arkansas near Harrison resulting in 1 death and 22 injuries. Weather of the week continued on page 242.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Light in most wheat fields in Cimarron and Texas Counties. Seldom average over 2 per 10 linear feet; larvae range half to full grown. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - ARKANSAS - Survey negative in wheat in Washington County. Infestations not expected to develop under current wet conditions. (Boyer). TEXAS - Remained light in fields in Rolling Plains area. Ranged 0-41 per row foot in Archer, Knox, Haskell, Throckmorton, Wilbarger, and Foard Counties. Populations considered low since 300-800 greenbugs per row foot necessary in small grains 6-16 inches tall before control measures required. Increased activity of nabids, lady beetles, lacewings, and spiders reported from fields in Archer, Wilbarger, and Foard Counties. (Boring). NEW MEXICO - Moderate to heavy in wheat fields in Cutty, Roosevelt, and Quay Counties. Controls applied. (N.M. Coop. Rpt.).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - First and second-instar nymphs heavy throughout overwintering areas in Kern, Kings, and Fresno Counties. Hatch still uneven with possibility of later hatch in next 14-21 days. Spring nymphal treatment began April 12 in Kern and Fresno Counties. Treatment of 800 miles of roadside hosts completed in Imperial Valley, Imperial County. (Cal. Coop. Rpt.). WYOMING - Averaged 0.258 per square foot from total of 488 samples taken in Washakie County. Averaged 0.092 in 1972 and 0.13 in 1971. (Daiss).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - WISCONSIN - Overwintering survival ranged 80-85 percent in central, southwestern, and southern areas. (Wis. Ins. Sur.). MARYLAND - Pupation begun on Eastern Shore; approximately 20 percent complete in Talbot, Dorchester, and Queen Annes Counties. No pupation west of Chesapeake Bay to date. (U. Md., Ent. Dept.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - FLORIDA - Nymphs and adults ranged 3-5 per sweep in oats at Gainesville, Alachua County. (Fla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - ALABAMA - Very heavy and damaging on certain wheat varieties at several south and central area locations. Some varieties in Research Variety Test at Headland, Henry County and Prattville, Autauga County with 10-100 larvae and pupae per clump of plants and estimated 50-80 percent loss of stems. Larvae and pupae moderate to high in large field in Geneva County. (Teems et al.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - OKLAHOMA - Ranged 1-3 per linear foot in many wheat fields in Keyes area and up to 1 per linear foot in Boise City area, Cimarron County. Lighter numbers found in western parts of Cimarron and Texas Counties. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

BERMUDAGRASS MITE (Eriophyes cynodoniensis) - ARIZONA - Becoming a problem in many Bermuda grass lawns at Phoenix, Maricopa County. (Ariz. Coop. Sur.).

PAINTED LADY (Vanessa cardui) - NEVADA - Larvae heavy, 1-15 per plant, on various forbs, especially lupine and fiddleneck, on several thousand acres of rangeland in southern Clark County, especially in vicinity of and south of State Highway 77. Some host plants defoliated and larvae moving across highway in large numbers. Thousands of adults present in area and migrating, generally northward. (Bechtel, Zoller).

FORAGE LEGUMES

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - First generation adults and nymphs ranged 2-10 per 10 sweeps in hundreds of acres of full-blooming crimson clover in fields and along highways in Lee, Macon, Montgomery, and Autauga Counties. (McQueen).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Heavy in alfalfa in Eddy and Chaves Counties. Controls applied. (N.M. Coop. Rpt.). KANSAS - Populations in alfalfa increased past 14 days in southeast district; still generally light. Highest infestations found in Elk, Montgomery, and Wilson Counties where counts ranged 400-1,100 per 100 sweeps. (Bell). OKLAHOMA - Moderate to heavy in alfalfa in Roger Mills County, light to moderate in Garvin County, and light and scattered in Payne County. (Okla. Coop. Sur.). ALABAMA - Heavy in crimson clover in Montgomery and Autauga Counties; ranged several hundred per 5 sweeps. (McQueen). FLORIDA - About 5 nymphs and adults taken per sweep of 10-inch second-growth alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - OREGON - Adults taken in pheromone trap at Milton-Freewater, Umatilla County, April 4 for first report of the season. (Burkhart).

ALFALFA SNOUT BEETLE (Otiorhynchus ligustici) - NEW YORK - Adults ranged 0-18 per square foot in Wayne County alfalfa, week ending April 13. Alfalfa ranged 2-4 inches in height. (York, Gyrisco).

ALFALFA WEEVIL (Hypera postica) - KANSAS - Larval infestations at or near economic levels common in southeast district. Some fields with 80-100 percent terminal feeding damage. One Montgomery County field with 15 percent defoliation and 5.7 larvae per terminal. Lightest infestations in Woodson and Allen Counties with maximum of 8 larvae per 100 sweeps. (Bell). OKLAHOMA - Moderate to heavy infestations in untreated alfalfa in all areas of State except northwest and Panhandle. Terminal infestations ranged 60-90 percent in Kay County and up to 100 percent in Payne and Lincoln Counties. Larvae ranged 75-100 per square foot in Osage County, 200-300 in Washita, Beckham, and Caddo Counties, and 75-150 in Roger Mills County. (Okla. Coop. Sur.). TEXAS - Infestations heavy in Dickens, Wilbarger, and Hardeman Counties. One Dickens County farm with 90 percent of terminals infested with up to 6 larvae per terminal. Control measures applied in Wilbarger and Hardeman Counties. (Boring). ARKANSAS - Counts increasing due to warmer weather. In Washington County research field, counts ranged 44-160 per 10 sweeps. Treatments general in all alfalfa producing areas of State. (Boyer).

MISSOURI - H. postica adults active in all fields checked in southeast, south-central, and southwest areas. Counts ranged 5-40 per 10 sweeps. Larval counts ranged 0.5-3.5 per plant. Rain and cool evening temperatures preventing any extensive larval damage in southern areas. (Munson). INDIANA - Mean percent infestations by county as follows: Daviess 39, Dubois 41, Harrison 35. Controls necessary in several southwest district fields. (Meyer). OHIO - Egg hatch begun in southwestern and central areas. Adults averaged 1 per sweep in Franklin County and 3 per 50 sweeps in Butler County alfalfa. (Fox). KENTUCKY - Eggs averaged 130 per square foot in Barren County. In Fayette County, eggs averaged 46 and 9 per square foot in 2 separate fields. Larval damage economic 14-21 days ago in south-central regions; 50-75 percent of alfalfa treated. Counts lower in central region this year than 1972. (Barnett, Parr).

TENNESSEE - Percentage of tips infested by alfalfa weevil by county as follows: Madison 20-100, Hardeman 68, Carroll 60, Henry 11-56. (Gordon). WEST VIRGINIA - Adults averaged 30 per 100 sweeps in Jackson County. Larval infestations reached 58 and 52 percent in Mason and Jackson Counties, respectively. (Hacker). MARYLAND - Larval counts remain light statewide. Heaviest counts in central area with 2-8 larvae per sweep. Most fields ranged 0-4 larvae per sweep with first through third instars present in Harford, Frederick, Kent, Cecil, and Queen Annes Counties. Tip damage remains below 5 percent levels statewide but expected to increase rapidly in next 14 days. DELAWARE - Young larvae on alfalfa in western Kent County; feeding injury very light. (Burbutis).

POTATOES, TOMATOES, PEPPERS

GREAT BASIN WIREWORM (Ctenicera pruinina) - IDAHO - Infesting over 95 percent of potato seed pieces in 6,000 acre track at Sailer Creek, Owyhee County. This area was formerly sagebrush-cheatgrass range plowed in 1973 and planted with potatoes for first time. (Homan).

CUCURBITS

SEEDCORN MAGGOT (Hylemya platura) - FLORIDA - Larvae heavily infested watermelon stems in 25-acre planting at Marianna, Jackson County; plants dying. (Fla. Coop. Sur.).

GENERAL VEGETABLES

ASPARAGUS BEETLE (Crioceris asparagi) - MARYLAND - Adults active and laying eggs in 1,500 acres of asparagus in Kent County. Beetle counts ranged 8-30 per 50 spears. Controls to be applied this week. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

BROWN MITE (Bryobia rubrioculus) - CALIFORNIA - Infested prune and almond orchards. Damage began to show as yellow leaves in some areas. Many orchards unable to be treated at proper time due to wet conditions. (Cal. Coop. Rpt.).

PECAN SPITTLEBUG (Clastoptera achatina) - ALABAMA - First and second-instar nymphs heavy on numerous low limbs of 50 pecan trees at 5 locations in Macon and Montgomery Counties. (McQueen).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Damaged peach trees in Major County. Infestations on wild plum lighter than usual in most areas of State. (Okla. Coop. Sur.).

CODLING MOTH (Laspeyresia pomonella) - CALIFORNIA - Numerous adults taken in pheromone traps in pear and apple orchards. Some treatment to be applied in next 10 days. Eggs deposited, but cool weather and rain have delayed hatch. (Cal. Coop. Rpt.).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - About 50 percent of eggs hatched on trees and shrubs examined along Highway I-85 in Lee, Macon, and Montgomery Counties. First-instar larvae very heavy on juniper and cedars; expected to destroy plants. (McQueen).

COTTONWOOD LEAF BEETLE (Chrysomela scripta) - ALABAMA - First larvae of season noted feeding in groups of 10-40 on willow trees used as ornamentals along Highway I-85 in Macon and Montgomery Counties. (McQueen).

HOLLY LEAFMINER (Phytomyza ilicis) - WASHINGTON - Blotch mining damage moderate on holly leaves in Seattle, King County. All mines contained pupae with no evidence of adult emergence as of April 8. (Collman).

FOREST AND SHADE TREES

OAK LECANIUM (Lecanium quercifex) - MISSISSIPPI - Heavy in Delta Counties of Humphries, Sunflower, and Quitman. Crawlers emerged and young scales present. Damage heavy on oaks in some areas. (Robinson).

FALL CANKERWORM (Alsophila pometaria) - WEST VIRGINIA - Total of 57 egg masses taken from one 25-foot oak tree and 59 taken from a 25-foot maple tree in Grant County. (Miller).

PALES WEEVIL (Hylobius pales) - OHIO - Severely damaged Scotch pine Christmas trees in Columbiana County tree farm. Three-year-old liners showed heaviest damage with about 450 of 500 trees destroyed. (Kelly).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - During period April 8-14, there were 4 confirmed cases reported in the continental U.S., all from Texas. Total of 313 confirmed cases reported from Mexico. Number of sterile flies released in U.S. totaled 58,818,000 as follows: Texas 55,878,000 and Arizona 2,940,000. Total of 112,173,500 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 40 per cow and 1,000 per bull in Payne County and 20 per cow and 100 per bull in Major County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MARYLAND - First adults of season found on dairy cattle in Kent, Cecil, Harford, Baltimore, and Frederick Counties. Ranged moderate to heavy (10-50 per head). (U. Md., Ent. Dept.). CALIFORNIA - About 12 adults collected

April 9, 1973, by Mark Kostielney in building at San Juan Bautista, San Benito County. This is a new county record. (Cal. Coop. Rpt.).

MOSQUITOES - KENTUCKY - Culex restuans larvae collected on May 15, 1972, by D. Barnett in Morgan County. Determined by D. Barnett and confirmed by P.H. Freytag. This is a new county record. (Barnett). MINNESOTA - Metropolitan Mosquito Control District, Minneapolis, St. Paul, and 6 surrounding counties, reported first pupation on April 17. Through April 18, 3,500 acres of mosquito breeding area treated with ground equipment and 1,500 acres by air. In selected Aedes breeding sites, 188,000 flathead minnows released. (Minn. Pest Rpt.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Infestation remains stable on 3,000 Leghorn chickens in housed operations in Oktibbeha County. (Robinson).

HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - OKLAHOMA - Adult reproductives swarming in several areas of Payne and Washita Counties for first reports of season. (Okla. Coop. Sur.).

AMERICAN BLACK FLOUR BEETLE (Tribolium audax) - NEBRASKA - Collected by J. Engebretsen infesting house in Harrison, Sioux County. Determined by S.D. Koinzan. This is a new county record. (Keith).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Light in alfalfa in Roger Mills County. Numbers not increasing fast enough to control Acyrthosiphum pisum (pea aphid). (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Infested 300+ properties at Carlsbad, San Diego County and 4 properties at San Clemente, Orange County. All infestations treated including buffer zones of 17 properties and 70 hosts. (Cal. Coop. Rpt.).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Survey located 544 infested properties on 131 blocks in Delano, Kern County. Eggs hatched with second-instar crawlers present in Porterville, Tulare County. Preparations and survey for release of beneficial insects in biological control program underway. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Egg hatch observed under roof edge in Upper Black Eddy, Bucks County on April 16. No hatch observed in Schuylkill County by April 16; adults of Ooencyrtus kuwanai (an egg parasite) abundant on egg masses in this area. (Buzzard).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - One larva collected on wild cotton at Plantation Key, Monroe County March 28. (Fla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - Eggs per square foot and adults per 100 sweeps by county as follows: Mason 1 and 7 (wheat); Jackson 3 and 6 (barley). Eggs averaged 1 per square yard in wheat in Wood County. (Hacker). MICHIGAN - Adults and eggs observed on wild grasses in Berrien County, April 18. (Berger).

DETECTION

New United States Records - A CYLINDRICAL BARK BEETLE (Penthelispa rufipennis) - HAWAII - Oahu. SEPSID FLY (Sepsis thoracica) - HAWAII - Oahu. (p. 241).

New County Records - A PENTATOMID (Thyanta yerma) ARIZONA - Collected by S. Kozloski in black light trap at Willcox, Cochise County, August 10, 1970. Determined by Rolston. (Ariz. Coop. Sur.).

AMERICAN BLACK FLOUR BEETLE (Tribolium audax) NEBRASKA - Sioux (p. 239). FACE FLY (Musca autumnalis) CALIFORNIA - San Benito (p. 239). A MOSQUITO (Culex restuans) KENTUCKY - Morgan (p. 239).

CORRECTIONS

CEIR 23(10):129 - MISCELLANEOUS WILD PLANTS - A BILLBUG (Sphenophorus minimus) - VIRGINIA - Collected on Carduus mutans (bristlethistle) ... should read "Collected on Carduus acanthoides (plumeless thistle) ..."

CEIR 23(13):190, 191 - Make following changes in GRASSHOPPERS: Melanoplus sanguinipes (190); bottom page 191 - Ageneotettix deorum and Aulocara elliotti.

LIGHT TRAP COLLECTIONS

ARKANSAS - Mississippi (County), 4/11-17, BL - ARMYWORM (Pseudaletia unipuncta) 63, BLACK CUTWORM (Agrotis ipsilon) 8, VARIEGATED CUTWORM (Peridroma saucia) 4. FLORIDA - Gainesville, 4/13-19, BL - BEET ARMYWORM (Spodoptera exigua) 1, CORN EARWORM (Heliothis zea) 2, GRANULATE CUTWORM (Feltia subterranea) 2. MISSISSIPPI - Stoneville, 3/1-4/19, 2BL - Armyworm 120, black cutworm 16, granulate cutworm 4, SALTMARSH CATERPILLAR (Estigmene acrea) 4, variegated cutworm 15. OHIO - Wooster, 4/13-21, BL - Black cutworm 1. TEXAS - Waco, 4/16-19, BL - Armyworm 72, granulate cutworm 7, variegated cutworm 48, YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) 4.

New State Records - A CYLINDRICAL BARK BEETLE (Penthelispa rufipennis) Eight adults collected February 10, 1972, by C.J. Davis under bark of Eucalyptus tree at Honouliuli Forest Reserve, Oahu. Determined by R.D. Pope. This is a new United States record but is not known to occur in the continental U.S. (Funasaki).

A SEPSID FLY (Sepsis thoracica) numerous specimens collected by G. Toyama at Kahua Ranch, Honouliuli, Oahu March 2, 1973. This species is widespread over Palearctic, Ethiopian, and Oriental regions. Larvae of sepsids live in excrement, carrion, and other kinds of decaying animal and vegetable matter. Determined by D.E. Hardy. This is a new United States record but is not known to occur in continental U.S. (D.E. Hardy).

General Vegetables - Larval mines of LEAFMINER FLIES (Liriomyza spp.) extremely heavy in greenhouse tomatoes and see-qua at Pupukea; unusually light in 8 acres of watermelon at Waianae; less than five percent of foliage lightly affected. (Kawamura).

Fruits - Larval mines of LEAFMINER FLIES (Liriomyza spp.) generally light in 100+ acres of passion fruit at Kahului, Maui; about 70-80 percent of leaves with 2-6 mines, one percent of leaves with as many as 30 mines. Infestation in this planting gradually increasing in the past 2 years. (Miyahira).

General Pests - CORN EARWORM (Heliothis zea) infestation light in 8 acres of nearly mature sweet corn at Pupukea, Oahu; less than 10 percent of ears with early instar larvae. Trace in 6 acres of roses at Waianae, Oahu; approximately 2-3 percent of buds with eggs or early instar larvae.

Weather of the week continued from page 234.

Snow extended southwards over the central and southern Rockies and portions of adjacent Plateau regions. Snowstorms brought more than 5 feet of snow during the week to an Alta, Utah ski area. Saturday, thunderstorms and tornadoes continued to ravage the Midwest. Large hail pellets struck eastern Kansas, northern and western Missouri and eastern Iowa. Three-inch hail struck Liberty, in west-central Missouri. A persistent weather front, seemingly anchored to the central States touched off another episode of violent thunderstorms Easter Sunday. Lower and middle Mississippi Rivers were on the rise again as a result of the persistent rains. A crest of 42.5 feet at St. Louis expected Thursday would establish a new flood stage record, surpassing the all time high of 42.0 feet April 1785.

TEMPERATURE: Warmer temperatures than average prevailed over the eastern half of the Nation last week while in the western half readings were as much as 12 degrees colder than normal. A strong high pressure system centered over the middle Atlantic coast brought unseasonably mild temperatures from New England to Florida on Monday, April 16. Temperatures in the eastern third of the Nation held in the 60's as far north as Michigan. Record high readings for the date were recorded in many parts of the northern Atlantic States, including 79 degrees at Buffalo, New York, Boston, Massachusetts, and Hartford, Connecticut. In the West a cold front extended from northern Idaho to northwestern California whild another cold front dipped from the western end of Lake Erie to extreme southern Texas. Tuesday saw a continuation of the unseasonably mild temperatures from the eastern Gulf to New England. Portland, Maine recorded a record high temperature for the second consecutive day. In the West the mercury continued to drop below freezing in the Rockies and stayed cooler than average in most other spots. Wednesday, cold air flowing into the Northwest behind a snowstorm resulted in below freezing temperatures from Oregon and Nevada to Montana. The coldest spot in the Nation Wednesday morning was Reno, Nevada with 19 degrees. Mild to warm weather prevailed from the Mississippi River Valley to the Atlantic coast. The high of 70 degrees at International Falls, Minnesota was 22 degrees above normal. Seventy-degree temperatures reported as far north as northern New England. Thursday, freezing temperatures extended through most of the northern Plains region with the mercury dipping into the teens in parts of Colorado. Warm air had spread from Mexico into the southern Plains. The temperature reached 101 degrees at Laredo, Texas. Hot winds blowing dust reduced visibility from the Texas Panhandle across Oklahoma to eastern Kansas. Friday and Saturday saw a continuation of the cold spell in the western portion of the Nation and an extension of the heat wave in the East. Saturday an unseasonably warm reading of 80 degrees was recorded in scattered locations in the eastern half of the Country. The 87 degree reading at Rochester, New York set a new record high for the day. Easter Sunday was almost too hot for spring bonnets in the East while ear muffs were necessary in parts of the West. New record high readings were recorded on April 22 at Albany, New York, 86 degrees, Boston, Massachusetts, 84 degrees, and Providence, Rhode Island, 83 degrees. Meanwhile temperatures dropped below freezing over much of the northern Plains and Rocky Mountain area.

Boll Weevil Survival Survey

Spring 1973

Spring collections of surface ground (woods) trash samples (two square yards per sample) have been completed in three Southern States. Wherever possible, samples were taken from the same locations that were sampled in fall 1972. The number of boll weevil (Anthonomus grandis) adults per acre of ground trash examined and the percent survival are reported in the following paragraphs. For details of the fall (1972) hibernation survey in these three States, see CEIR 23(7):75-78.

Collections in MISSISSIPPI were started February 26 and all examinations completed by March 2. Three samples were taken from each location, and 7 or 8 locations were sampled in each county. Two counties made up each area and the State was divided into the following areas: South Delta (Sharkey and Yazoo Counties), Central Delta (Washington and Leflore Counties), North Delta (Coahoma and Panola Counties), and Hill Section (Holmes and Tate Counties). Forty-five samples were taken from 15 locations in each of the four areas. The average number of weevils per acre was 270 in the South Delta, 108 in the Central Delta, 216 in the North Delta, and 540 in the Hill Section. The State average for 1973 was 283 compared with 783 in 1972, 864 in 1971, 229 in 1970, 810 in 1969, and 540 in 1968. Percent survival in 1973 by area was 55.56 in the South Delta, 200 in the Central Delta, 8 in the North Delta and 19.60 in the Hill Section. These are all higher than the survival rates for the same areas in spring 1972.

The winter of 1972-1973 was relatively mild and wet in the area. The lowest temperature recorded at Stoneville was 21 degrees F. on January 11 and 12. Total precipitation at Stoneville during the period November 1, 1972, through February 28, 1973, was 29.50 inches, about 9.5 inches above normal for this period. (Pfrimmer).

Survey in northeast LOUISIANA was March 6-20. Collections were made at 45 locations in the 5-parish area as follows: Madison 20 locations, Tensas 10 locations, and 5 locations each in East Carroll, West Carroll, and Richland Parishes. A total of 135 samples was taken. The average number of weevils per acre of trash by parish was Madison 323, Tensas 732, East Carroll 1,290, West Carroll 484, and Richland 1,290. This is an average of 645 boll weevils per acre for the 5-parish area. Winter survival for the area is 25.69 percent compared with 40.05 percent in Spring 1972. In Madison Parish, where these records have been maintained for the past 38 years, there have been only six years when the number of weevils surviving the winter was less than in spring 1973. The 323 weevils per acre is an 8.8-percent survival of the 3,670 weevils per acre entering hibernation in fall 1972.

Rain occurred on 33 days during the period December 8, 1972, through March 6, 1973. Total rainfall during this period was 24.10 inches, with 7.27 inches recorded March 6-20 when ground trash samples were collected. The largest amount recorded during a 24-hour period was 3.26 inches January 21. There were 26 days during this period when temperatures were 32 degrees F. or less. On seven of these days the temperature was 25 degrees or lower. There were

five days when the temperature did not exceed 32 degrees, one day when the temperature did not rise above 25 degrees. The lowest temperature recorded was 20 degrees on January 13. (Cleveland et al.).

In central TEXAS, spring trash collections were begun March 5 and all examinations completed by March 15 in Falls, Hill, Limestone, and McLennan Counties. Three samples were taken from each location, and 6 or 7 locations were sampled in each county; 75 samples were taken from 25 locations in these 4 counties. The average number of weevils found per acre was 134 in Falls County, 134 in Hill County, 134 in Limestone County, and 115 in McLennan County, with an area average of 129 per acre in spring 1973. The percent survival was 17.4. This compares with 23.3 percent in 1972, 59.8 percent in 1971, and 15.7 percent in spring 1970. In the 14 years the survey has been conducted, only in 1964 has there been an indicated lower spring survival (average of 97 weevils per acre) than in 1973. Percent survival was lower in 1973 than any year except 1968 and 1970.

Winter weather in the area was colder than normal. Subfreezing temperatures occurred on 38 days with a minimum of 4 degrees recorded January 12. For the period November 1, 1972, through March 15, 1973, total rainfall was 10.16 inches which is normal. (Cowan).

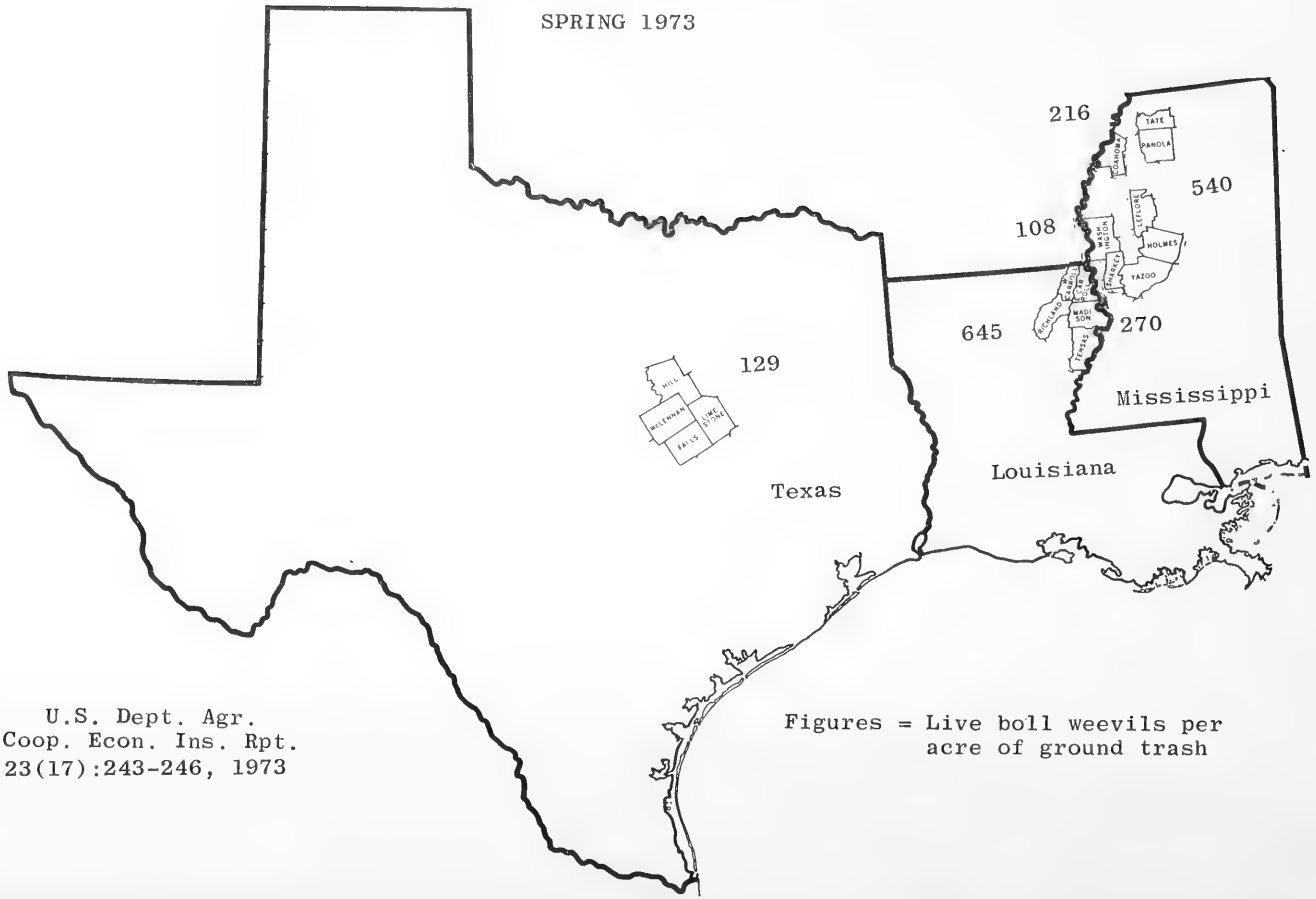
See table and map on following pages.

BOLL WEEVIL SURVIVAL SURVEY - SPRING 1973

Area (State and County)	Number of Weevils per Acre	
	1972	1973
MISSISSIPPI		
South Delta (Sharkey and Yazoo Counties (area 1)).	918	270
Central Delta (Washington and Leflore Counties (area 2)).	324	108
North Delta (Coahoma and Panola Counties (area 3)).	432	216
Hill Section (Holmes and Tate Counties (area 4)).	1,458	540
LOUISIANA		
Northeastern (Madison, Tensas, East Carroll, West Carroll, and Richland Parishes).	2,456	645
TEXAS		
Central (Falls, Hill, Limestone, and McLennan Counties).	969	129

BOLL WEEVIL SURVIVAL SURVEY

SPRING 1973



U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
23(17):243-246, 1973

Figures = Live boll weevils per acre of ground trash

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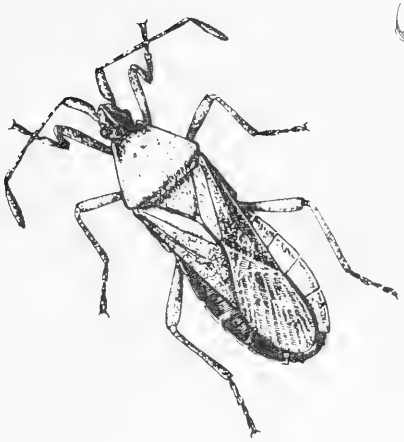

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Cooperative Economic Insect Report

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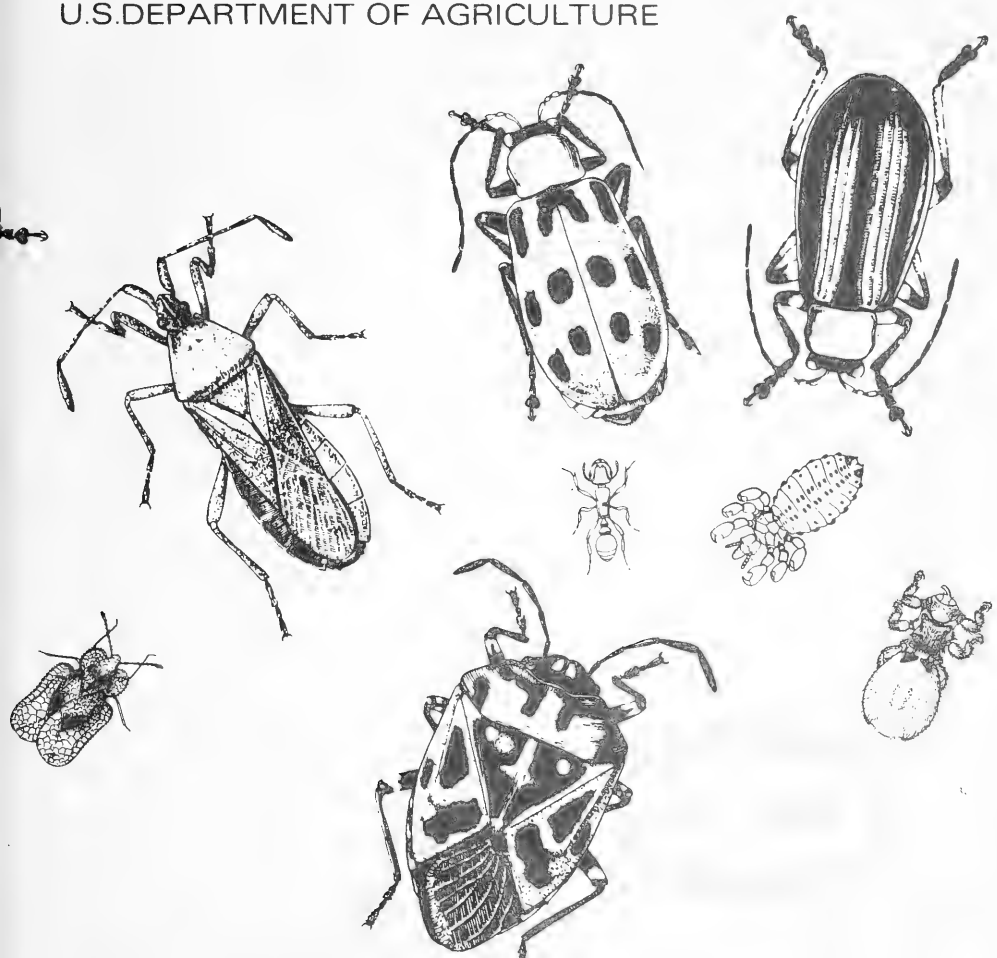

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 clearing house and does not assume responsibility for accuracy of the material.

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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

Volume 23 May 4, 1973 Number 18

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM moths appeared in light traps in several areas. (pp. 249, 260). ASTER LEAFHOPPER taken for first time this season in Minnesota. GREENBUG increased on small grains in Rolling Plains of Texas but still light; detected on sorghum in southeastern area. (pp. 249-250).

SOUTHERN CORN ROOTWORM continued to damage sorghum and corn seedlings in south-central Texas. (p. 250).

ALFALFA WEEVIL increased in several areas, some controls applied. (pp. 251-252).

Several FRUIT PESTS appearing in orchards and pheromone traps; some larval damage reported. (p. 255).

COOLEY SPRUCE GALL APHID infestations on ornamental and Christmas tree plantings of Douglas-fir in northwest Oregon appear heavier than normal. (p. 256).

NORTHERN FOWL MITE heavy on layer hens in areas of Georgia and Florida. (p. 258).

EUROPEAN CRANE FLY larvae heavy, caused up to 50-percent yield reduction in clover and grasses in Whatcom County, Washington. (p. 258). GYPSY MOTH eggs hatched in infested areas in Michigan and Ohio. (p. 250).

Detection

For new county record see page 254.

Special Reports

Distribution of Northern Corn Rootworm. Map. (p. 261).

Reports in this issue are for week ending April 27 unless otherwise indicated.

CONTENTS

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MAY 1973

The National Weather Service's 30-day outlook for May is for temperatures to average below seasonal normals over the southern Plateau, the central and southern Plains, and the South. Above normal temperatures are indicated for the Northwest, the Pacific coast, and the upper Great Lakes. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over most of the eastern third of the Nation. Subnormal totals are indicated for the upper Mississippi Valley, most of the northern Plains, and west of the Divide. In unspecified areas near normal amounts are 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.

WEATHER OF THE WEEK ENDING APRIL 30

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

HIGHLIGHTS: From Dubuque, Iowa, to Reserve, Louisiana, 1,400 miles of the Mississippi River, swollen by weeks of rain and snow, flooded fields and cities. A record flood crest of 43.5 feet peaked at St. Louis on Sunday. This was the worst flood ever, breaking the 1785 mark. Torrential rains drenched the Deep South and eastern Texas.

PRECIPITATION: The week was damp in the East, dry in the West. In the drought area of the Pacific Northwest, there was less than 0.3 inch of rain. In the Deep South, Texas, and parts of the Plains, violent spring storms erupted, bringing thunderstorms, torrential rains, hail, and tornadoes. Weather of the week continued on page 262.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Larvae severely damaged alfalfa in Finney County by April 15. By April 18, three days after treatment, larvae averaged 4 per square foot. Second Finney County field showed less than one per square foot. Ranged none to trace in wheat in Sherman and Cheyenne Counties. (Bell). OKLAHOMA - Larvae light in small grains in Washita, Caddo, and Beckham Counties. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - ARKANSAS - Due to adverse weather conditions, survey difficult in eastern part of State. None found in fields surveyed; infestations usually begin this time of year. (Boyer). KANSAS - First 5 moths of season taken in blacklight trap at Manhattan, Riley County, April 23. (Bell). WISCONSIN - Single adult taken in blacklight trap at Mazomanie, Dane County. (Wis. Ins. Sur.). MICHIGAN - Appeared April 17 at Lenawee County blacklight trap. Limited numbers of moths collected through April 23. (Newman). OHIO - First moths of season collected in blacklight traps April 21. This is 2 days later than average first appearance for past 6 years. Females began to deposit eggs in insectary April 21. (Rings). DELAWARE - Adults ranged 2-3 per night in blacklight traps in Sussex County. (Burbutis).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Collected for first time this year April 24; counts light, averaged one per 800 sweeps. Probably entered State about April 20 on strong southerly winds. (Minn. Pest Rpt.).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Spring treatment in Kern and Kings Counties progressing; 4,186 acres treated on westside of Kern County in vicinity of Taft and Maricopa; 1,645 acres treated on eastside of Kettleman Hills in Kings County. Most host vegetation showed varying degrees of drying throughout treatment areas along westside of San Joaquin Valley. Spring adults increasing; indicates spring brood maturing rapidly. Some appreciable population shifts to greener vegetation in breeding ground noticed. Spraying of roadside weed hosts in Imperial Valley completed; 234 additional miles of roadside weed hosts treated. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Infestations noted on grain sorghum in Calhoun, Victoria, Guadalupe, and Brazos Counties. (Cole).

GREENBUG (Schizaphis graminum) - TEXAS - Still light on small grains in Rolling Plains area even though counts doubled over those of previous week in many fields. Ranged 20-75 per row foot in most heavily infested fields in Wilbarger, Foard, Wichita, Archer, Knox, and Haskell Counties. Light, 0-19 per row foot in many fields in these counties and in Throckmorton County. Number of parasitized greenbugs reported in wheat fields increased greatly during past week; ranged 2-7 per row foot in fields in Archer and Wichita Counties. Beneficial species (nabids, lady beetle larvae, and spiders) attacked S. graminum in small grain fields in Archer, Wilbarger, Foard, and Wichita Counties. Greenbug populations throughout Panhandle and South Plains areas generally light on small grains. Fields in Bailey County, near

Muleshoe, infested with 20-2,000 greenbugs per row foot. Severe damage noted in untreated fields. Many fields in area treated past 14 days. (Boring, Ward). Light, scattered populations detected on sorghum in Guadalupe and Brazos Counties. (Cole). NEW MEXICO - Averaged less than one per linear foot in wheat in Lea County. (N.M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ILLINOIS - Ranged up to 2 per 10 sweeps of alfalfa in Greene County. (Ill. Ins. Rpt.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - INDIANA - Pupation underway as far north as Tippecanoe County. (Hogg). MARYLAND - Pupation continued on Eastern Shore. Most stalks underground; however, pupation still at 20 percent rate in Talbot, Queen Annes, Kent, and Dorchester Counties. No pupation west of Chesapeake Bay. (U. Md., Ent. Dept.). DELAWARE - Pupation of overwintering larvae in central Sussex County averaged 20 percent. (Burbutis).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - This species and S. exigua (beet armyworm) widespread in Everglades area, Palm Beach County, on sweet corn. S. frugiperda heaviest (80 percent); S. exigua (20 percent) harder to control. (Fla. Coop. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - TEXAS - Heavy populations still damaging sorghum and corn seedlings throughout south-central area. (Cole).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Heavy enough on 2-inch sweet corn in Madison County to need treatment; ranged up to 2 per plant. (Ill. Ins. Rpt.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Averaged one per 100 sweeps in rye in Spring Green area, southern Sauk County, and at Prairie du Chien, southern Crawford County. All alates. (Wis. Ins. Sur.).

A GRAIN APHID (Rhopalosiphum padi) - CALIFORNIA - Nymphs and adults present on barley at King City, Monterey County. Much treatment necessary in many locations past 3 weeks. (Cal. Coop. Rpt.).

RICE STINK BUG (Oebalus pugnax) - ARKANSAS - Light in about half of small grain fields surveyed. Ranged 0-44 (averaged 11) per 100 sweeps. (Boyer).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, 12-30 per row foot in small grains in Haskell County. Also light, 1-10 per row foot in some fields in Knox, Throckmorton, and Foard Counties. (Boring).

TURF, PASTURES, RANGELAND

BROWN WHEAT MITE (Petrobia latens) - WASHINGTON - Infested 150 acres of orchard grass near George and Moses Lake in Grant County; damage 60 percent. (Foeppel). UTAH - Moderate on planted grasses at Beaver Dam, Box Elder County. (Knowlton, Haws).

PAINTED LADY (Vanessa cardui) - UTAH - Small number of adults in flight through Curlew Valley and Beaver Dam areas of Box Elder County. (Knowlton, Haws). Flight moderate at St. George, Washington County, April 19. (Davis). Also see page 253.

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Averaged one adult per 15 sweeps in alfalfa seed field near Touchet, Walla Walla County, April 21. (Johansen). IDAHO - In one alfalfa field at Weiser, Washington County, fourth-instar larvae ranged 1-2 per sweep; few adults seen. (Bolz). UTAH - Larvae up to fourth instar in alfalfa at Hurricane, Washington County. (Davis, Parrish). KANSAS - Generally light in alfalfa. Occasional fields warrant frequent checking for damaging buildups in east-central, south-central, central, and north-central districts. High count of 28 larvae and 114 adults per 100 sweeps with about 30 percent infested terminals noted as far north and west as Ottawa County in north-central district near Bennington. Larvae mostly second and third instars, some first instars noted. (Bell). OKLAHOMA - Infestations declining in south-central area; moderate in Pontotoc, Bryan, and Garvin Counties. Continued heavy in most other areas except northwest and Panhandle. Ranged 500-600 larvae per square foot in west-central counties, 60-300 in Tulsa County. In Payne County, all larval stages averaged 1,700 per 10 sweeps; adults common, few pupae. Many fields treated for second time in southern counties. Counts increased in Ellis County, larvae 25-100 per square foot. (Okla. Coop. Sur.).

MISSOURI - H. postica larvae in southeast and south-central areas ranged 2-5 per alfalfa plant. Percent of plants with terminal feeding damage ranged 18-81. Most fields checked should be treated when weather permits. (Munson). IOWA - No larvae detected in 2 Story County alfalfa fields. (Iowa Ins. Sur.). WISCONSIN - Survey of 3 test alfalfa fields checked March 15, showed increase in egg counts. Previous counts per 5 square feet were 499, 216, and 384 at these 3 sites. Current counts were 577, 348, and 620, respectively. Most eggs still on old, dry stems; only small number freshly laid. No hatch noted. (Wis. Ins. Sur.). ILLINOIS - Economic in alfalfa throughout southern quarter of State; up to 120 per sweep in fields south of U.S. Route 13 and up to 80 per sweep in area between I-70 and U.S. Route 13. Potential damage in many fields in area serious due to frost damage, heavy weevil populations, and wet fields preventing ground treatment. Some egg hatch found in all counties in State. (Ill. Ins. Rpt.).

INDIANA - Large numbers of eggs hatched. Larval infestation rates doubled in three south-central counties; damage evident in fields as far north as Seymour. Controls on some early cuttings recommended as far north as Jackson County. (Meyer). MICHIGAN - First active adults and damage to alfalfa noted April 14 near Mason, Ingham County. Controls may be needed if wet weather continues. (Ruppel). OHIO - Adults moving into alfalfa in Franklin County; heavy oviposition noted. Eggs collected in Franklin (April 1) and Wayne (April 5) Counties parasitized by Patasson luna (a mymarid wasp); parasitism 5 and 2 percent, respectively. (Horn).

MISSISSIPPI - H. postica larvae ranged 4-6 per stem on alfalfa in Washington County. (Miller). GEORGIA - Caused light damage to clovers and vetch in Spalding County week ending April 20. (Tippins). SOUTH CAROLINA - All alfalfa in State treated once; infestations rapidly reaching levels needing second application. (Thomas, Apr. 19). TENNESSEE - Surveys in 11 fields in 9 counties showed larvae ranged from 19 to 52 per 50 tips, with 19 to 50 tips infested per 50 tips examined. Tip damage as high as 95 percent in Dyer County. (Gordon et al.). KENTUCKY - Populations in alfalfa increased since controls applied in southern areas; will most likely be needed again before first cutting. Averaged 267 larvae and 72 eggs per square foot with defoliation of 60-70 percent in some fields in Barren County. Economic in western areas. Larvae averaged 4.3+ per tip at one Caldwell County location; averaged 1,600 per 100 sweeps with 35 percent of tips infested at another location. In treated field, larvae averaged 160 per 100 sweeps with 10-15 percent tip infestation. (Barnett et al.). VIRGINIA - Based on 11 fields surveyed (87 acres) in 6 counties, tip infestation of 6-inch tall alfalfa was 66 percent. Average estimated defoliation 19.1 percent. Of fields examined, 5 exceeded economic threshold of infestation (25 of 50 tips infested or 50 percent defoliation). (Allen et al.).

MARYLAND - H. postica larval counts and damage light throughout State. Heaviest injury restricted to Frederick and Washington Counties. To date fields with southern exposure show 3-8 percent tip damage. All instars present; however, eggs continue to hatch throughout State. Adults light, 1-2 per 20 sweeps in Kent, Baltimore, and Frederick Counties; larvae 10-60 per 20 sweeps. First sprays applied by first week in May; however, season has been cool, controls should not be needed before third week in May. Alfalfa growth good statewide, although fields wet. (U. Md., Ent. Dept.). NEW YORK - Egg incidence in 3 study fields in central and western areas increased slowly first 2 weeks of April due to snow and cool weather. Egg parasitism in these fields ranged 2.75-17.3 percent. (N.Y. Wkly. Rpt., Apr. 23).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Small numbers of larvae found in alfalfa in southern half of State. Counts ranged up to 2 per sweep in Greene and Menard Counties. (Ill. Ins. Rpt.).

CLOVER HEAD WEEVIL (Hypera meles) - TEXAS - Adults collected on south side of Somerville Reservoir, Washington County, by D.B. Gates March 31, 1971. Determined by R.E. Warner. This is a new county record. (PPQ).

PEA LEAF WEEVIL (Sitona lineatus) - WASHINGTON - Overwintering adults notched leaves of alfalfa in Whitman County. (Retan).

BEAN LEAF BEETLE (Cerotoma trifurcata) - KANSAS - Adults common in alfalfa surveyed in some east-central counties. Range per 100 sweeps by county: Douglas 8-30, Lyon 12, Wabaunsee 0-20. (Bell).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Light in alfalfa near Hobbs and Lovington, Lea County. (N.M. Coop. Rpt.). TEXAS - Light to moderate in alfalfa in Maverick County. Numerous Hippodamia convergens (convergent lady beetle) present. (Stewart). OKLAHOMA - Averaged 1,000 per 10 sweeps in Payne County alfalfa. Light to moderate in Garvin County, moderate to heavy in Pawnee County. (Okla. Coop. Sur.). MISSOURI - Increased in southeast and

south-central area alfalfa. Ranged 30-200 per 10 sweeps. (Munson). ILLINOIS - Remained light and noneconomic throughout surveyed area. Heaviest counts of Acyrthosiphon pisum averaged about 10 per sweep in southwest district. (Ill. Ins. Rpt.). KENTUCKY - Increased in central area alfalfa; averaged 400 and 800 per 100 sweeps in two Fayette County fields. (Barnett). MARYLAND - Counts still sub-economic in alfalfa stateside; ranged 20-40 per sweep in heaviest infested fields in Kent, Queen Annes, and Harford Counties. Hymenopterous parasites active; parasitism ranged 5-10 percent. (U. Md., Ent. Dept.).

REDBACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - Third instars and younger ranged up to 20 per square foot in alfalfa near Prosser, Benton County. Damage minor but expected to increase as larvae grow. (Klostermeyer).

ALFALFA CATERPILLAR (Colias eurytheme) - NEVADA - Adults numerous in scattered alfalfa fields in Stillwater area, Churchill County. (Stitt).

TOBACCO

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Larvae ranged 6-24 per 100 plants in Tift and Cook Counties. (French). Damaged tobacco in Ware County as of April 17. (Boland).

BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - OREGON - Damaged most seedlings in field of peas in Umapiner and Lowden area, Umatilla County. (Burkhart, Apr. 18).

COLE CROPS

PAINTED LADY (Vanessa cardui) - CALIFORNIA - Migrating adults passed Arroyo Grande, San Luis Obispo County, on northern migration; this is sooner than expected. Larvae averaged 10 per leaf on cabbage and weed plants in Arroyo Grande. Commercial cabbage is one crop damaged by this insect; later hops are involved. (Cal. Coop. Rpt.). Also see page 251.

GENERAL VEGETABLES

ASPARAGUS BEETLE (Crioceris asparagi) - MARYLAND - Sprays applied in Kent County commercial asparagus fields. Beetle counts decreased from 8-30 per 50 spears to 0-2 per 50 spears. (U. Md., Ent. Dept.). DELAWARE - Adults numerous on asparagus throughout State. (Boys).

REDBACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - Caused 50 percent damage to 12 acres of asparagus near Granger, Yakima County. (Turner, Tamaki). One larva per stalk in asparagus field west of Eltopia, Franklin County. Other fields in this area infested; damage moderate to severe. (Johansen).

GARDEN WEBWORM (Loxostege rantalis) - IDAHO - Second-instar larvae damaged seedling carrots at Lewiston, Nez Perce County. (Kambitsch).

A LEAFMINER FLY (Liriomyza trifolii) - FLORIDA - Developed economic levels during April on commercial celery and lettuce at Belle Glade, Palm Beach County; expected to decline within few weeks. (Fla. Coop.).

HAWAII INSECT REPORT

General Vegetables - LEAFMINER FLIES (Liriomyza spp.) and GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) very heavy on cucumbers at Waimanalo, Oahu. All stages of T. vaporariorum heavy on young leaves. Liriomyza spp. larval mines heavy on older leaves. About 85 percent of mostly older leaves nearly white with leafminer activity. Adults heavy on younger leaves, 12-15 on many leaves; pupae also heavy on many leaves. BEET ARMYWORM (Spodoptera exigua) and Lriomyza spp. light on green onions at Pearl City, Oahu; 5-10 percent of leaves affected. S. exigua eggs trace. CABBAGE WEBWORM (Hellula rogatalis) heavy on mature daikon at Pearl City; about 70 percent of terminals with one or more early larvae.

Forest and Shade Trees - All stages of MELON APHID (Aphis gossypii) sporadically heavy on fruiting pods and young terminals of pink tecoma (Tabebuia pentaphylla) trees along boulevard at Kailua, Oahu. Adults of a BARK BEETLE (Xylosandrus compactus) trace on these trees.

Fruits and Nuts - PALM MEALYBUG (Palmicultor palmarum) and COCONUT SCALE (Aspidiotus destructor) light to moderate and sporadic on about 100 young coconut trees at Koko Head, Oahu. Palm mealybug infested 5-10 percent of trees; larvae and adults of Cryptolaemus montrouzieri (a lady beetle) moderate among infestation. Coconut scale colonies light on young fronds of 40 percent of trees; 10-15 percent of pinnae infested. Larvae and adults of Lindorus lophanthae (a lady beetle) light on infested pinnae. (Kawamura).

DETECTION

New County Record - CLOVER HEAD WEEVIL (Hypera meles) TEXAS - Washington (p. 252).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - MICHIGAN - Scattered adults appeared in pheromone traps in Berrien County week ending April 23. (Sauer). WASHINGTON - Collected 30 moths in 3 pheromone traps during period April 17-23 near Wapato, Yakima County; orchard in 75 percent bloom. (Wittie). CALIFORNIA - Treatment now underway; warm to hot daytime temperatures hastened egg hatch in pear and apple orchards in Sacramento Valley. (Cal. Coop. Rpt.).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - MICHIGAN - Moths began emerging April 15 in Berrien County; now active throughout southwestern counties. Appeared in Hart and Shelby areas of Oceana County April 19; counts 20+ per pheromone trap. (Sauer). OHIO - Adults taken in heavy numbers in pheromone traps April 17-24 in Wayne County. (Hall). MARYLAND - Eggs hatched statewide, populations very light. No controls required. (U. Md., Ent. Dept.). NEW YORK - Trap catches continued at high levels in Ulster, Dutchess, and Orange Counties. First moths noted April 23 in Monroe and Orleans Counties. Large numbers of male moths in pheromone traps since April 20 near Lake Ontario in Niagara County. (N.Y. Wkly. Rpt.).

FRUITTREE LEAFROLLER (Archips argyrospilus) - MICHIGAN - Early instar larvae appeared in orchards of Van Buren and Berrien Counties. If not controlled, feeding and webbing will destroy many opening leaf and fruit buds. (Sauer).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Damage to wild plum continued in most areas. Heavy on plum trees in Pontotoc County, moderate on peach trees in Bryan County, and moderate on crab apple in Mayes County. (Okla. Coop. Sur.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Overwintered larvae active in pecan terminals in Payne County. (Okla. Coop. Sur.).

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - Adult and egg laying activity increased rapidly with warmer temperatures. (Sauer, Apr. 23). NEW HAMPSHIRE - Egg laying underway in southern part of State. (Bowman, Apr. 23). CONNECTICUT - First nymph observed at Storrs April 19. Egg laying heavy since then; hatch less than 10 percent. Nymphs reported at New Haven, adults and eggs at East Lyme. (Savos).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Hatch of overwintered egg began April 18 at Storrs; about 90 percent hatched by April 24. Also hatched at Woodstock and New Haven. (Savos). MARYLAND - Eggs hatched in Washington, Baltimore, and Prince Georges Counties. Populations light. Controls should not be required for at least 21 days. (U. Md., Ent. Dept.). MICHIGAN - Winter eggs hatched in southern counties. Field counts April 26 showed 10 immatures per leaf in several orchards without oil applications or prebloom miticides. (Sauer).

SMALL FRUITS

STRAWBERRY WEEVIL (Anthonomus signatus) - MICHIGAN - Migration to strawberry plantings and bud clipping began April 24 in Berrien County. Infestations and bud damage in problem plantations will continue through bloom. (Sauer).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - PENNSYLVANIA - First spring generation adults collected in pheromone traps April 12-16 in Concord grape vineyard at North East, Erie County. Averaged 2 per trap in 16 traps. (Jubb).

FOREST AND SHADE TREES

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - OREGON - Very prevalent on northwestern area Douglas-fir planted as ornamentals and in Christmas tree plantations. Populations appear heavier than normal. (Penrose).

RED PINE SCALE (Matsucoccus resinosae) - NEW YORK - Damage to Pinus resinosa observed April 19 in Westchester County. Intermediate stage of summer generation present. Infestation ranged light to very heavy on trees of 6 to 8-inch caliper. (N.Y. Wkly. Rpt.).

PINE FALSE WEBWORM (Acantholyda erythrocephala) - PENNSYLVANIA - Egg masses and single male moth collected on white pine and 100 adults on small Mugho pine April 24 at State College, Centre County; females laying eggs. (Mumma, Adams).

SILVERSPOTTED TIGER MOTH (Halisidota argentata) - OREGON - Larvae abundant on coast pine (Pinus contorta) in western area this spring. Heaviest populations reported in coastal areas, particularly around Bandon and Coos Bay, Coos County. (Kline).

ELM LEAF BEETLE (Pyrrhalta luteola) - CALIFORNIA - Adults present around residence in Modesto, Stanislaus County; feeding on elms at few locations in Sacramento, Sacramento County. (Cal. Coop. Rpt.). NEVADA - Adults active on elm in southern Washoe County but no eggs found. (Nev. Coop. Rpt.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - FLORIDA - First adult of season appeared in blacklight trap at Gainesville, Alachua County, April 25. (Fla. Coop. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MICHIGAN - Egg hatch observed April 19 on Prunus spp. in Lansing area of Eaton, Ingham, and Clinton Counties. (Sauer).

A NOCTUID MOTH (Oncocnemis punctilinea) - NEVADA - Larvae caused medium damage to ash trees at Las Vegas, Clark County. (Hoff).

MAN AND ANIMALS

FACE FLY (Musca autumnalis) - MARYLAND - Annoying in all counties west of Kent and Prince Georges Counties. Heaviest counts ranged 10-30 per head on dairy and beef livestock. (U. Md., Ent. Dept.). MISSISSIPPI - Ranged 1-2 per face on beef cattle in Monroe County. Light infestations probably due to very wet conditions. (Robinson).

SCREWWORM (Cochliomyia hominivorax) - During period April 15-21, there were 5 confirmed cases reported in the continental U.S. as follows: Texas 2, New Mexico 1, Arizona 2. These include first cases of current calender year in Cochise and Pinal Counties, Arizona; Hidalgo County, New Mexico; and De Witt County, Texas. Case in New Mexico coincides with first case reported in 1972, but cases in Arizona are about 30 days later than first cases last year. Total of 65,544,000 sterile flies released in U.S. as follows: Texas 61,704,000, New Mexico 225,000; Arizona 3,615,000. Sterile flies released in Mexico totaled 122,407,500. (Anim. Health).

CATTLE CRUBS (Hypoderma spp.). - KENTUCKY - Larvae, mainly H. bovis (northern cattle grub), averaged 1.9 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). WYOMING - 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 from Campbell and Laramie Counties. (Lloyd et al.).

HORN FLY (Haematobia irritans) - ALABAMA - Occurred on cattle in Madison County in heavier numbers and earlier than in most years. (Halla). MISSISSIPPI - Averaged 50+ per cow in Oktibbeha and Monroe Counties. (Robinson). TEXAS - Increased rapidly throughout much of south-central area on cattle during past few days. (Cole). OKLAHOMA - Ranged 15-25 per head on cattle in Delaware County. Moderate in Comanche County, light in Garvin County. (Okla. Coop. Sur.).

MOSQUITOES - MAINE - Hatch erratic in many areas due to unusually warm and comparatively dry weather conditions. Some pupae present, but many eggs not hatched. Heavy rains could cause additional hatch next few weeks. Unusual conditions made control applications difficult. (Gall). KENTUCKY - Various species numerous in western area, especially Hopkins County; annoying residents. (Barnett, Knapp). GEORGIA - Nuisance in late afternoon and early evening in residential areas over State week ending April 20. (Nolan). ALABAMA - Culex pipiens quinquefasicatus and possibly other species developed heavy populations in Lee County; problem in late evenings at outdoor living areas. (McQueen). MISSISSIPPI - Aedes vexans, A. triseriatus, C. pipiens quinquefasciatus, and Anopheles quadrimaculatus biting in low areas of Washington County. (Miller).

INDIANA - Aedes sticticus adults biting in Daviess County alfalfa fields near long-inundated areas. Determined by D. Shroyer. (Meyer). MINNESOTA - Aedes cinereus, A. excrucians, and A. stimulans most common species in larval collections week ending April 21. First Culiseta inornata larvae reported. Much pupation occurred April 23-26, some adult emergence expected by April 29. (Minn. Pest Rpt.). WYOMING - Aedes spp. larvae and some adults found in pools in Albany County west of Laramie April 13-16. (Forcum). UTAH - First mosquito larvae appeared in warmer areas of Weber County March 10. Currently, Aedes dorsalis first to fourth instar larvae ranged up to 50 per dip. A. increpitus larvae ranged up to 1,000 per dip in riverbottoms. Overwintering Anopheles freeborni were only adults found April 18. (Fronk). ARIZONA - Aedes vexans, Culex tarsalis, C. pipiens quinquefasciatus, and Culiseta inornata present in Gila Valley, Yuma County. (Ariz. Coop. Sur.).

CATTLE LICE - WYOMING - Haematopinus eurysternus (shortnosed cattle louse) ranged zero to heavy on untreated beef cattle herd in Albany County. Linognathus vituli (longnosed cattle louse) ranged moderate to heavy on untreated calves, and Solenopotes capillatus (a wrinkled sucking louse) light on untreated beef herd in same county. Bovicola bovis (cattle biting louse) light on these calves. (Khan).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - GEORGIA - Heavy on caged layer hens in various parts of State week ending April 20. Winter infestations among heaviest in recent years. (Nolan). FLORIDA - Heavy on layer hens at several locations near Gainesville, Alachua County. (Fla. Coop. Sur.).

GULF COAST TICK (Amblyomma maculatum) - OKLAHOMA - Heavy in ears of calves in Chouteau area, Mayes County. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - MINNESOTA - Reported active April 23 and 24 at Rosemount, Dakota County, and Aitken, Aitken County. (Minn. Pest Rpt.).

STORED PRODUCTS

A DERMESTID BEETLE (Dermestes frischi) - NEVADA - Heavy in poultry meal in railroad car in Sparks, Washoe County. (Clark).

BENEFICIAL INSECTS

LADY BEETLES - UTAH - Unspecified species active in giant ryegrass in Beaver Dam area of Box Elder County. (Knowlton, Haws). KANSAS - Coleomegilla maculata most abundant species in alfalfa surveyed in eastern half of State although counts light. Hippodamia tredecimpunctata occasionally dominant in fields in Lincoln and Ellsworth Counties. H. convergens (convergent lady beetle) occasionally most abundant species in Saline, Lincoln, and Ottawa Counties. No immature forms seen. (Bell). ARKANSAS - C. maculata ranged 0-120 (average 56) per 100 sweeps. No eggs or larvae seen; mating observed. (Boyer).

HONEY BEE (Apis mellifera) - OHIO - Due to continued poor weather conditions colony mortality continued quite high. Colony losses in some cases as high as 50 percent. (Connors). GEORGIA - Swarming in Clarke and Habersham Counties. Heavy losses reported past 14 days as result of starvation in mountain area of State. (Coleman).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - First active adult seen near Laingsburg, Shiawassee County, in grasses April 19. Single adult observed on wheat in Fairfield Township, Lenawee County, April 23 (Ruppel, Pinkle). OHIO - One adult per 4 sweeps of rye taken in Licking County field. (Blair). WEST VIRGINIA - Eggs averaged one per square foot in Grant County wheat. (Hacker). PENNSYLVANIA - Adults averaged 8 per 100 sweeps on winter barley in Piney Township, Clarion County, April 20. (Palisin, Keim).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Check of dairy farms in Lynden and Ferndale areas of Whatcom County April 16 revealed larvae up to 150 per square foot in some fields. Damage to clover and grasses very evident where populations heavy. Reduction in yield estimated at up to 50 percent. (Campbell et al.).

A GRASS BUG (Labops hesperius) - UTAH - Eggs hatched in Waurhodes Canyon, Utah County; ranged up to 100+ per square foot of crested wheatgrass in one field. (Haws, Knowlton).

GRASSHOPPERS - WASHINGTON - Melanoplus spp. spring hatch underway in southern Franklin County on about 50,000 acres. First instars about 10 per square yard on rangeland north of Pasco and east of Eltopia. No hatch noted at Washtucna. Rangeland extremely dry. (Hokanson). Eggs hatched on Lewiston Hill, Whitman County, April 26. (Blackburn). ARIZONA - Trimerotropis pallidipennis attracted to lights in Safford, Graham County; Wilcox, Cochise County; Tacna, Yuma County; Mesa and Salt River Indian Reservation, Maricopa County. All stages of Melanoplus sanguinipes (migratory grasshopper) averaged 50 per square yard in some alfalfa at Aztec, Yuma County; controls applied. Desert vegetation drying up; T. pallidipennis moving from desert and attracted to lights, have not spread throughout Salt River Valley. (Ariz. Coop. Sur.).

NORTH DAKOTA - Egg development in Cass, Richland, and Ransom Counties ranged from clear to segmented; mostly eyespot and segmented. M. bivittatus (twostriped grasshopper) and M. sanguinipes eggs 3 percent clear, 11 percent coagulated, 49 percent eyespot, and 37 percent segmented. No desiccatted eggs evident. Hatch could start in 5-10 days with 60 degree temperatures. (Brandvik). MINNESOTA - Roadside and field margin surveys in western Kittson and Marshall Counties revealed average counts of 1.1 egg pods per square foot at 14 of 17 locations. If weather favorable at hatching time, locally heavy infestations likely in roadsides and fields margins in area. Eggs ranged from coagulated to segmented; M. bivittatus showed most development. Checks in western Polk County revealed very few eggs. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Eggs hatched in Fremont Township, Isabella County, April 23. These eggs from high density infestation detected in 1972. First control application made April 26. (Moore). OHIO - Eggs hatched in Lorain County April 24. These eggs from local infestation detected in 1972. (Roach). PENNSYLVANIA - Eggs hatched in Shawnee Township, Monroe County, April 20. Area is lowland along Delaware River. (Jackowski). NEW JERSEY - Egg hatch dates as follows by county: Cape May April 17; Atlantic, Monmouth, and Ocean April 18; Bergen, Morris, Somerset, and lower Hunterdon April 19; Mercer April 20. Due to exceptionally warm weather, hatch can be considered general in central and southern areas as of April 23. (PPQ).

WHITEFRINGED BEETLES (Graphognathus spp.) - GEORGIA - Larvae damaged tobacco in Cook and Lanier Counties. (Smith, Strickland, Apr. 20).

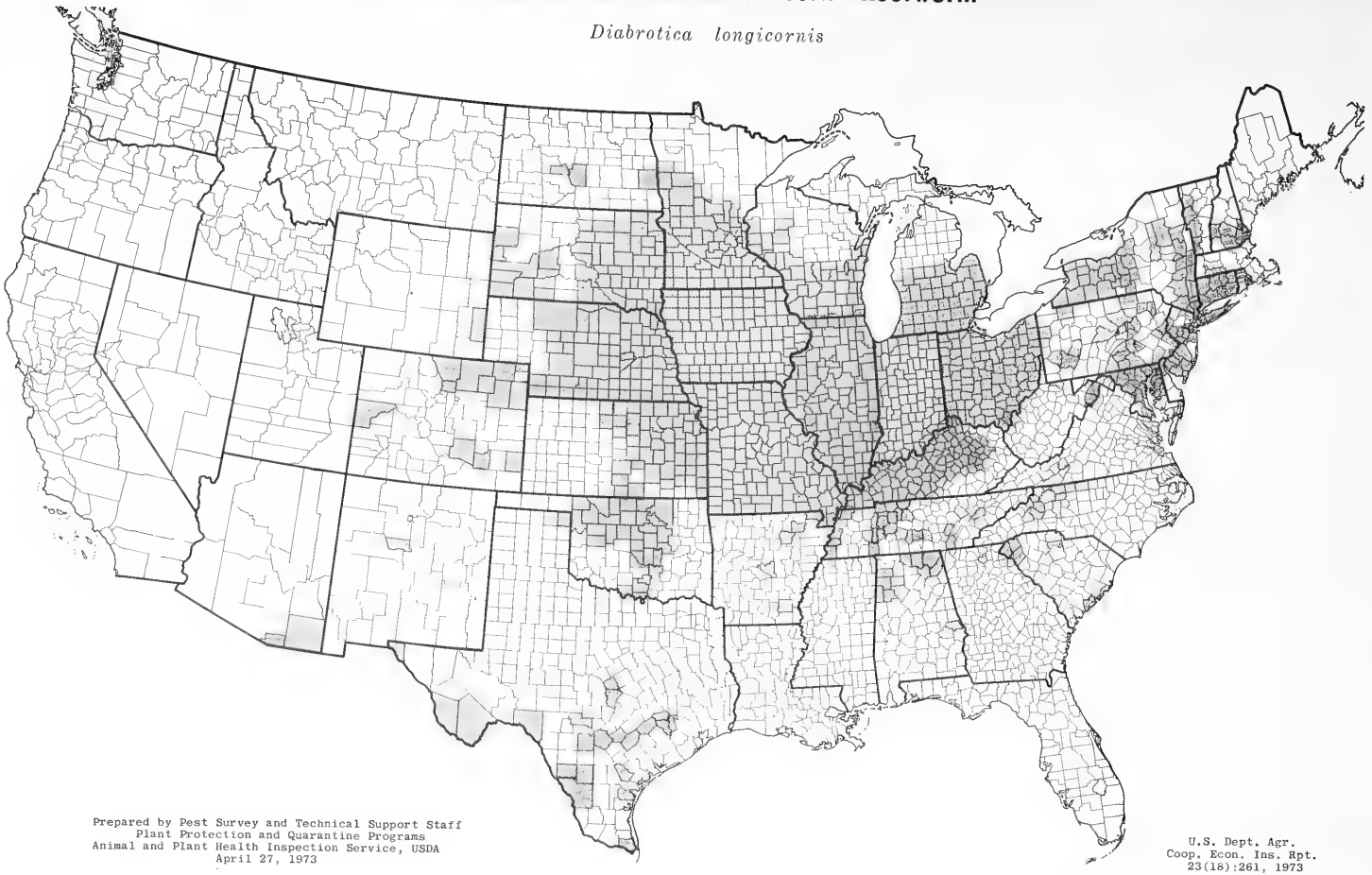
LIGHT TRAP COLLECTIONS

BL = blacklight
I = incandescent
MV = mercury vapor
O = other

	Temperature °F.	Precipitation (inches)	Type of trap	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Faxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege sticticalis (beet webworm)	Loxostege rantalis (garden webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera praefica (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																								
Dell 4/19-25			BL	8													9	30						
Kelso 4/19-25			BL	4														11						
FLORIDA																								
Gainesville 4/23-27			BL	1			23		1									4	1		5			
MISSISSIPPI (County)																								
Washington 4/20-26			2BL	3	5		4										15	156	2					
NORTH CAROLINA (County)																								
Tyrell 4/18-27			BL													7								
OHIO																								
Wooster 4/20-26			BL	18														12						
PENNSYLVANIA (District)																								
Central 4/17-24			BL	4																				
Southeast 4/17-24			BL															21			1			
TEXAS																								
Waco 4/21-26			BL	24			29										157	351	3		49	13		

Distribution of Northern Corn Rootworm

Diabrotica longicornis



Prepared by Pest Survey and Technical Support Staff
Plant Protection and Quarantine Programs
Animal and Plant Health Inspection Service, USDA
April 27, 1973

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
23(18):261, 1973

Weather of the week continued from page 250.

Some already waterlogged fields in Mississippi, Alabama, Arkansas, and Georgia received an additional 4 to 5 inches of rain. Monday, a High brought cool air over the Nation's midsection. Another High in the Atlantic, off Florida, moved warm, moist air from the gulf. Where the warm air met the cold air, a front formed extending from central Texas through Arkansas, along Kentucky's northern border, up the Appalachians into Maine. Along the front and to the east and west, rainy and violent weather developed. Monday, rainfall at Little Rock, Arkansas, totaled 4.30 inches; the week's total was 4.72 inches. Three funnel clouds also appeared at Little Rock and 1.25-inch hail pelted Hot Springs, which also received 4.30 inches of rain. Tuesday, torrential rains moved eastward. Northern Mississippi received 1.50 to 2.05 inches. A tornado destroyed a school at Sumner, Mississippi. To the west, golf-ball-sized hail pelted Waco, Texas. The violent weather persisted. Wednesday, large hail fell from the southern Plains to the South Atlantic. Baseball-sized hail fell at San Antonio, Texas. Tornadoes occurred at Little Rock, Arkansas; Decatur, Alabama; and in central Tennessee. Three struck northern Florida, two southwest Georgia. Torrential rains occurred mainly in Mississippi and Alabama. Marion Junction, Alabama, recorded 4.50 inches and Plantersville 4.10 inches. Northwest of the front, cool air spilled snow southward over the Plains. Three inches fell in Wyoming and 5 inches in Colorado. Thursday, it rained over much of the east coast, while severe thunderstorms continued along the gulf. Port Arthur, Texas, was pelted by golf-ball-sized hail and wind gusts of up to 100 m.p.h. Locally heavy rain continued: Alma, Georgia, reported 2.54 inches. Sixteen tornadoes were sighted in Mississippi and Florida. One at Panama City Beach, Florida, injured six. Friday the rain continued in the East. The Florida Panhandle got 4.00 to 4.24 inches; Asheville, North Carolina, recorded 3.01 inches. A high over the Plains brought fair skies to the Nation's midsection. By Saturday the rain was confined mostly to the Northeast. Relatively clear skies and dry conditions moved into the Southeast. Sunday, skies were clear almost nationwide: Only a few showers fell mainly in New England and Wisconsin.

TEMPERATURE: The Nation experienced a cool week. Temperatures averaged from 3 degrees to 6 degrees below normal over most of the middle of the country. Sections of Montana and North Dakota were 9 degrees to 12 degrees subnormal and parts of Kansas, Oklahoma, and Texas were 6 degrees to 9 degrees below normal. Only New England, parts of the Atlantic seaboard, central California, and parts of Arizona, Utah, and Nevada enjoyed above average temperatures. Unseasonable warmth started the week. Eighty-degree weather held from the gulf coast to the Middle Atlantic States with a record 77 degrees recorded at Portland, Maine. Then cold air settled over the Midwest where afternoon highs reached only the 30's in the upper Mississippi Valley and upper Great Lakes regions. However, freezing limited itself mainly to the Great Lakes area and Canadian border in the West most of the week. Friday morning, the frost line did move south. Freezing temperatures were felt throughout the western Great Plains. They extended into central New Mexico. Over the weekend it warmed up as brisk, southerly winds as high as 30 m.p.h. brought temperatures in the low 70's to southern Nebraska and Iowa.

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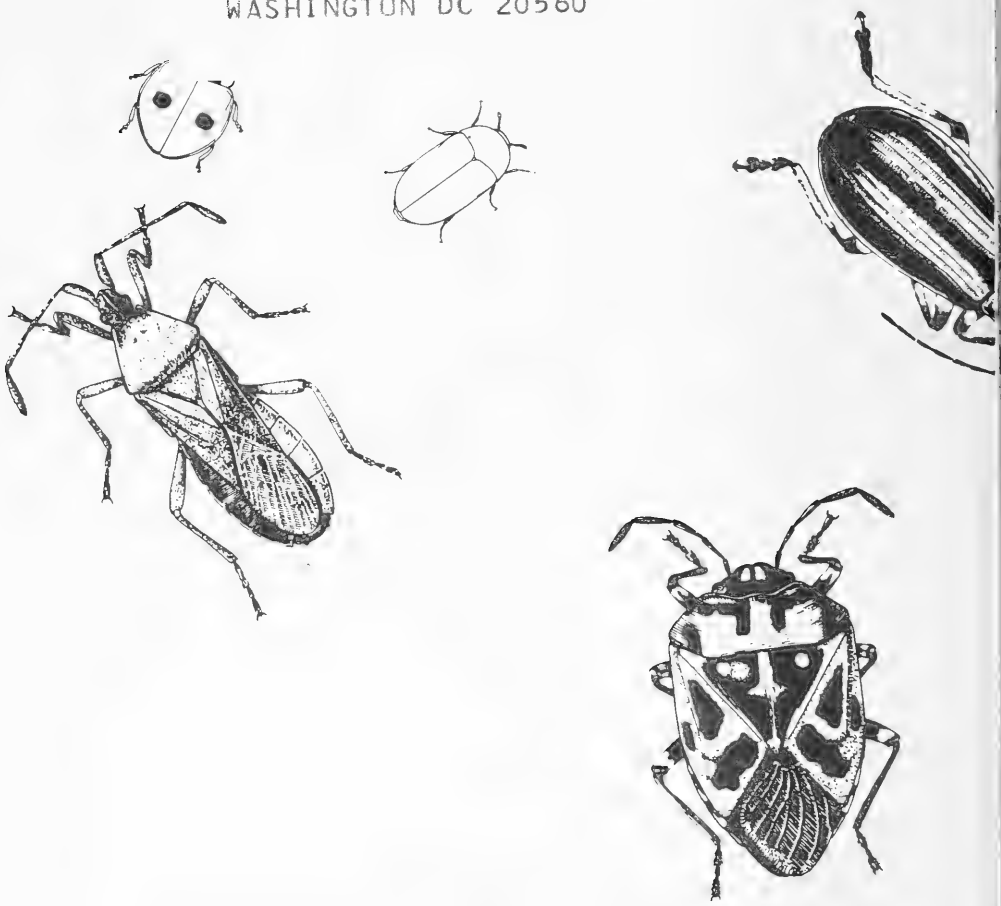

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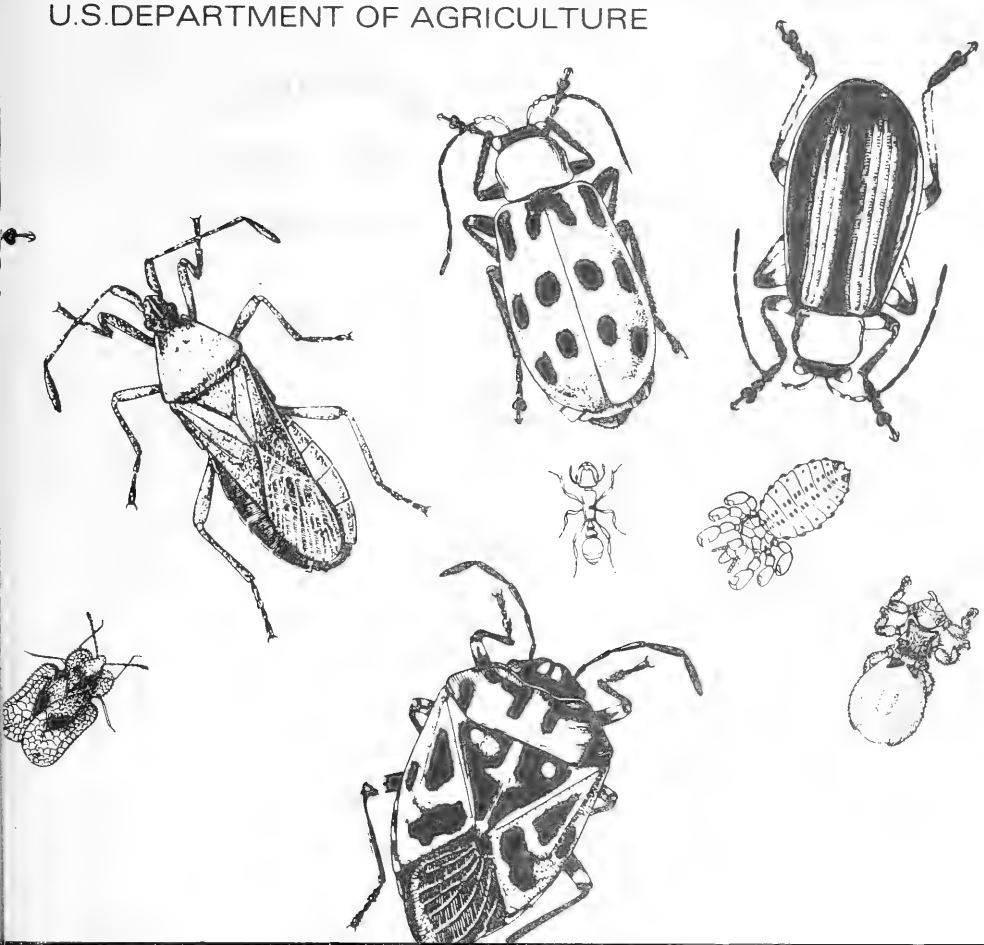

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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Volume 23 May 11, 1973 Number 19

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG infestations on small grains reduced by parasites and predators in north-central Texas, some light infestations reported on sorghum in central area of State. (p. 265).

First EUROPEAN CORN BORER moths of season reported in Maryland and Delaware. (p. 265).

ALFALFA WEEVIL damaging statewide in Kentucky, moderate to heavy on alfalfa in south-central and southwest Missouri, economic in southeast Kansas, and continued heavy on untreated alfalfa in most areas of Oklahoma. PEA APHID heavy on alfalfa in southeast New Mexico and on second-growth alfalfa in northeast Florida. (pp. 267-268).

PEA LEAF WEEVIL caused some severe damage in pea-growing areas in southern panhandle area of Idaho. (p. 269).

FACE FLY annoying livestock in all areas of Maryland west of Chesapeake Bay; active in New Hampshire and Vermont. ROCKY MOUNTAIN WOOD TICK active on rangelands in Utah. First AMERICAN DOG TICK adults of season in Maryland. (p. 272).

Detection

A THRIPS reported for the first time in Washington is a new United States record. This is the first occurrence in North America of this most common flower thrips of the Old World from Iceland to Japan. (p. 269).

New State records include three species of LACE BUGS from Nevada. (p. 271).

For new county records see page 274.

Special Reports

Periodical Cicadas - Outlook for 1973. (pp. 277-278).

Reports in this issue are for week ending May 4 unless otherwise indicated.

CONTENTS

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Seriously damaged alfalfa field in Finney County. Damaging infestations not seen in other fields. No damage to wheat noted in large number of fields checked in south-central and all western districts. (Bell). MONTANA - Early feeding on winter wheat with some bare ground reported in Liberty County; about 200 acres infested. Few wheat growers in Toole County report spots of 25 acres and less infested. (Pratt).

ARMYWORM (Pseudaletia unipuncta) - FLORIDA - Collected 10 larvae in 100 sweeps of oats and 5 larvae in 100 sweeps of rye at Gainesville, Alachua County. Determined by D.H. Habeck. (Mead).

CORN EARWORM (Heliothis zea) - ALABAMA - Third to fourth instar larvae ranged 1-5 per 10 sweeps of crimson clover in Barbour, Henry, Covington, and Monroe Counties. (McQueen).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Averaged 500 per 100 sweeps of barley and wheat in Willcox area, Cochise County. (Ariz. Coop. Sur.). TEXAS - Generally light on grain sorghum throughout south-central area. (Cole). ALABAMA - Developing broods of several hundred occurred on volunteer Johnsongrass in 100-acre cornfield at Goodway, Monroe County; some movement to 12 to 18-inch high corn noted. (McQueen).

GREENBUG (Schizaphis graminum) - TEXAS - Ranged 5-44 per row foot in small grains in Wilbarger and Foard Counties. Ranged 1-30 per row foot in Wichita County. Populations in Archer, Knox, Haskell, and Throckmorton Counties generally ranged 0-17 per row foot. In Wichita and Archer Counties, counts decreased by 25-50 percent due to parasitic wasps and lady beetle larvae. Parisitized greenbugs ranged 1-12 per linear row foot in several fields in these counties. Lady beetle larvae, nabids, and spiders active in greenbug populations in fields in Wilbarger and Foard Counties. (Boring). Generally light on grain sorghum at some locations in Milam, Caldwell, Guadalupe, and Brazos Counties. (Cole). NEW MEXICO - Moderate to heavy in wheat in Curry and Roosevelt Counties. (N.M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Some alfalfa in Chaves and Eddy Counties showed much damage. Controls applied. (N.M. Coop. Rpt.). NEBRASKA - Very light in Otoe County alfalfa; one specimen taken in 100 sweeps per field in 21 fields surveyed. (Manglitz). FLORIDA - Very light on alfalfa at Gainesville, Alachua County. (Mead).

CORN, SORGHUM, SUGARCANE

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Damaged field corn and reduced 50-acre stand by 10-15 percent at Bronson, Levy County. Damaged 12-inch high field corn in experimental plots at Gainesville, Alachua County; 10 percent of stalks damaged at soil surface. Determined by J.R. Strayer. (Johnson, Halsey).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - First adults of season taken in blacklight traps in Sussex County April 26 and in Kent County May 2. (Burbutis). MARYLAND - Pupation continued, first adults of season observed in Somerset County. (U. Md., Ent. Dept.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - Larvae, about 2 per drill row foot, caused significant damage in one field of small stunted wheat in Morton County. No damage by this pest seen in other wheat in this county or in other southwest district fields or in west-central and northwest districts. (Bell).

A BILLBUG (Sphenophorus callosus) - ALABAMA - Adults about destroyed 30-40 percent of 6 to 8-inch high corn along borders and row ends in 25-acre field at Haleburg, Henry County. Lesser damage occurred over entire field. (Penuel et al.).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Present in grain sorghum throughout Rio Grande Valley and in Bee, San Patricio, and Refugio Counties. Damage noted in only few fields. (Deer).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light on leaves and newly emerged heads in scattered northeast area wheat fields. Ranged up to 6 per stem in Tulsa County, up to 12 per stem in Ottawa County. (Okla. Coop. Sur.). FLORIDA - Light on wheat, oats, and rye at Gainesville, Alachua County. (Mead).

RICE STINK BUG (Oebalus pugnax) - FLORIDA - Adults per 100 sweeps at Gainesville, Alachua County: Wheat 3, oats 12, rye 20. (Mead).

HESSIAN FLY (Mayetiola destructor) - ALABAMA - Unusually heavy larval infestation destroyed 95-98 percent of 25-acre field of susceptible variety of wheat at Columbia, Henry County. Larvae ranged 10-30 on 100 percent of all stems in all clumps of wheat. (McQueen).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, 1-16 per linear row foot in few small grain fields in Knox, Haskell, and Foard Counties. Populations difficult to detect in most fields in Rolling Plains at this time. (Boring).

TURF, PASTURES, RANGELAND

HARVESTER ANTS (Pogonomyrmex spp.) - UTAH - P. occidentalis (western harvester ant) active throughout Cache County on warm days; foraging and clearing mound areas. P. owyheei clearing areas about mounds in Curlew Valley, Box Elder County. (Knowlton).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Larvae heaviest in alfalfa in Carroll and Frederick Counties; tip injury 20 percent in several fields (300 acres). Egg laying continued. Adults ranged 2-5 per 10 sweeps in Frederick, Baltimore, Carroll, and upper Montgomery Counties. Larvae in those heavily infested fields ranged 200-250 per 10 sweeps. Counts in Baltimore, Howard, Kent, Harford, and Queen Annes Counties ranged 10-100 per 10 sweeps. (U. Md., Ent. Dept.). WEST VIRGINIA - Based on five samples of 10 tips each, percent infestation by county as follows: Roane 28, Preston 16 and 48 in 2 fields, Mason 16. (Hacker). VIRGINIA - Based on 11 fields sampled (91 acres) in 7 counties, tip infestation of 6-inch tall alfalfa was 66 percent. Average estimated defoliation 7.3 percent. Of fields examined, 2 exceeded economic threshold of infestation (25 of 50 tips infested or 50 percent defoliation). Alfalfa 7 inches tall or above averaged 37.9 percent defoliation with 50 percent of field exceeding threshold of 20 percent defoliation. (Allen).

NORTH CAROLINA - Survey prior to treatment for Hypera postica showed 3-5 larvae per alfalfa tip in mountains and western Piedmont. In fields where treatment delayed later than April 20, extensive foliage damage occurred. (Brooks, Hunt). TENNESSEE - Based on 14 fields sampled in 8 counties, infested tips ranged 11-50 per 50 tips examined. Tip infestation ranged 22-100 percent. (Patrick et al.). KENTUCKY - Damaging statewide in alfalfa. Larvae ranged 4-5+ per tip on untreated fields in southern and western areas. In northern areas, infestations ranged 35-50 percent and larvae averaged 0.5, 1.5, and 3.2 per tip in 3 fields in Harrison County. In central areas, larvae averaged 3,000 per 100 sweeps in Bourbon County on untreated fields. Controls applied in most areas when weather permitted; have been ineffective as usual. (Barnett).

OHIO - First H. postica larvae taken April 29 in Wayne County. (Flessel). All instars observed in alfalfa examined May 1 in Franklin County. Light tip damage noticed in some fields. (Horn). INDIANA - Overall larval populations increased despite marked reductions in some fields due to treatment. Fields which previously had no apparent insect problem (mainly first-year fields) reaching problem stage. Hatch began in northern fields. Larvae infested 36 percent of Steuben County field and 48 percent of La Porte County field; averaged less than one per stem. Appears to be result of light egg deposition. (Huber et al.). ILLINOIS - Heavy rains and cool weather slowed development in alfalfa in northern three-fifths of State and caused populations to remain below economical level of 20 larvae per sweep. All counties south of line from Greene County to Cumberland County may have some fields showing economic levels. Untreated fields in area south of line from Madison County to Clay County may be classed as severely damaged. Populations generally heavier in western part of State than in eastern part. (Ill. Ins. Rpt.). WISCONSIN - Eggs hatching and occasional second-instar larva found in 10-inch alfalfa in Kenosha County. (Wis. Ins. Sur.).

MISSOURI - H. postica moderate to heavy on alfalfa in south-central and southwest areas; ranged 2-12 larvae per stem. Adults active in southern areas. Mating observed in 4 fields checked in south-central area. Plants showing terminal feeding ranged 80-100 percent. (Munson). NEBRASKA - Counts averaged 0.4 larva and 1.2 adults per 100 sweeps in 21 alfalfa fields surveyed in Otoe County. (Manglitz). KANSAS - Economic infestations increased in alfalfa in southeast district. Serious infestations found in scattered fields in Sumner, Harper, and Barber Counties. Damage most serious in fields making slow growth due to flooding or other reasons; occasionally fields with good growth showed much damage and had likely obtained maximum growth since heavy terminal feeding injury would prevent much further growth. One report of treating received from southeast district; high winds and rain probably discouraged treatment. First pupation noted in Montgomery County where some heavy damage seen in some fields. Pupation began in Elk County where all larval stages noted. No pupation seen in other counties. (Bell).

OKLAHOMA - H. postica still heavy in untreated alfalfa in most areas and increased to moderate in Alfalfa County. Many fields being cut instead of second spray in southern counties. Scattered fields cut early in northeast counties. Heavy damage to second crop reported in Caddo and Washita Counties. Larvae ranged 240-400

per square foot in Kay County. Average Hypera postica larval count per 10 sweeps: 1,950 in Tulsa County, 1,900 in Washington County, and 700 in Nowata County. (Okla. Coop. Sur.). ARKANSAS - Larvae ranged 50-60 per square foot in untreated alfalfa check plot in Washington County. (Boyer). TEXAS - Reported for first time in Hill, Cottle, and Hale Counties. Larvae generally light in alfalfa in southeastern Hale County. Light (less than 10 larvae per square foot) in Cottle County. Several producers in Cottle, Wilbarger, Hardeman, and Foard Counties applied treatment. (Boring et al.).

UTAH - H. postica activity light due to cool spring weather. Some eggs and small larvae in Cache County alfalfa. (Davis). NEVADA - Spotty and light on alfalfa in Fallon area, Churchill County; heaviest counts averaged 5 early larvae per sweep. (Adams). IDAHO - Adult feeding and ovipositioning noted in alfalfa in Post Falls area of Kootenai County where plants ranged 3-6 inches tall May 2. (Stranahan, Portman). Larvae ranged 2-15 per sweep in 8-10 sweeps per field in 5 northern Washington County alfalfa fields; adult averages ranged 1-3 per sweep. (Bolz).

PEA APHID (Acyrthosiphon pisum) - IDAHO - Ranged 2-4 per sweep in Washington County alfalfa field. Only occasional lady beetle adult observed May 2. (Bolz). ARIZONA - Ranged 70-280 per 100 sweeps of alfalfa at Yuma Valley and 60-350 at Gila Valley, Yuma County; light in Safford Valley, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Heavy in alfalfa in Chaves and Eddy Counties. Controls applied. (N.M. Coop. Rpt.). OKLAHOMA - Ranged 150-300 per 10 sweeps in untreated alfalfa in Tulsa, Washington, and Nowata Counties. (Okla. Coop. Sur.). KANSAS - No economic infestations found in alfalfa in counties surveyed in south-central and southeast districts. Scattered fields had significant populations, which may increase enough to cause some damage within next 14 days. Lady beetle adults and parasitism light in all fields checked. Counts highest in Cowley (up to 2,500 per 10 sweeps) and Barber (up to 1,000 per 10 sweeps) Counties. (Bell).

MISSOURI - A. pisum counts in south-central and southwest areas ranged 20-180 per 10 sweeps of alfalfa. No increase occurred. (Munson). NEBRASKA - Light but increasing on alfalfa in Otoe County; averaged 30 per 100 sweeps in 21 fields surveyed. (Manglitz). MINNESOTA - First of season on young alfalfa averaged 35 per 100 sweeps. (Minn. Pest Rpt.). WISCONSIN - Populations remain low, nymphs appearing. Mummies evident on alfalfa in Kenosha County. (Wis. Ins. Sur.). MARYLAND - Continued light in alfalfa throughout State. Ranged 20-55 per sweep in heaviest infested fields (about 500 acres); ranged 5-30 per 100 sweeps in remaining acreage in central area. Hymenopterous parasites continued active statewide. (U. Md., Ent. Dept.). FLORIDA - Counts on alfalfa at Gainesville, Alachua County, heaviest of year; increased drastically last 10 days of April. Estimated 23,000 nymphs and adults per 100 sweeps of maturing second-growth alfalfa having some blooms. (Mead).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - First nymphs of season active throughout central area. First instar nymphs ranged 3-14 per square foot in alfalfa and red clover. Counts heaviest in Frederick and Carroll Counties. (U. Md., Ent. Dept.). ILLINOIS - First nymphs of season observed; counts per 100 alfalfa stems by county: Effingham 1, Moultrie 8, Adams 2. (Ill. Ins. Rpt.). WISCONSIN - Appeared on node areas of alfalfa.

Populations very light in fields checked in Grant County; 1 mass per 30 stems. (Wis. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Adults and nymphs appear heavier than usual in crimson clover (1-3 per sweep) throughout southern and central areas. (McQueen).

COTTON

BOLLWORM (Heliothis zea) - ARKANSAS - First moth of season taken in light trap at Dell, Mississippi County, April 28. Species has been taken in light traps as early as late March in some years. (Boyer).

TOBACCO BUDWORM (Heliothis virescens) - ARKANSAS - Overwintering pupae, dug from soil in fields that produced cotton in 1972 in Lonoke County, reared to adults. Pupae collected at rate of about 1,000 per acre. (Boyer).

TOBACCO

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light on tobacco in Cook and Tift Counties. (French).

SUGAR BEETS

BEET LEAFMINER (Pegomya betae) - WASHINGTON - Eggs appeared on 2 to 4-leaf sugar beet plants April 25 at Toppenish, Yakima County. This is 10 days earlier than usual. (Landis).

MISCELLANEOUS FIELD CROPS

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Larval damage appeared in some central area peppermint fields. Larvae ranged 0-28 per square foot in Culver area field, Jefferson County; averaged 8 per square foot (based on 25 samples). Several instars present; majority third instar or smaller. (Berry).

BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Adult activity throughout pea-growing areas of Latah, Nez Perce, and Clearwater Counties continued variable. Some overwintering populations in alfalfa moved to pea fields. Weevils in green peas, determined by soil sieving, ranged 0-4+ per 2 to 3-inch tall pea plant. In some districts damage severe and required treatment; weevils of no importance in other districts. (O'Keeffe, Portman).

BEAN APHID (Aphis fabae) - ALABAMA - Increased explosively in home gardens and semi-commercial peas and beans in Henry, Monroe, and other southern counties. Alates ranged 2-6 and nymphs 5-25 on 80-90 percent of all buds and small leaves of plants in 2 to 4-leaf stages. Aphid development far ahead of predators and parasites. (McQueen).

A THRIPS (Frankliniella intonsa (Trybon)) - WASHINGTON - Collected from bush beans near Nugents Corner, Whatcom County, near Mount Baker by P. Eide during July 1972. Determined by K. O'Neill. This is a new United States record and the first record of the species in North America. (Harwood). F. intonsa is the commonest flower thrips in the Old World from Iceland to Japan. (PPQ).

DECIDUOUS FRUITS AND NUTS

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - NEW YORK - Moth catches increased significantly April 24 in Clinton County traps; moths flying in many orchards. Males taken in lure traps April 21-30. (N.Y. Wkly. Rpt.). CONNECTICUT - Adults active in orchards at East Lyme and New Haven. (Savos, May 1).

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - In Yakima County, adult males taken in pheromone traps in apple and pear trees in East Selah, Donald, Prosser, West Valley, Wenas, Buena, Gleed, and Yakima areas April 21-30. (Wade et al.). OREGON - Adults ranged 10-12 per pheromone trap in apple orchards near Milton-Freewater, Umatilla County, May 1. (Burkhart).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Moderately damaged fruit trees in Muskogee, Okmulgee, and Sequoyah Counties, and flowering peach in Creek County. In northeast area, larvae nearing maturity and some leaving trees to pupate. (Okla. Coop. Sur.).

PEAR PSYLLA (Psylla pyricola) - NEW HAMPSHIRE - Egg deposition heavy on pear trees at Durham, Strafford County, April 22. (Conklin). WASHINGTON - Fifth instar hardshells on pear at petal fall at Wapato and Buena, Yakima County, April 25; fourth-instar nymphs at West Yakima April 27; summer adult at West Wapato April 30. (Chandler et al.).

A SOFT SCALE (Lecanium pruinosum) - CALIFORNIA - Adults heavy on walnut trees in Orland, Glenn County. Infestations increased in number and in widespread areas. Eggs within females maturing; treatment will be necessary for crawler control in June. (Cal. Coop. Rpt.).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Adults very active about apple blossoms at Storrs. (Savos, May 1).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Large numbers of eggs hatched in Franklin County orchards May 1. (Holdsworth). CALIFORNIA - Populations built up in northern prune-growing areas. Treatment applied. Normal dormant treatments impossible in large number of orchards due to prolonged period of extremely wet weather. (Cal. Coop. Rpt.).

SMALL FRUITS

GRAPE ROOT BORER (Vitacea polistiformis) - NORTH CAROLINA - Larval root feeding killed 30-40 Scuppernong grape vines near Richlands, Onslow County. Extent of damage throughout vineyard not known at present. Damage previously most evident in Rutherford and Cleveland County area on bunch grapes. (Halsey, Weekman).

FRUITTREE LEAFROLLER (Archips argyrospilus) - CONNECTICUT - Larvae damaged opening blueberry buds at Stafford Springs. (Savos, May 1).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Overwintering broods (larvae, pupae, and adults) occurred under bark at lower portions of large pine trees on outer perimeter of late 1972 infestations at 4 locations in northern Monroe County. First emergence of season occurred at one location and new pitch tubes noted on nearby pines. One infested area to be cut immediately. (Zieback et al.).

PINE SPITTLEBUG (Aphrophora parallela) - MISSISSIPPI- Spittle masses prevalent on loblolly pines in 30-mile stretch of U.S. Highway 45 in Lowndes and Monroe Counties. Up to 22 nymphs counted on 20-foot loblolly pine in Monroe County. (Robinson). WISCONSIN - Spittle masses appeared on white pine in sandy soiled areas along Wisconsin River. (Wis. Ins. Sur.).

EASTERN SPRUCE GALL APHID (Adelges abietis) - WISCONSIN - Populations unusually heavy on spruce at a Kenosha County site. Egg laying about one-third complete, no hatch noted as of May 3. (Wis. Ins. Sur.). VERMONT - Egg laying observed April 25 at Burlington. (MacCollom).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - WASHINGTON - Much heavier on young spruce plants at Yelm, Thurston County, and Friday Harbor, San Juan County, April 9-30, than previously noted. (Baker).

A PINE SAWFLY (Neodiprion taedae linearis) - MISSISSIPPI - Defoliation moderate in tops of loblolly pines in 40-acre block in Lowndes County. This if first generation; larvae about one inch in length. (Robinson). TENNESSEE - Immatures observed on lobolly pine in Knox County. Collected and determined by C. Pless. This is a new county record. (Gordon).

SPRING CANKERWORM (Paleacrita vernata) - TENNESSEE - Damage not as serious as in past. Apparently, late freeze and frost in April killed overwintering eggs, greatly reducing population. (Gordon). KANSAS - First through third-instar larvae caused significant defoliation of elms and hackberry in Rossville, Shawnee County. (Bell).

A NOCTUID MOTH (Oncocnemis punctilinea) - CALIFORNIA - Larval infestation very heavy on ash trees in Arvin, Kern County. This species not commonly found in State. (Cal. Coop. Rpt.).

OAK LECANIUM (Lecanium quercifex) - MISSISSIPPI - Still heavy on oaks in Humphries, Sunflower, and Quitman Counties. Infestation about same as in 1972. (Robinson).

LACE BUGS (Corythucha spp.) - NEVADA - C. confraterna collected from Plantanus sp. (sycamore) at Boulder City, Clark County, April 10, 1973, by R.C. Bechtel and D.F. Zoller. C. montivaga collected from Urtica bolosericea (a nettle) at 7,500 feet in Big Creek Canyon, Lander County, June 30, 1971, by R.C. Bechtel and P.C. Martinelli. C. padi collected from Prunus virginiana var. demissa (a chokecherry) at Pioche, Lincoln County, August 24, 1971, by M.P. Miller. All determined by R.C. Froeschner. These are new State records. (Bechtel).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 18 confirmed cases reported in continental U.S. during period April 22-28 as follows: Texas - Brooks 3, Duval 3, San Saba 2, De Witt 1, Jim Hogg 1, Jim Wells 1, Kleberg 1, Llano 1; Arizona - Cochise 2, Pima 1, Pinal 1, Santa Cruz 1. Total of 143 cases confirmed from Mexico. Number of sterile flies released in U.S. during this period totaled 72,666,750 as follows: Texas 61,818,000; New Mexico 2,400,000; Arizona 8,448,750. Total of 96,961,750 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae, mostly H. bovis (northern cattle grub), averaged 1.5 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett).

FACE FLY (Musca autumnalis) - VERMONT - Active on cattle during warm days. (MacCollom, May 1). NEW HAMPSHIRE - Adults congregating on barns and houses since April 2 at Lee, Strafford County; emerge from hibernation. (Blickle, Apr. 30). MARYLAND - Annoyed livestock in all areas west of Chesapeake Bay and east of Allegany County. Heaviest counts ranged 20-38 per head in Carroll and Frederick Counties. (U. Md., Ent. Dept.). MISSISSIPPI - Light, less than one per face on cattle in Monroe County. (Robinson).

HORN FLY (Haematobia irritans) - ALABAMA - Increased, ranged 25-200 per animal in many herds of untreated beef and dairy cattle in southern areas of State. Treated herds practically free of infestations. (McQueen). OKLAHOMA - Avereged 200 per head on cows and 1,500 per head on bulls in Payne County; ranged 100-200 per head in Major County. Moderate in Comanche County, light in Garvin County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Light, ranged 5-10 per head in dairy and beef herds west of Chesapeake Bay. Expected to increase with approaching warm weather. (U. Md., Ent. Dept.). OKLAHOMA - Averaged 4 per head on dairy cattle checked in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - NEW HAMPSHIRE - Few Aedes spp. adults emerged past 14 days at Lee, Strafford County. (Blickle, Apr. 30). OHIO - First and second instars of A. triseriatus taken in Knox County. Species is suspected vector of California encephalitis. If wet weather continues, heavy populations can be expected. (Fox).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - UTAH - Active on rangelands in Curlew Valley of Box Elder County, and in Spanish Fork and Diamond Fork Canyons in Utah County. (Haws, Knowlton).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - First adults of season found on dogs and children near Norbeck, Montgomery County. (U. Md., Ent. Dept.).

MISCELLANEOUS WILD PLANTS

PAINTED LADY (Cynthia cardui*) - CALIFORNIA - Mass migration resulted in defoliation of many native plants in southern areas. Larvae resulting from earlier mass flights maturing and moving, caused semihazard on roadways and high nuisance in pupation areas. Emerging adults will continue infestations as they migrate. (Cal. Coop. Rpt.). UTAH - Migration continued throughout Cache Valley in Cache County; conspicuous April 28. Migration continued in Salt Lake, Weber, and Davis Counties; reported on warm days from several other counties. (Knowlton, Davis).

BENEFICIAL INSECTS

AN ENCYRTID WASP (Trechnites insidiosus) - WASHINGTON - More than 50 adults of this parasite of Psylla pyricola taken per tray April 19 and up to 22 per tray taken April 23 during surveys at Donald, Yakima County. (Chandler, Haverfield).

AN ICHNEUMON WASP (Bathyplectes curculionis) - OHIO - Adults of this alfalfa weevil parasite active in Clinton County alfalfa field April 23 and 24. (Horn). B. curculionis adults collected in Wayne County alfalfa April 27. (Flessel).

A PHYTOSEIID MITE (Zetzellia mali) - OHIO - This species, predaceous on Panonychus ulmi (European red mite), light (1 per 7 leaves) in Franklin County orchards May 1. (Holdsworth).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment in Kern and Kings Counties hampered by high winds. Minimum progress made; 5,951 acres treated on west side of Kern County near Taft, and 7,384 acres treated in Kettleman Hills in western Kings County. Combined acreage totals 19,166 acres to date. High winds caused vegetation to dry rapidly; survey revealed noticeable population shifts within breeding grounds and filtering of populations from breeding grounds to roadside weed hosts in cultivated areas. Spray operations continued in fast drying reproduction areas. Due to late planting of susceptible crops this year, roadside treatment contemplated. (Cal. Coop. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopus) - PENNSYLVANIA - One adult observed on winter wheat in Franklin Township, Carbon County, April 19. (Sporer). WEST VIRGINIA - First-instar larvae averaged 1 per square foot in wheat in Mason County. (Hacker). TENNESSEE - Surveys negative in Clay, Macon, Overton, Pickett, and Sumner Counties; these counties known to be infested. (Hammett, Gordon).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Eradication treatment made on half of 69 infested city blocks at Lindsay, Tulare County. Wind has been factor in spray work. At Delano, Kern County, infested area about half treated. Survey continued although weather adverse for spraying. (Cal. Coop. Rpt.).

* Field, W.D. 1971. Butterflies of the Genus Vanessa and of the Resurrected Genera Brassaris and Cynthia (Lepidoptera: Nymphalidae). Smithsonian Contributions to Zoology, No. 84

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Larvae, 175 per square foot, damaged about one acre of mixed grass and clover pasture near Blaine, Whatcom County, April 25. This is heaviest population seen this spring. (Campbell et al.).

GRASSHOPPERS - NORTH DAKOTA - Light hatch observed in McHenry County May 1. Up to 4 first instar Melanoplus sanguinipes nymphs per square yard; about 14-21 days earlier than in 1972. Egg development in Pierce, McHenry, and Bottineau Counties ranged from clear to segmented. No desiccated eggs evident. M. sanguinipes and M. bivittatus dominant in these counties. (Brandvik). MONTANA - Arphia conspersa adults found near Chester, Liberty County, and in Rosebud County. (Pratt). IDAHO - Cold, wet conditions in southern area slowed grasshopper egg development and spring hatch. (Pollard). Occasional unspecified first-instar nymph collected in alfalfa in northern Washington County May 2. (Bolz). OREGON - Oedaleonotus enigma and Melanoplus packardii eggs hatched on rangeland at scattered localities in northern Umatilla and Morrow Counties. (Brown).

GYPSY MOTH (Porthetria dispar) - VERMONT - Egg hatch observed at Orwell April 25. (MacCollom). NEW HAMPSHIRE - Eggs hatched at Plymouth, Grafton County, May 2. (Hutchins). PENNSYLVANIA - First hatch on oaks in Bethel Township, Lebanon County, April 19. General hatch reported along Blue Ridge in Berks and Schuylkill Counties April 24. Hatch noted at Resica Falls, Monroe County, April 23; in Haines and Penn Townships, Centre County, April 21. Egg density very heavy (86 masses per acre) on oak and cherry at Reels Corners, Somerset County, April 23; this is heaviest density in area, remainder less than 2 masses per acre. Hatch in this area 10 percent April 25. (Nichols et al.).

DETECTION

New United States Record - A THRIPS (Frankliniella intonsa (Trybon)) - WASHINGTON - Whatcom County. (p. 269).

New State Records - LACE BUGS (Corythuca spp.) - NEVADA - C. confraterna in Clark County, C. montivaga in Lander County, and C. padi in Lincoln County. (p. 271).

New County Records - ALFALFA WEEVIL (Hypera postica) TEXAS - Hill, Cottle, Hale (p. 269). A PINE SAWFLY (Neodiprion taedae linearis) TENNESSEE - Knox (p. 271).

Corn - CORN EARWORM (Heliothis zea) light on nearly mature sweet corn at Waimanalo, Oahu; early larvae on about 10 percent of ears. Heavy in adjacent mature corn; late larvae in about 55 percent of ears. (Kawamura).

General Vegetables - SOUTHERN GREEN STINK BUG (Nezara viridula) adults and numphs moderate on mature soybeans at Waimanalo. Four of 52 adults bore eggs of Trichopoda pennipes var. pilipes (a tachina fly). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy in this planting. Both species negligible in adjacent soybean planting (seedlings and young plants.) Larvae of a TORTRICID MOTH (Amorbia emigratella) heavy on long beans at Waimanalo; about 35 percent of young foliage moderately to heavily damaged and/or infested. Less than 5 percent (light) of foliage affected in adjacent planting. Adults trace in both fields, nil in another nearby planting. (Kawamura).

Fruits and Nuts - CITRUS SWALLOWTAIL (Papilio xuthus) adults light at large and young larvae noted on young foliage of 50 grapefruit seedlings at Kahuluu, Oahu. Trichogramma sp. (a minute egg parasite) parasitized 20 of 26 P. xuthus eggs collected on this host. (Kawamura). All stages of a FLAT MITE (Brevipalpus phoenicis) sporadically heavy on basal portion of leaf petioles and upper trunks of old papaya trees at Hakipuu, Oahu, and in abandoned papaya farm at South Kona, Hawaii. (Davis, Kawamura).

Beneficial Insects - A SCELIONID WASP (Trissolcus basalis) parasitized 100 percent of eggs in Nezara viridula (southern green stink bug) egg mass found on foliage of tomato plant at Paloho, Oahu. (Wong).

CORRECTIONS

CEIR 23(12):176 - Table at top of page 176 concerns SOUTHERN PINE BEETLE (Dendroctonus frontalis) infestations in the South (p. 175). The omitted title should read: "Reported Acreages Infested with Southern Pine Beetle and Volumes of Salvaged Timber."

CEIR 23(13):194 - EUROPEAN CHAFER (Amphimallon majalis) quarantines were revoked September 30, 1972, rather than July 30 as stated.

CEIR 23(16):228 - A SAWFLY (Eriocampa ovata) - Last line: Ulnus sp. should read Ulmus sp.

CEIR 23(17):236 and CEIR 23(18):251 - PAINTED LADY (Vanessa cardui) should read (Cynthia cardui). Field, W.D. 1971. Butterflies of the Genus Vanessa and of the Resurrected Genera Bassaris and Cynthia (Lepidoptera:Nymphalidae). Smithsonian Contributions to Zoology, No. 84.

CEIR 23(18):253 - REDBACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - "... near Prosser, Benton County." should read "... near George, Grant County." (Harwood).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (salt marsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege comstockalis (alfalfa webworm)	Loxostege cantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellow-striped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																							
Dell 4/26-5/2			BL	9						1							2	76					
Kelso 4/26-5/2			BL															4					
FLORIDA																							
Gainesville 4/30-5/4			BL				23												2		2		
KENTUCKY																							
Lexington 4/30-5/4			BL																		1	1	
MISSISSIPPI (County)																							
Washington 4/27-5/3	49-82	1.15	2BL	49	2		7										5	150	1		2		
NEBRASKA (County)																							
Clay 4/28-5/4			BL	5		6																	
OHIO																							
Wooster 4/27-5/3			BL	13														16					
PENNSYLVANIA (County)																							
Centre			BL	5														2					
TENNESSEE (Counties)																							
Franklin 4/30-5/4			BL	1										1				26					
Lake 4/30-5/4			BL	9												13	3	21					
Madison 4/30-5/4			BL	8														20					
TEXAS																							
Waco 4/26-5/3			BL	7	1		8										65	51	3		36	16	

Periodical Cicadas - Outlook for 1973

Brood XIII of periodical cicadas (17-year race) is scheduled to appear this year in the northern half of Illinois, the eastern quarter of Iowa, the extreme southern portions of Wisconsin and Michigan, and the northwestern corner of Indiana. Cicadas should appear suddenly in late May, and for about 6 weeks will fill the contryside with their remarkable song, mate, lay eggs in twigs, and pass away as suddenly as they appeared.

Brood XX, the 13-year race of periodical cicadas, is also scheduled to appear at scattered locations in Georgia, North Carolina, and Virginia. This brood has not been collected in recent years and is thought by some entomologists to be non-existant. 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.

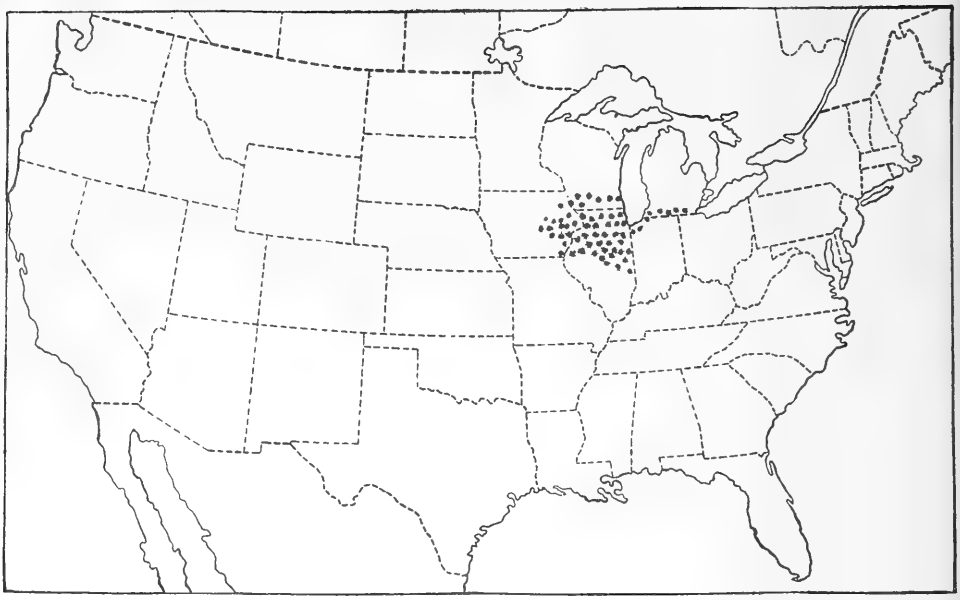
For maps on occurrences of Broods XIII and XX, see following page.

Table of Coincidence of Broods of Periodical Cicadas

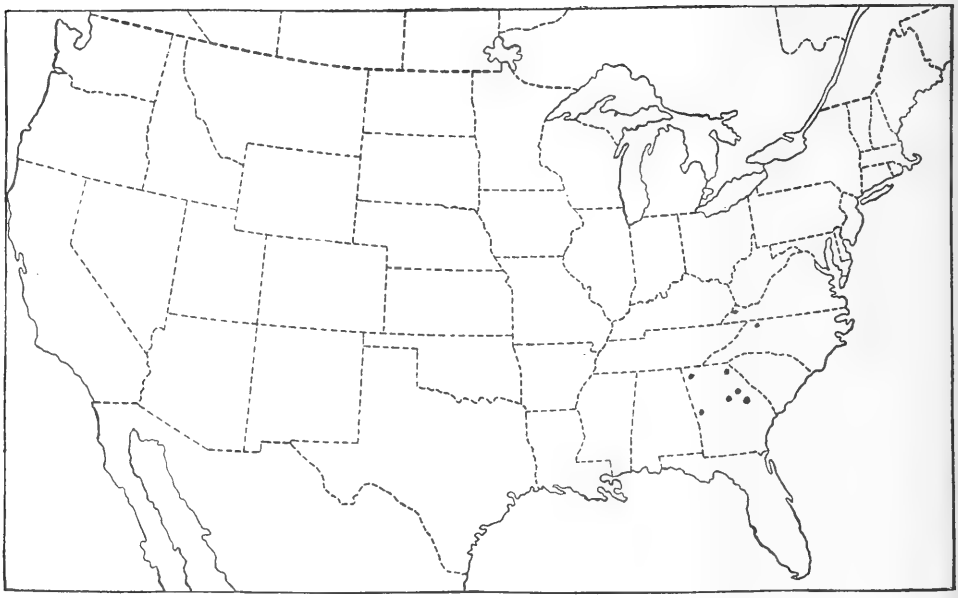
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
XVIII		1945				1932				1919				1906			
XIX			1946				1933				1920				1907		
XX				1947				1934				1921				1908	
XXI	1961				1948				1935				1922				1909
XXII		1962				1949				1936				1923			
XXIII			1963				1950				1937				1924		
XXIV				1964				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 XIII — 17-year race



Brood XX — 13-year race



Prepared by Pest Survey and Technical Support Staff, PPQ, APHIS.

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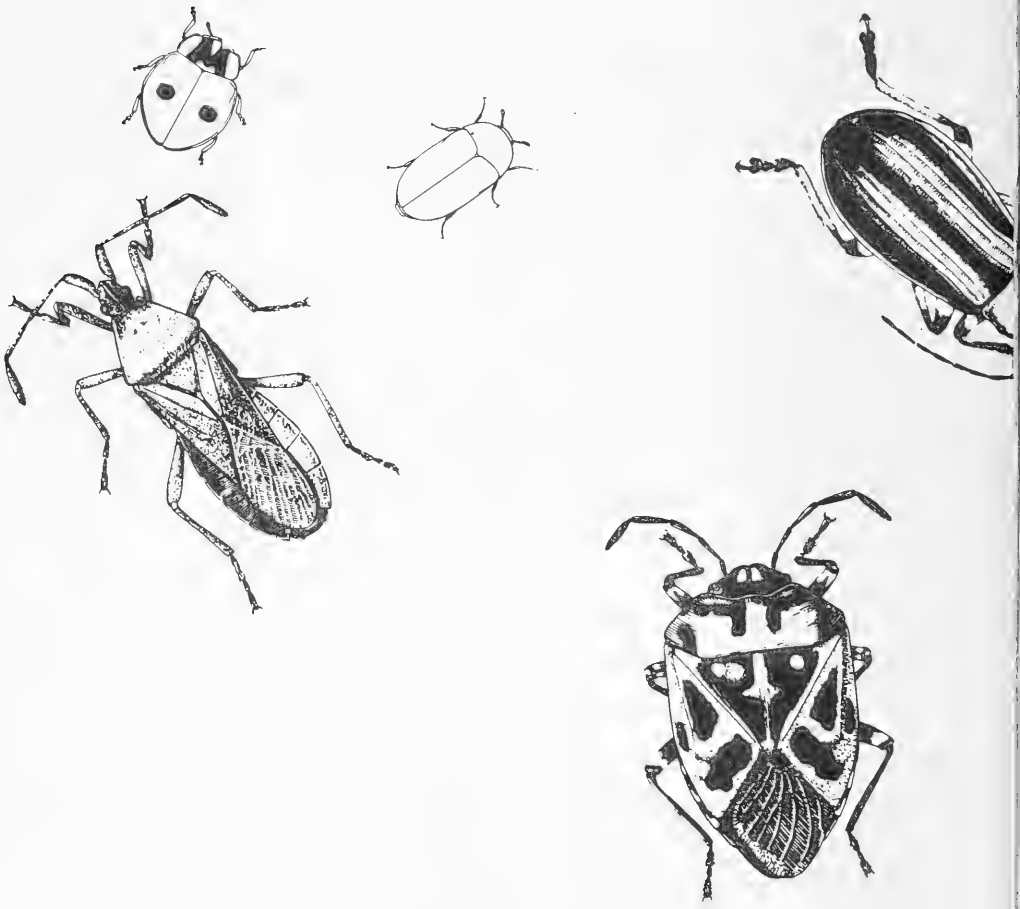

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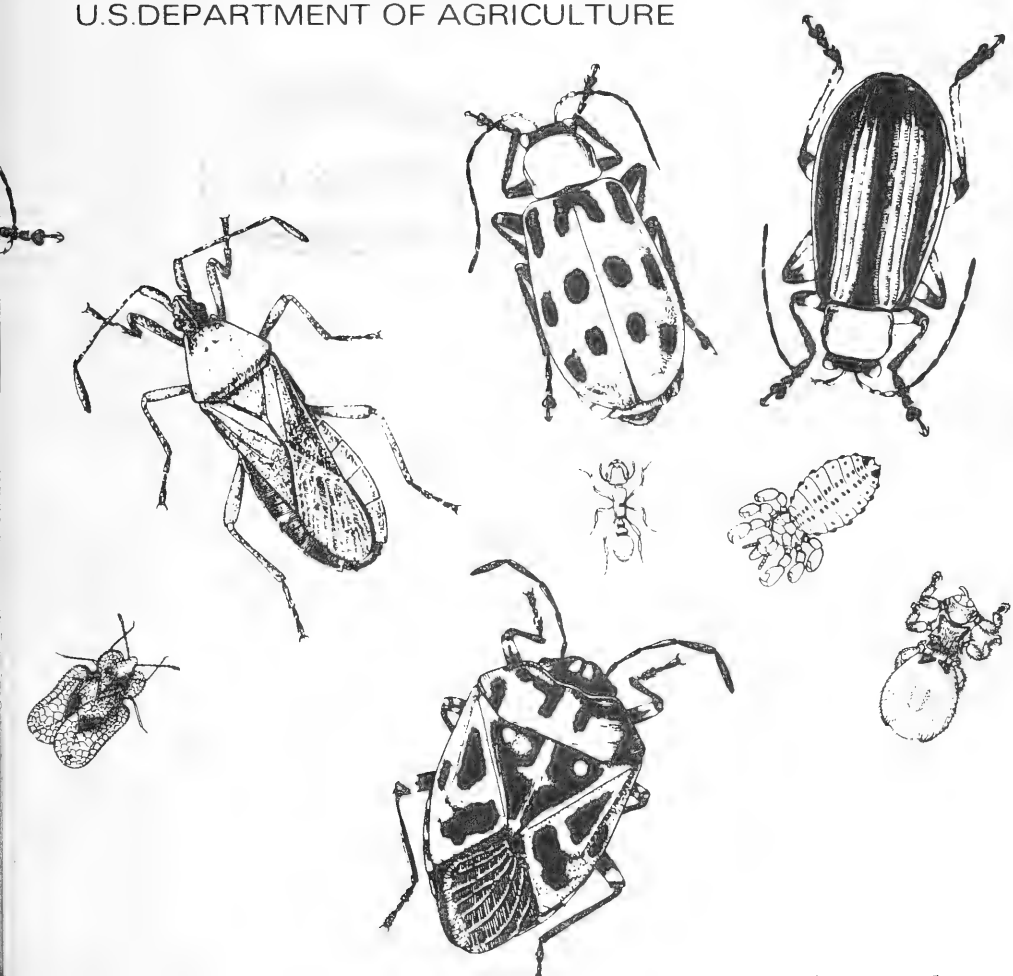

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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

ARMY CUTWORM caused moderate to heavy damage to alfalfa in southwest and south-central Oklahoma. (p. 281).

EUROPEAN CORN BORER first-generation population potentially heavy in west-central Minnesota; few adults in blacklight traps in Delaware. (p. 281). SOUTHERN CORN ROOTWORM damage to sorghum decreased in south-central Texas. (p. 282).

ALFALFA WEEVIL heavy and damaging alfalfa in southern Oklahoma, southeast and central Kansas, and southern Missouri; increased in western areas of Illinois and throughout New Jersey. (pp. 283-284).

SPRING CANKERWORM larvae active in shade trees in Nebraska, damage moderate to heavy in south-central Oklahoma. (p. 288).

MOSQUITO larvae moderate to heavy in Minnesota; very heavy in backwaters in western Tennessee. (p. 289).

Detection

A THRIPS reported in Florida is a new Continental United States record. Previously known in Hawaii. (p. 287).

New State records include a GALL MIDGE in Pennsylvania (p. 288), THRIPS in New Jersey (p. 285) and Georgia (p. 287), a TORTRICID MOTH in Pennsylvania (p. 287), and two WEEVILS in Georgia (pp. 280, 290).

For new county records see page 291.

Special Reports

Whitefringed Beetle Quarantines. Map. Centerfold.

Reports in this issue are for week ending May 11 unless otherwise indicated.

CONTENTS

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1973

The National Weather Service's 30-day outlook for mid-May to mid-June is for temperatures to average above seasonal normals in the upper Mississippi Valley, the Great Plains and central and southern portions of the Plateau region. Below normal temperatures are indicated for the central and south Atlantic Coast States. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal in the south Atlantic Coast States and northern New England. Subnormal totals are indicated for the southern Plains, the Plateau region, and the south Pacific coast. Elsewhere near normal amounts are in prospect.

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 MAY 14

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

PRECIPITATION: West of the Rockies, precipitation was either totally lacking or very light. The flooded Mississippi Valley, where 13.6 million acres lay under a flood last Monday, received from 0.8 to 2 inches of rain and hail.

Areas in the water-logged Deep South got from 2 to 4 inches of unneeded and unwanted rain plus some hail. Monday, a Low over Iowa created a front that situated itself about over Mississippi. While it rained in the Mississippi Valley's northern half, severe thunderstorms, large hail, tornadoes, and damaging winds struck southeast Texas, Louisiana, Arkansas, and western Tennessee. Weather of the week continued on page 294.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - MONTANA - Larvae ranged 3-5 per plant in 5,000 acres of alfalfa in Madison and Beaverhead Counties; 50 percent of larvae less than one-half inch in length. This is same area infested in 1972. (Pratt). OKLAHOMA - Moderate to heavy and damaged alfalfa in several southwest and south-central counties. Moderate in small grains in Jefferson and Love Counties and in gardens in Washita County. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - OKLAHOMA - Light in wheat in Walters area, Cotton County. (Okla. Coop. Sur.). MISSOURI - Small larvae very light in orchard grass in southwest area. Averaged less than 0.5 larva per square foot in all fields checked. (Munson). OHIO - Moths increased sharply in light traps. Only 10 percent as many moths caught in 1973 as in same period in 1972. (Rings). MARYLAND - First larvae of season found in Dorchester County; second instars in lodged areas of wheat. No infestations found outside this area. (U. Md., Ent. Dept.). DELAWARE - Adults ranged 2-3 per night in blacklight trap collections in Kent and Sussex Counties. (Burbutis).

GREENBUG (Schizaphis graminum) - TEXAS - Reported on sorghum in Karnes, Wilson, and Guadalupe Counties. Light activity noted on grain sorghum in Falls County. No economic damage reported. (Cole, Vahalic). KANSAS - None found in wheat or volunteer sorghum seedlings checked in Ellis County or in wheat in Greeley County. (Bell). MISSOURI - Light in orchard grass in southwest area. Ranged 1-2 small colonies per plant in spots within 3 of 7 fields checked. (Munson). MINNESOTA - Averaged 10 per 100 sweeps in blue-grass alleys between field plots at St. Paul. All were apterous and ranged from second instar to nearly mature. Some overwintering eggs began hatching about April 4. (Minn. Pest Rpt.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MINNESOTA - Overwintering populations much lighter than in 1972. Potentially heavy first-generation populations exist mainly in west-central district. June weather conditions will influence density. Overwintering mortality generally light, but pest should not be as serious a threat as in recent years. (Minn. Pest Rpt.). WISCONSIN - Larvae pupating in sandier soiled areas of western Dane County. (Wis. Ins. Sur.). INDIANA - Pupation about 50 percent complete in cornfield in Tippecanoe County. (Hogg). DELAWARE - Few adults, less than 1 per night, in blacklight traps in Kent and Sussex Counties. (Burbutis). ALABAMA - Pupation occurred in all corn stalks examined in several fields in Blount and Morgan Counties. (Houston et al.).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ALABAMA - Surveys for this pest and D. crambidoides (southern cornstalk borer) showed about 12 percent of larvae survived the winter in old corn stubble in Blount and Morgan Counties. No pupation to May 11. From 10 to 20 percent of stalks infested. (Houston et al.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - First adults of season found in early corn near Salisbury, Wicomico County. About 200 acres of newly emerged corn with 1-3 adults per 50 plants. (U. Md., Ent. Dept.).

CORN ROOTWORMS (Diabrotica spp.) - MINNESOTA - Caused estimated $7,232,700 loss to 1972 corn crop in State. Statewide populations and damage should be about same as in 1972. Populations will again be heaviest in southeast district and to lesser extent in southwest district. Fields with cropping history of corn for 2 years or more will most likely have problems. In 1972, 30 percent of corn acreage grown for grain in State was treated with soil insecticide for corn rootworm control. (Minn. Pest Rpt.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - TEXAS - Damage to sorghum in south-central area south of Austin decreased. (Cole).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - NORTH DAKOTA - One alate per 100 sweeps of winter rye in Richland County; first of season. (Brandvik). OKLAHOMA - Averaged 50 per head in wheat in Cotton County. Very light and scattered in northwest counties. (Okla. Coop. Sur.). MARYLAND - Population levels well below economic levels; expected to remain so. Counts throughout State ranged 1-15 per 10 sweeps in barley and wheat. (U. Md., Ent. Dept.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Larvae ranged 0-6 per linear foot on wheat in Kiowa County. No visible damage except where counts heaviest. (Hogan). OKLAHOMA - Remained light to moderate in wheat in Cimarron County. Few fields still being treated. (Okla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - TENNESSEE - Surveys in McMinn County negative in area of severe damage in 1972. (Mullett).

TURF, PASTURES, RANGELAND

BLUEGRASS BILLBUG (Sphenophorus parvulus) - NEBRASKA - Ranged up to 66 adults per square foot in sod field near Omaha, Douglas County, May 4. (Kindler).

WESTERN TENT CATERPILLAR (Malacosoma californicum) - UTAH - Infested antelope bush and other wild shrubs in range area between St. George and Hurricane and north of Santa Clara in Washington County. (Davis). Caused spotty damage to shade trees in some areas along Virgin River. (Hubner).

FORAGE LEGUMES

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Ranged 240-800 per 100 sweeps of alfalfa at Yuma Valley, Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Ranged 400-2,000 per 10 sweeps in untreated alfalfa in northwest area. Light in southwest area. (Okla. Coop. Sur.). KANSAS - No economic infestations seen in alfalfa. Few significant populations reported in some fields in Sumner and Harper Counties. (Bell). ARKANSAS - Counts remained at extremely low level for time of year. (Boyer). MISSOURI - Ranged 20-300 per 10 sweeps in untreated alfalfa in south-central and southwest areas. Most counts 20-40 per 10 sweeps with only 2 fields in high range. (Munson). ILLINOIS - Populations still light and noneconomic throughout area surveyed. Heaviest counts averaged 50 per sweep in Greene County. (Ill. Ins. Rpt.).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - PENNSYLVANIA - Adults totaled 4 and 471 per 100 sweeps on alfalfa in 2 fields in Nazareth area of Northampton County April 25. Pinholes found in small number of leaflets; few eggs also found. (Valley). NEW JERSEY - Adults present in many alfalfa fields. Counts of one adult per sweep common in Burlington County May 3 and Hunterdon County May 4. Many oviposition punctures noted in leaves. (Ins.-Dis. Newsltr.). VERMONT - No evidence of presence in alfalfa found to May 9. (MacCollom).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Ten pheromone traps in lower Yakima Valley averaged 2.9 adults (range 1-6). In Walla Walla area 170 adults taken in 45 of 49 traps; averaged 26 each (range 1-336). (Halfhill).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Larvae increased in alfalfa in Fallon area, Churchill County; highest counts ranged 25-30 per sweep and damage apparent. Ranged 0-2 per sweep in Lovelock area, Pershing County. (Arnett). UTAH - Light to moderate in alfalfa in St. George and Hurricane areas of Washington County. (Hubner). Average counts per square foot in Cache County: Adults 1, eggs 244, and larvae 48 at Richmond; eggs 300 and larvae 92 at North Logan. (Davis, Nebeker). WYOMING - Adult activity very light in alfalfa in Powell and Heart Mountain areas of Park County. (Burkhardt).

TEXAS - H. postica larvae, pupae, and adults found in alfalfa in Wichita and Wilbarger Counties. Larval populations heavy in some fields. Damaged hay crops in Motley and Fisher Counties. Some growers treating. (Boring). OKLAHOMA - Most alfalfa in southern half of State cut; reports indicate larvae heavy and destroying all regrowth in many areas. Many producers treated stubble. Newly emerged adults heavy in southwest area. Infestations continue heavy in northeast and north-central counties, some producers cutting early. In northwest counties, larvae ranged 700-2,050 per 10 sweeps in untreated alfalfa; many fields being treated. (Okla. Coop. Sur.). ARKANSAS - Larval counts heaviest of season on alfalfa; estimated at 4,000-5,000 per 100 sweeps in untreated check plot on University farm in Washington County. (Boyer). KANSAS - Damaging infestations common in alfalfa in southeast district except in Greenwood, Butler, Woodson, and Allen Counties. Early cutting common in Sumner and Harper Counties in south-central district where 25-30 percent defoliation common. Occasional damaging infestations noted in alfalfa surveyed in Miami, Linn, Anderson, and Coffey Counties in east-central district. Large number of pupae seen in cut fields in Sumner and Harper Counties; in one cut field larvae ranged 3-4 per stem in stubble between windrows. Counts lighter under alfalfa in windrows. (Bell). MISSOURI - Heavy populations reported throughout southern areas; most untreated alfalfa has been completely defoliated. All stages found in fields checked in southeast, south-central, and south-west areas. (Munson).

WISCONSIN - Hypera postica egg hatch well underway, but oviposition somewhat curtailed. No eggs found on second-growth alfalfa. Few second-instar larvae swept from some fields; occasional adults taken by daytime sweeping. (Wis. Ins. Sur.). ILLINOIS - Populations in alfalfa increased greatly in some areas, especially in west and west-southwest districts. In untreated fields where larvae ranged 1-10 per sweep 7 days ago currently ranged 30-50

per sweep; most evident in Adams and Scott Counties. In fields in Champaign, Livingston, and Ford Counties, directly east of Adams County, Hypera postica larvae ranged 0-12 per 100 sweeps. Area of potential damage is south of line from Henderson County to Douglas County. Alfalfa in this area ranged up to 20 inches in height and within 14 days of cutting. (Ill. Ins. Rpt.). MICHIGAN - Adults ranged 4-10 per 20 sweeps May 4 with first larvae reported on May 9, both in Ingham County. (Ruppel, Kaiser). INDIANA - Based on 35 fields sampled in 5 counties, leaf surface of alfalfa lost to feeding estimated to range from average of 15 percent in Harrison, Washington, and Jackson Counties in south-central district to 30 percent in Dubois County. Overall range from less than one percent to 80 percent loss per field. In northern districts, most fields had fewer than 30 percent of terminals showing feeding. Damage light, however, as most larvae second instar or younger. (Huber et al.).

KENTUCKY - H. postica larvae averaged 400 and 600 per 100 sweeps in alfalfa at 2 locations in Pendleton County. Alfalfa about 10 inches high; foliar loss ranged 20-25 percent. (Barnett). TENNESSEE - Based on 11 fields sampled in 9 counties, infested tips ranged 1-50 per 50 tips sampled. (Robinson et al.). VIRGINIA - Based on 13 fields sampled (104 acres) in 6 counties, tip infestation of alfalfa less than 6 inches tall 97 percent. Average estimated defoliation 22.5 percent. Two fields of those sampled exceeded economic threshold of infestation (25 of 50 tips infested or 50 percent defoliation). Alfalfa 7 inches in height or above averaged 22 percent defoliation with 45 percent of fields exceeding threshold of 20 percent defoliation. (Allen et al.). WEST VIRGINIA - Adults 5 and larvae 12 per 100 sweeps of alfalfa in Randolf County. In 20 acres sampled in Pleasants County, infestation averaged 74 percent with 10 percent defoliation noted. (Cutlip). MARYLAND - Heaviest infestations still restricted to Frederick, Carroll, and Howard Counties. Damage above economic thresholds (50 percent) observed in 150 acres of 600 acres surveyed. Some sprays applied in these counties. Most alfalfa acreage over State remains lightly infested; larvae ranged 50-200 per 10 sweeps with tip injury of 5-30 percent. However, damage expected to increase due to abundance of early instars in fields. First cuttings have begun in several counties with remainder to occur next 21 days. (U. Md., Ent. Dept.). NEW JERSEY - Appears to be on increase in alfalfa in State. Larvae ranged 3-5 per sweep in many Burlington County fields May 3. Warning of heavy infestations made in Gloucester, Salem, and Cumberland County area. (Ins.-Dis. Newsltr.).

VETCH BRUCHID (Bruchus brachialis) - OKLAHOMA - Moderate in vetch in early bloom in Jefferson and Love Counties. (Okla. Coop. Sur.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - MISSISSIPPI - Leggett trap catches increased in nondiapause program area of Webster County; averaged 34.7 per trap for 18 traps. In diapause control program area, catches averaged 4.8 per trap (16 traps) in Grenada County and 4.5 per trap (19 traps) in Yalobusha County. (Robinson). ALABAMA - Live weevils plentiful in Leggett traps during week ending May 4 in Macon and Lee Counties. Counts appear heavy for this time of year compared to most previous years. (Gilliland et al.).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - WYOMING - Pupation 90 percent complete in Powell area and 70 percent in Heart Mountain area of Park County. No adult emergence in these areas or in Worland area of Washakie County as of May 10. (Burkhardt).

MISCELLANEOUS FIELD CROPS

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Populations again heavy and caused economic loss to peppermint in central area. Surveys indicate varying population densities in most plantings in Jefferson and Crook Counties. Heavier infestations generally located south of Madras and in Culver City area of Jefferson County. Sampling around periphery of weak spots in unplowed mint revealed average larval counts of 3-6 per square foot (range 0-15) with 4 per square foot common. Small percentage of larvae in Madras area appear about full grown. (Penrose, Bowman).

A THRIPS (Taeniothrips frici) - NEW JERSEY - Collected in suction trap from asparagus at Mullica Hill, Gloucester County, June 17, 1971, by D.J. Prostak. Determined by K. O'Neill. This is a new State record. (Prostak). T. frici occurs in California, Oregon, Washington, and Hawaii in the U.S. Also known from Australia, New Zealand, Madeira Islands, Uruguay, Chile, Portugal, Romania, France, Germany, Czechoslovakia, Italy, U.S.S.R., Palestine, and central Asia. Hosts include calla lily, calendra, false dandelion, and dandelion in U.S. T. frici feeds on Chondrilla ambigua, C. pauciflora, and C. brevirostris in U.S.S.R. As far as is known, this thrips does not damage agricultural crops. (PPQ).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - WASHINGTON - Adults found in home garden at Washougal, Clark County, April 26. Presence not noted in area for 25 years; believed by home gardener to have been present on potatoes in 1972. (Wessler et al.). MARYLAND - Eggs deposited in Prince Georges, Somerset, and Worcester Counties. Heaviest adult counts in commercial potatoes ranged 1-3 per 100 plant tips. Feeding on newly emerged sprouts ranged 0-2 percent in all fields surveyed in Somerset and Worcester Counties. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma saucia) - CALIFORNIA - Very heavy larval populations defoliated potato plantings in Bakersfield area, Kern County. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - OREGON - Adults collected in pheromone traps at Corvallis, Benton County; Hood River, Hood River County; and The Dalles, Wasco County. Collections about 30 days earlier than in 1972. First cover spray should not be applied before 90 percent petal fall. (Penrose). OHIO - First adults of season caught in pheromone trap during period May 1-5. This is about 10 days earlier than in 1972. (Hall).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - MICHIGAN - Moth activity declined rapidly since April 28; trap catches decreased from 150+ per trap to 10-20 moths per trap through May 2. Probably due to variable weather rather than peak emergence. Egg masses observed. (Sauer). MASSACHUSETTS - Male adults ranged 8-11 per trap in treated and abandoned orchards in Easthampton and 6-57 per trap at Belchertown. (Jensen).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - CALIFORNIA - Infestations in some peach, prune, and plum orchards developed into problems as result of weather conditions that prevented dormant treatment. Crawlers emerged and needed control in some serious infestations. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - NEW HAMPSHIRE - Eggs began to hatch by May 7; few adults still laying eggs. (Bowman). CONNECTICUT - Nymphs easily found on pear trees in New Haven. (Savos, May 8). MICHIGAN - First-generation nymphs active on pear since April 30 in southwest counties. Hatch began in Grand Rapids area, Kent County, May 2. (Sauer). WASHINGTON - Summer adults appeared May 2 at Wapato and Donald, Yakima County. (Johnson et al.). Eggs and first and second-instar nymphs appeared at Green Bluff, Spokane County, May 3. (Eves, Chandler).

EUROPEAN APPLY SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Adults very heavy on apple blossoms at Storrs; also seen at New Haven. (Savos, May 8).

EUROPEAN RED MITE (Panonychus ulmi) - MAINE - Overwintering eggs began hatch May 3, about 2 weeks earlier than in 1972. (Gall). CONNETICUT - Adults on fruit trees at Woodstock, East Lyme, New Haven, and Storrs. No eggs seen. (Savos, May 8). NEW JERSEY - Summer eggs found May 7 in several southern area apple orchards. (Ins.-Dis. Newsltr.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - CONNECTICUT - Adults and eggs abundant on fruit trees in Storrs; some foliar damage evident. Few found in trees at New Haven. (Savos, May 8).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Activity increased in south-central area. Treatments in counties south of a line from Brazos to Travis Counties should be applied between May 12-18. Eggs, larvae, and few nutlet entries observed in Bastrop County. In Rolling Plains area, heavy damage by A. caryae overwintered larvae noted on pecan trees in Clay County. Larvae heavy in pecan trees in Wichita County near Iowa Park. Inspection of pecan trees in Wilbarger County showed large numbers of larvae present. (Boring et al.).

Used mechanized soil-moving equipment.

Used mechanized soil-moving equipment is exempt if cleaned of all loose, noncompacted soil.

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 whitefringed beetles, and the person in possession thereof has been so notified.

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED: *

1. Bulk soil.
2. Used mechanized soil-moving equipment.

   Used mechanized soil-moving equipment is exempt if cleaned of all loose, noncompacted soil.
3. 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 whitefringed beetles, and the person in possession thereof has been so notified.

* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

** Information as to approved laboratories may be obtained from an inspector

*** Exempt if not exposed to infestation after cleaning or other prescribed handling.

WHITEFRINGE

UNITED STATES
ANIMAL AND PLAN
PLANT PROTECTI
COOPERATIN

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;

COUNTIES WITH COLORED DOT ARE PARTIALLY REGULATED.

GENERALLY INFESTED AREA--STATE AND FEDERAL REGULATIONS.
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED.)

SUPPRESSIVE AREA--STATE AND FEDERAL REGULATIONS.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

STATE REGULATIONS ONLY.
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

ERADICATED--REGULATIONS REMOVED.

RESTRICTIONS ARE IMPOSED ON THE 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. GREEN WITHIN GREEN°.
5. BLUE INTO ANY OTHER AREA°°.

° WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

°°ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

Revised 7

SEE REVERSE SIDE FOR L

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.

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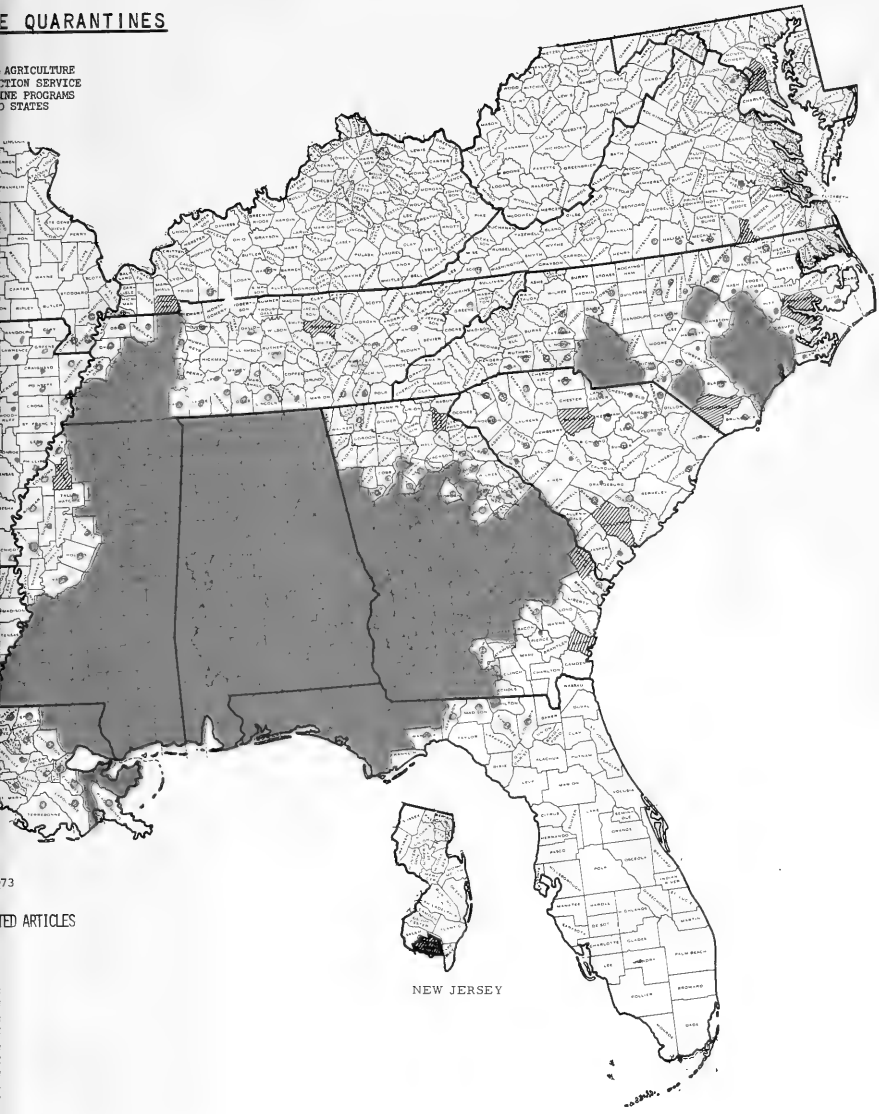

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TED ARTICLES

THE FOLLOWING REGULATED ARTICLES MOVED FROM GENERALLY INFESTED AREAS (RED) REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED: *

1. Soil, compost, decomposed manure, humus, muck, and peat separately or with other things.

Soil samples shipped to approved laboratories do not require attachment of certificate or permit. **

Compost, decomposed manure, humus, and peat are exempt *** if dehydrated, ground, pulverized, or compressed.

Potting soil is exempt if commercially prepared, packaged, and shipped in original containers.

2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.
6. Potatoes (Irish) when freshly harvested.
7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.
8. Uncleaned grass, grain, and legume seed.
9. Hay and straw.

PECAN WEEVIL (Curculio caryae) - TEXAS - Relatively large numbers of larvae and 2 adults found in soil under pecan trees in Clay County orchard about 1 mile northwest of Henrietta. (Boring).

ORNAMENTALS

A THRIPS (Taeniothrips hawaiiensis) - FLORIDA - Collected on 7 occasions at 5 locations in Volusia County from rose, Pittosporum tobira, Ligustrum japonica, blackberry, and viburnum by J.N. Pott. Earliest collection from rose at Daytona Beach April 19, 1967. Determined by S. Nakahara. This is a new United States record. (Mead). GEORGIA - Collected 5 times in Spaulding County during 1970 as follows: On sasangua October 23 and 31, and on camellia October 23 by H.H. Tippins; on blue sticky board August 11 and September 22 by R.J. Beshear. Determined by S. Nakahara. This is a new State record. (Beshear). These are the only known infestations in North America. Species is polyphagus and widely distributed in the Orient, southeast Asia, India, Pacific Islands, and Hawaii. T. hawaiiensis has been reported damaging orchids and as a minor pest of garden beans in Hawaii. (PPQ).

A TORTRICID MOTH (Clepsis fucans) - PENNSYLVANIA - Larvae collected on azalea at Wind Gap, Northampton County, January 3, 1973, by L. Semmel. Pupated January 15, adults emerged January 24. Determined by R.W. Hodges. This is a new State record and first record for eastern North America. (Valley).

AN ARMORED SCALE (Aonidomytilus solidaginis) - FLORIDA - Taken February 7, 1973, on Iva imbricata in nursery at Hobe Sound, Martin County, by E.W. Campbell. This is a new county record. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Epidemic which began upswing in August 1972, damaged estimated 12 million board feet and 72,000 cords of pine timber in central and southern Piedmont to April 1, 1973. Salvage to date limited to 30 percent due to excessively wet soils. Current outbreak extends from Virginia southward to Georgia and Alabama and westward to Texas, and constitutes worst in many years in Southeast. (Va. Div. For., March Rpt.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - PENNSYLVANIA - Adults and eggs collected on Douglas-fir in Upper Mifflin, Cumberland County, May 3. Woolly masses abundant and noticeable on about 100 percent of 2 acres of trees in Christmas tree plantation. Eggs also present. (Wert).

PINE SPITTLEBUG (Aphrophora parallela) - PENNSYLVANIA - Spittle masses evident in 200-acre overgrown Christmas tree plantation of Scotch pines 15 feet tall near Yellow Creek State Park east of Indiana, Indiana County; 25-50 percent of twigs infested. (Simons). Nymph collected on Scotch pine in Camp Hill, Cumberland County, May 1. (Wheeler). TENNESSEE - Light on loblolly pine in Fayette County; very heavy on Scotch pine in same area. (Locke).

A GALL MIDGE (Thecodiplosis pinirigidae) - PENNSYLVANIA - Galls collected from pitch pine in Mont Alto, Franklin County, March 8, 1973, by B. Towers. About 1 percent of trees six feet tall with 70 percent of needles deformed in 2-acre infestation. Determined by R.J. Gagne. This is a new State record. (Kim).

A PSILID FLY (Chyliza annulipes) - VIRGINIA - Twenty-six puparia collected from under pitch tubes on Pinus virginiana (Virginia pine) in Smyth County, January 16, 1973, by J. Severt. Puparia held in laboratory until adults emerged January 30. Determined by G.C. Steyskal. (Copony). Species known from North America only by record from Massachusetts dated 1920 and one from Virginia, the source of which is unknown. Larvae of the family Psilidae are phytophagus, living in roots and stems of plants and under bark of trees, gaining access through wounds. Known wild hosts in North America are Lupinus, Pinus, and Ulmus, and in Europe, Carex, Juncus, Neottia, Orobanche, Scabiosa, and Spiraea. Adults rest on foliage and herbage, mostly in shady situations. Psila rosae (carrot rust fly) is the most injurious species in the Family. (PPQ).

SPRING CANKERWORM (Paleacrita vernata) - NEBRASKA - Treatment underway in Boone and Nance Counties. (Hames). Activity on shade trees increased in Lincoln, Lancaster County. Larvae ranged third to fourth instar May 11. (Keith). OKLAHOMA - Damage moderate to heavy to elm, hackberry, and sycamore in Cleveland, McClain, Garvin, Murray, Carter, Marshall, and Love Counties past 14 days. (Okla. Coop. Sur.).

OAK SKELETONIZER (Bucculatrix ainsliella) - MICHIGAN - Adult emergence about 15 percent during late April in Genesee County. Severe infestations on oak in Ingham County appear to be heavily parasitized. (Sauer).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NEBRASKA - Tents common in southeast, central, and northern crop districts on wild Prunus spp. and on occasional fruit trees. Numerous on Prunus spp. in Thomas County May 5. Determined by L.L. Peters. This is a new county record. (Barber).

FOREST TENT CATERPILLAR (Malacosoma disstria) - KENTUCKY - Damaged trees over about 2,000 acres in Muhlenberg, McLean, and Hopkins Counties. (Nordin).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Few adults and egg masses noted on Siberian elms in Shawnee County. None found on elms checked in Riley County. (Bell). OKLAHOMA - Eggs numerous on Siberian elms in Payne and Major Counties, larvae appeared in Payne County. (Okla. Coop. Sur.).

A WEEVIL (Stenoscelis brevis) - GEORGIA - Collected on Pinus echinata (shortleaf pine) in Clarke County June 24, 1967, by R.T. Franklin. Determined by R.E. Warner. This is a new State record. (Franklin). Recorded hosts include bay, dogwood, elder, gum, hickory, ironwood, maple, oak, poplar, and other deciduous species. (PPQ).

AN ARMORED SCALE (Hemiberlesia diffinis) - FLORIDA - Adults collected March 6, 1973, on Persea sp. (red bay) in Palm Beach County by W.H. Pierce. This is a new county record. (Fla. Coop. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochiomyia hominivorax) - Total of 28 confirmed cases reported in the continental U.S. during period April 29-May 5 as follows: Texas 13, Arizona 15. Total of 208 cases confirmed in Mexico. Number of sterile flies released in U.S. during this period totaled 85,416,250 as follows: Texas 71,140,000; New Mexico 2,962,500; and Arizona 11,313,750. Total of 83,629,500 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae, mostly H. bovis (northern cattle grub), averaged 1.9 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett).

FACE FLY (Musca autumnalis) - MARYLAND - Annoying cattle in all areas west of Kent and Prince Georges Counties. Counts increased slightly; heaviest counts ranged 10-40 per head. Most dairy herdsmen applying chemicals to dairy stock. Horses and beef cattle host heaviest counts. (U. Md., Ent. Dept.). MISSISSIPPI - Populations still at low levels with less than 1 per face in Lee and Monroe Counties. (Robinson).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Population slightly below 1972 records for time of year; averaged 50 per cow in Oktibbeha, Clay, Monroe, and Lee Counties. (Robinson). OKLAHOMA - Averaged 200 per head on cattle in Payne and Major Counties. Moderate in Comanche County and light in Beckham, Pawnee, Nowata, and Oklahoma Counties. (Okla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - WYOMING - Ranged 19-152 (averaged 73.6) per head on ewes and 7-18 (averaged 12.6) per head on lambs in Albany County. (Pfadt et al.).

MOSQUITOES - WYOMING - Aedes spp. larvae hatching in temporary pools in Albany County. (Forcum). TEXAS - Adults of Culex salinarius, Psorophora confinnis, and P. ciliata taken at Pleasure Island, Jefferson County. (Thompson). MINNESOTA - Rains of April 30 to May 2 resulted in moderate to heavy brood of A. vexans, most prolific and troublesome species in State. Now in second and third instars. Control efforts during past few weeks all but eliminated early single-brood Aedes in Metropolitan Mosquito Control District. Controls now directed toward eliminating present brood of A. vexans. (Minn. Pest Rpt.). TENNESSEE - Larvae of various species very heavy in backwaters of western area. (Locke).

A BLACK FLY (Simulium venustum) - NORTH DAKOTA - Annoyed horses along Sheyenne River in Cass County; averaged 25 per ear on 8 head during sunny periods of day. (Brandvik).

MISCELLANEOUS WILD PLANTS

PAINTED LADY (Cynthia cardui) - NEBRASKA - Migratory flight observed May 10 in Hamilton County moving south to southeast. Counts ranged 10-30 per mile while observer traveled at speed of 60 miles per hour across flight pattern. (Roselle). UTAH - Migration caused much interest throughout State past 21 days. Flight very heavy through Salt Lake, Weber, Tooele, Davis, Box Elder, and Cache Counties May 5. (Knowlton). Flight continued May 8 from Utah County through Box Elder and Cache Counties, but was much lighter. (Bohart et al.). This was heaviest adult spring

migration through Utah County in 20 years. (Phillips). IDAHO - Large numbers of adults observed in vicinity of American Falls, Power County, May 5. Had disappeared by May 7. (Schow, Sandvol). NEVADA - Larval infestations heavy on various plants in yards and gardens in Las Vegas and Boulder City areas, Clark County. Larvae migrated into business establishments from depleted or drying food supplies and caused concern in Las Vegas area, Clark County. (Zoller).

A WEEVIL (Perigaster obscura) - GEORGIA - Adults taken in light trap at Robins Air Force Base, Houston County, March 16, 1973, by J. Horvath. Determined by R.E. Warner. This is a new State record. (Owens). This weevil has been recorded from Louisiana, Mississippi, Alabama, Florida, Virginia, Maryland, and the District of Columbia. (PPQ).

BENEFICIAL INSECTS

A MYMARID WASP (Anaphes flavipes) - MICHIGAN - This egg parasitoid of Oulema melanopus (cereal leaf beetle) collected in Berrien County May 10, 1973, by P.R. De Witt. Recovery made from host eggs found on wild grasses. This represents the sixth consecutive year for recovery of A. flavipes after release in Berrien County. (Burger).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Adults present in most northwest area alfalfa. Ranged up to 4 per 10 sweeps. (Okla. Coop. Sur.).

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults and larvae common in most untreated alfalfa in northwest area. Ranged up to 10 per 10 sweeps. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - PENNSYLVANIA - Three adults per 100 sweeps on wheat in Peters Township, Franklin County, May 2 and in North Woodbury, Blair County. (Maxwell). WEST VIRGINIA - Averaged 2 eggs and 2 second-instar larvae per square foot of oats and 4 adults per 100 sweeps of wheat in Mason County. Averaged 1 egg per square foot in oats in Upshur County. Adults 4 per 100 sweeps, larvae 1, and eggs 2 per square foot of oats in Cabelle County. (Hacker). MICHIGAN - Eggs ranged 2-3 per 10 wheat stems in field near Berrien Springs, Berrien County, May 3; wheat in 4 to 5-leaf stage and 12-14 inches high. Adult activity deterred by cold weather; no larvae seen. (Webster). First and second-instar larvae observed on wild grasses near Niles, Berrien County, May 9. (Burger).

GRASS BUGS - UTAH - Labops hesperius egg hatch heavy with 100-200 nymphs per square foot in Wanrhodes Canyon, Utah County, ranged from second instar to full grown May 8. (Haws). NEVADA - Nymphs and adults of Irbisia brachycera ranged 30+ per clump of wild rye and wheatgrass on rangeland in Reno-Sparks area, Washoe County. (Bechtel).

GRASSHOPPERS - NORTH DAKOTA - Light hatch occurred in Cass, Richland, and Ransom Counties. First-instar nymphs of Melanoplus bivittatus and M. sanguinipes averaged less than 1 per square yard in roadsides. (Brandvik). MINNESOTA - Expected to be moderate to heavy in small areas of east-central, central,

west-central, and south-central districts. Alfalfa and other forage crops will be primary host plants. Late April egg mass survey in Kittson and Marshall Counties revealed some heavy roadside and field margin concentrations of egg pods. Certain areas in western parts of these counties can expect substantial numbers of grasshoppers to emerge. Farmers should be prepared to treat to prevent infestation of nearby grain crops. Primary species in area will again be Melanoplus bivittatus (twostriped grasshopper). Egg development indicated major hatch will start in late May. Adverse weather could influence hatch and early nymphal development modifying the outlook somewhat in all areas. (Minn. Pest Rpt.).

ARIZONA - Migration of Trimerotropis pallidipennis from desert areas at Willcox, Cochise County, increased. Adults numerous at lighted windows of retail establishments at Nogales, Santa Cruz County. (Ariz. Coop. Sur.). IDAHO - Few first-instar grasshopper nymphs swept from alfalfa May 8 at Lewiston, Nez Perce County, and at Manns Creek, Washington County. (Gross, Kambitsch). WASHINGTON - Cool weather slowed hatch and development of M. sanguinipes, M. bivittatus, and Oedaleonotus enigma in eastern areas but economic populations still developed in some areas. Rangelands in Franklin and southern Benton Counties show first and second-instar nymphs ranged 8-50 per square yard. Infestation covers about 80,000 acres from Plymouth west to Alder Creek. Hatch continued in Walla Walla, Whitman, and Adams Counties. Economic counts noted only in Penawawa Canyon of Whitman County. (PPQ).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - First egg hatch April 19 in Providence County, April 30 in Washington County; 90 percent of larvae feeding in Providence County and 50 percent in Washington County May 1. (LaFrance). CONNETICUT - Larvae ballooning in large numbers in eastern area. Many nuisance complaints. Second-instar larvae noted feeding on trees and blueberry blossoms in Storrs area. (Schroeder, Savos).

DETECTION

New Continental United States Record - A THRIPS (Taeniothrips hawaiiensis) - FLORIDA - Volusia County. (p. 287).

New State Records - A GALL MIDGE (Thecodiplosis pinirigidae) - PENNSYLVANIA - Franklin County. (p. 288). THRIPS - Taeniothrips frici - NEW JERSEY - Gloucester County. (p. 285). Taeniothrips hawaiiensis - GEORGIA - Spaulding County. (p. 287). A TORTRICID MOTH (Clepsis fucans) - PENNSYLVANIA - Northampton County. (p. 287). WEEVILS - GEORGIA - Perigaster obscura - Houston County (p. 290); Stenoscelis brevis - Clark County (p. 288).

New County Records - ARMORED SCALES - FLORIDA - Aonidomytilus solidaginis - Martin (p. 287); Hemiberlesia diffinis - Palm Beach (p. 288). EASTERN TENT CATERPILLAR (Malacosoma americanum) NEBRASKA - Thomas (p. 288).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (salt marsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																							
Kelso 5/3-9			BL	3					2	1								1	2				
FLORIDA																							
Gainesville 5/7-11			BL				35								1				16		3		
MISSISSIPPI (County)																							
Washington 5/4-10	52-84	.44	2BL	15			5	1	3									12	17	2		4	
NEBRASKA (County)																							
Clay 5/4-10			BL	5		14													19				
OHIO																							
Wooster 5/4-10			BL	15															48				
TENNESSEE (Counties)																							
Hardeman 5/7-11			BL	18			6	4	2							7	3	24					
Haywood 5/7-11			BL	2	1												1	2					
Washington 5/7-11			BL	5														20					
TEXAS																							
Waco 5/7-11			BL	7	1		8		18								65	51	3		36	16	

Turf and Pastures - Larvae of GRASS WEBWORM (Herpetogramma licarsisalis) caused light, spotty damage in few pastures at Haiku, Maui; ranged up to 5 per square foot in infested spots but overall average less than one per square foot. Eucelatoria armigera (a tachina fly) parasitized 2 percent of larvae, Casinaria infesta (an ichneumon wasp) parasitized another 2 percent of larvae. Pastures in other areas on Maui free of H. licarsisalis activity. (Miyahira).

Fruit and Nuts - Larvae of a BARK BEETLE (Xylosandrus compactus) heavy in wild and backyard avocado trees in Honaunau, Hawaii; 50+ percent of terminals infested on many trees. Mortality of avocado seedlings and saplings observed. Infestations also noted in twigs of coffee, litchi, cashew, avocado, and Euphoria longan at experiment station in Kainaliu. (Davis, Yoshioka). LITCHI FRUIT MOTH (Cryptophlebia ombrodelta) larvae moderate in half-ripe litchi fruits in Kaimuki, Oahu. Larvae feeding within soft seed of fruit. (Funasaki).

Man and Animals - MOSQUITO collections from 58 light traps operated on Oahu during April totaled 314 Aedes vexans nocturnus and 619 Culex pipiens quinquefasciatus. Aedes catches heaviest (168) at Kahaluu, Culex catches heaviest (94) at Kahana. (Vector Control Br., State Dept. Health).

Beneficial Insects - A LADY BEETLE (Harmonia conformis) recovered along Mauna Loa Strip Road, Hawaii Volcanoes National Park, and appears to be established in Acacia koaia Sanctuary, Kohala, Hawaii. Larvae noted on young Acacia terminals heavily infested with Psylla uncatoides (a psyllid) in these areas. H. conformis first released in Kohala in January 1973 and at Volcanoes National Park in February 1973 to aid in control of P. uncatoides. (Yoshioka). Melanagromyza phaseoli (bean fly) remained under good control on Maui and Kauai. One hundred percent of bean fly pupae collected from various beans at Puunene and Waikapu, Maui, parasitized by a BRACONID WASP (Opius importatus) and a PTEROMALID WASP (Halticoptera patellana). On Kauai, 38-100 percent of bean fly pupal samplings from snap beans and cow peas from 5 localities parasitized by H. patellana, O. importatus, or O. phaseoli. (Miyahira, Sugawa). MELASTOMA BORER (Selca brunella) larvae infested 33 of 100 fruits of Melastoma malabathricum (a noxious weed) inspected; 500 terminals revealed larval infestation of 28 percent. On Kauai, fruit examined showed 41 percent larval infestation at Hanahanapuni, 21 percent at Knudsen Gap, and 34 percent at Kapahi. (Yoshioka, Sugawa).

CORRECTIONS

CEIR 23(18):256 - PINE FALSE WEBWORM (Acantholyda erythrocephala) PENNSYLVANIA - "Egg masses and single male moth collected ..." should read "Egg masses and single male collected ..." A. erythrocephala is a webspinning sawfly (Hymenoptera:Pamphiliidae). This was an editorial error. (PPQ).

CEIR 23(19):275 - HAWAII INSECT REPORT - General Vegetables - line seven "... a TORTRICID MOTH (Amorbia emigratella) ..." should read "... MEXICAN LEAFROLLER (Amorbia emigratella)..."

Weather of the week continued from page 280.
Trimble, Mississippi, reported 3 inches of rain in 12 hours. In Poplar Bluff, Missouri, a tornado overturned boxcars and winds up to 90 m.p.h. were reported. Tuesday, thunderstorms spread into the Ohio Valley and the Eastern Gulf States. In Geraldine, Alabama, a tornado touched down and killed one and injured 18. Portions of Georgia and Alabama had flash floods. Late Tuesday the storm moved on to the East Coast and dumped more rain while it cleared over the Corn Belt. The Corn Belt enjoyed one clear day before the whole show repeated itself. A strong system developed and intensified over the northern Rockies early Wednesday. Late Wednesday, severe weather returned to the upper Mississippi Valley. In St. Wendell, Minnesota, a tornado touched down and caused one death, 11 injuries, and ravaged a trailer camp. A mid-western Low continued to drift east until it reached the Mississippi where it broke up into a freak collection of small High and Low pressure systems which scattered around the Nations midsection. Omaha, Nebraska, reported winds up to 60 m.p.h. Golf-ball sized hail pelted Columbia, Missouri, 0.75 inch of rain fell in Mississippi flood area, at St. Louis, 3 inch hail struck Bernie, Missouri. Afternoon tornadoes struck three States. At Mansfield, Ohio, a tornado killed one person and damaged a motel and homes. Friday, violent thunderstorms reached south into Kentucky and Tennessee. Two tornadoes visited each State. Marble-size hail pelted an area near Harrison, Arkansas, where winds of almost 50 m.p.h. were reported. Winds of 89 m.p.h. were clocked at the Birmingham, Alabama, airport. The Corn Belt remained cloudy all day; rain was light and scattered. Saturday, a large High over the northern Rockies brought clear weather to the Central States. Sunday, clear, cool weather extended to the Appalachians. Cloudiness remained over the upper Mississippi Valley. Light rain fell over Lakes Erie and Ontario, light snow blanketed upper Michigan. Otherwise thunderstorms were widely scattered across the Nation, notably the Florida Peninsula and across the central and southern Rockies.

TEMPERATURE: Most of the Nations midsection and the Northwest spent a cooler than average week mainly due to a High moving south from Canada into the Dakotas. Higher than average temperatures prevailed over most of the east and west coasts, gulf areas, the Deep South, and parts of the Corn Belt and the Southwest. Monday and Tuesday morning temperatures were mild. A few scattered areas fell below freezing, mainly near the Canadian border and higher Rocky Mountain elevations. Wednesday was fair and pleasant over the Nation, it did get cold enough to snow in western Washington. During the night, temperatures dipped to 29 at Butte and Lewistown, Montana; Douglas, Wyoming; and Salmon, Idaho, because cold air pushed in from Canada. In the Nations southern third, however, Thursday temperatures reached the 80's and 90's. They pushed above the 100 mark in the California desert. Miami Beach, reported a record for May of 96 degrees. Friday, cool Canadian air streamed into a tier of States from the Pacific Northwest to the northern Appalachians. Afternoon highs reached the 40's and 50's from North Dakota to the upper Great Lakes. Saturday, cold air was centered east of the northern Rockies where the thermometer fell into the 20's around sunrise. The cool air spread east. Marquette, Michigan had a high of 38 Saturday, 29 below normal. Sunday was unseasonably cool with readings in the 40's as far south as northern Louisiana. The Pacific Northwest was unseasonably warm. Portland, Oregon, recorded 92 degrees, 24 above the normal high for the date.

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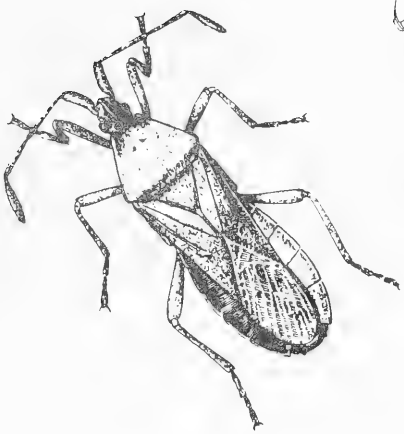

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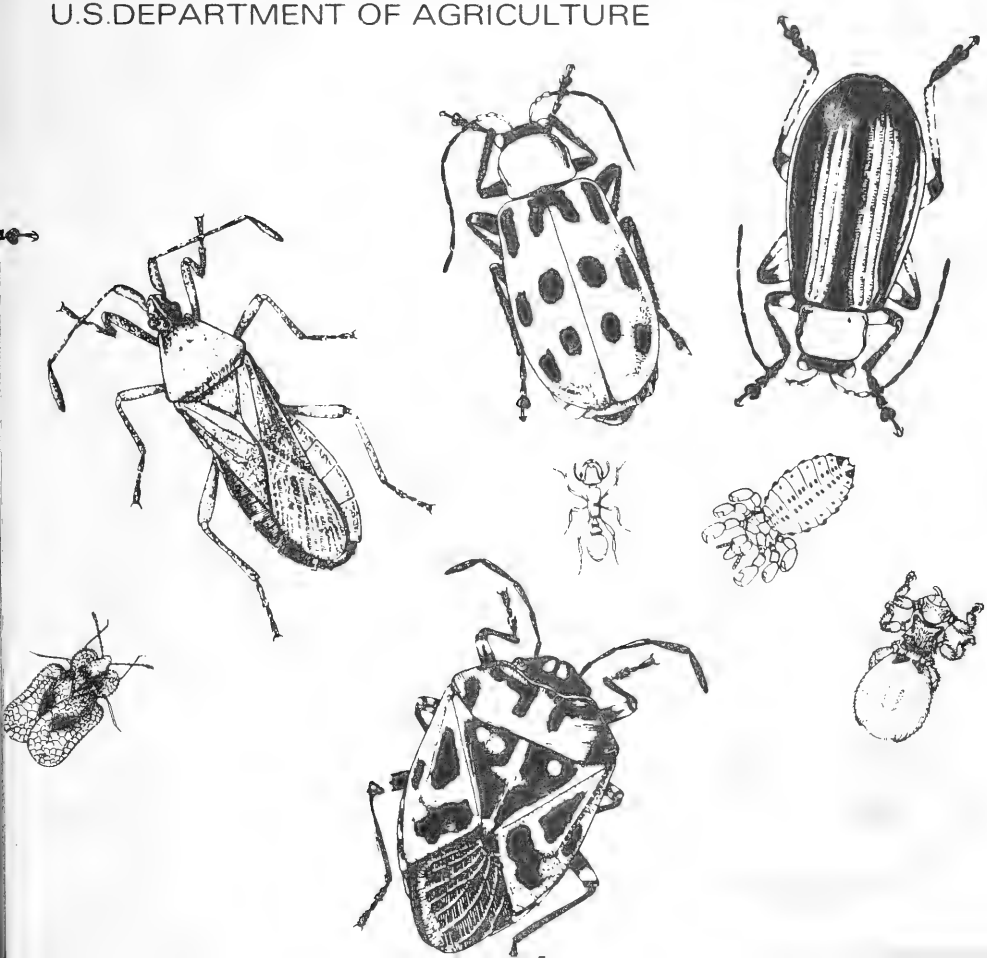

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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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Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM larvae damaging small grains in central and east-central areas of Georgia. GREENBUG heavy on sorghum seedlings in central Oklahoma, appearing on sorghum in south-central Texas. (p. 297).

CORN FLEA BEETLE infestations on newly emerged corn heaviest in several years on central Eastern Shore of Maryland. DESERT CORN FLEA BEETLE heavily damaged young corn and sorghum in extreme southwestern Utah. MAIZE BILLBUG and another billbug damaged field corn throughout southern South Carolina. (p. 298).

ALFALFA WEEVIL development slow in some areas due to cold, wet weather. Damaging alfalfa in Texas and Oklahoma; populations heavy in Oklahoma and western Illinois; treatment and cutting reported in several areas. (pp. 300-302).

BOLL WEEVIL emergence heavy in Alabama and southern Georgia. (p. 302).

SOUTHERN PINE BEETLE still serious problem in North Carolina. Damage by a CONIFER SAWFLY very light in Kentucky and Tennessee due to unusual weather conditions and resulting high mortality of immatures. (p. 305).

PAINTED LADY adult migration continued heavy in Western States. (p. 307).

Detection

New State records include a SOFT SCALE in Delaware (p. 304) and a WEEVIL in Maine (p. 306).

For new county records see page 310.

Reports in this issue are for week ending May 18 unless otherwise indicated.

CONTENTS

WEATHER OF THE WEEK ENDING MAY 21

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

HIGHLIGHTS: The western Corn Belt and the Great Plains were dry; less than 0.75 inch of rain fell on large areas of the eastern Corn Belt. Parts of the Nation's midsection have now had 10 badly needed days of dry weather. The Mississippi River dropped considerably but large areas remained flooded.

PRECIPITATION: Three High pressure systems dominated the week's weather. The first moved over the Great Plains from Canada Monday clearing skies. A weak Low pressure system to the east, however, did bring light rain to the Ohio and middle Mississippi Valleys. Showers spread eastward Tuesday. Scattered thunderstorms occurred over the South as a High pressure system moved southeastward. Wednesday, a second High pushed into the Dakotas. A few traces of rain preceeded it, but nothing of consequence. Rain was confined mostly to New York and New England. Thursday, sunshine graced most of the Nation; a cold front extended from the Appalachians and Upstate New York. Lower temperatures in some sections caused unseasonable snows late Thursday. Early Friday, drenching rains fell on New York and New England. Rome and Albany, New York, measured 1 inch of rain Thursday and Friday. Hartford, Connecticut, measured 1 inch in 6 hours Friday morning. In the northern Plains, several Low pressure systems produced cloudiness Friday but negligible rain. Consolidating Saturday they were pushed eastward by a third High, which gave most of the Corn Belt rather clear weather Sunday. A Low moved eastward and spread the heaviest rains of the week over the Deep South. Tornadoes touched down in Alabama and golf-ball sized hail struck scattered locations from Arkansas to Georgia Saturday. As the weekend waned, thunderstorms drenched the South--Anniston, Alabama, recorded 3.87 inches of rain. Thunderstorms occurred in the Midwest and the East remained cloudy, with intermittent thunderstorms. Weather of the week continued on page 312.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - MONTANA - Infested about 15,000 acres of wheat in Chouteau, Hill, Blaine, Fergus, and Liberty Counties, and about 5,000 acres of alfalfa in Madison and Beaverhead Counties. (Pratt). SOUTH DAKOTA - Damaged few fields of winter wheat in Jones County. (Edwards).

ARMYWORM (Pseudaletia unipuncta) - KANSAS - No larvae seen in wheat surveyed in Riley, Pottawatomie, Wabaunsee, Harper, Sumner, Kingman, Pratt, and Sherman Counties, nor in bromegrass hay fields in Riley and Wabaunsee Counties. (Bell). OKLAHOMA - Moderate in wheat in Comanche County. (Okla. Coop. Sur.). ILLINOIS - First larvae of season found in west-southwest and southwest districts. Averaged 16 per 100 sweeps of headed bluegrass in Jackson County, less than 1 per 10 linear feet of wheat in Greene and Madison Counties. (Ill. Ins. Rpt.). KENTUCKY - Infestations absent or extremely light on barley in Trigg, Christian, and Logan Counties. (Barnett). MARYLAND - Very light in small grain statewide. None in no-till corn to date. Next 10-16 days should establish seasons trend; most of no-till corn should emerge during this period in central part of State. (U. Md., Ent. Dept.). GEORGIA - Damaging populations reported in small grains in Burke, Houston, Peach, Jefferson, Pulaski, and Washington Counties. (Suber).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - None found in several thousand sweeps made in southeast and south-central districts. Strong, predominantly northerly winds kept pest from being blown in from southern areas. Overwintering eggs may be chief source of infestation this year if present weather patterns prevail. (Minn. Pest Rpt.). WISCONSIN - Appeared in low numbers in certain areas. Females averaged 1 per 200 sweeps in taller oats in Grant County but absent elsewhere, although suspect sighted in alfalfa field in Green Lake County. (Wis. Ins. Sur.).

CORN EARWORM (Heliothis zea) - OKLAHOMA - Two larvae swept from yellow sweetclover in McIntosh County May 16 for first report of season. (Okla. Coop. Sur.). TEXAS - Larvae averaged 5 per 100 plants in 2 cornfields in Fort Bend County. (Green). GEORGIA - Extremely light on snap beans in Decatur County week ending May 12. (Wheeler, French). ALABAMA - Occasional second to fourth-instar larvae in whorls of 18 to 24-inch corn in all fields examined in southern and central areas. (McQueen).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Generally light to medium on wheat in Chaves, Roosevelt, and Curry Counties week ending May 11. Some controls still applied in Curry County, especially on younger wheat. (N.M. Coop. Rpt.). KANSAS - None found in wheat checked in Riley, Pottawatomie, Wabaunsee, Sumner, Harper, Kingman, Pratt, Ellis, and Sherman Counties. No flying adults collected on sticky traps in Ellis County. (Bell). OKLAHOMA - Very heavy, up to 40 per plant, on 3-inch grain sorghum seedlings in Canadian and Caddo Counties. (Okla. Coop. Sur.). TEXAS - Observed on sorghum in Brazos, Caldwell, Gonzales, and Milam Counties. (Green, Cole).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Averaged 30 per 100 sweeps of alfalfa in Douglas County and 5 per 100 sweeps in Champaign County. (Ill. Ins. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Generally light on alfalfa at Artesia, Eddy County, and Roswell, Chaves County; ranged 10-25 per 25 sweeps. (N.M. Coop. Rpt.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Percent pupation by county: Gallatin 58, Champaign 28, none in Ogle. No emergence found. (Ill. Ins. Rpt.). INDIANA - Pupation 60 percent complete in Tippecanoe County cornfield; 10 percent above previous period. (Hogg). IOWA - Ten fields in central area surveyed May 15. Cornstalk debris from 5-square yards dissected at each stop; average of 968 borers per acre found. Average of 6,074 borers per acre found in statewide survey in 1972. (DeWitt). DELAWARE - Moths increased in blacklight traps; ranged 4-6 per night at some localities in Sussex and Kent Counties. (Burbutis).

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - TEXAS - Reported on grain sorghum in De Witt County, south-central area. (Cole). GEORGIA - Light infestation on corn in Tift County. (French, Suber).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Adults averaged 80 per 100 plants with 100 percent of 2 to 6-inch sweet corn damaged in Madison and St. Clair Counties. Averaged 1 per 10(two-inch field corn plants in Greene and Pike Counties with 5 percent of plants showing feeding damage. (Ill. Ins. Rpt.). KENTUCKY - Damage to corn light in Trigg County, moderate in Todd and Logan Counties. Heaviest damage observed in Christian County on corn up to 4 inches high. Foliar loss estimated at 10 percent or more in certain fields. (Barnett). MARYLAND - Infestations on newly emerged corn heaviest of past several years in Queen Annes, Talbot, and Dorchester Counties. Some treatments applied. (U. Md., Ent. Dept.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - UTAH - Casued heavy damage to young corn and sorghum plantings in "Dixie" area of Washington County. (Huber, Knowlton).

MAIZE BILLBUG (Sphenophorus maidis) - SOUTH CAROLINA - This species and S. callosus damaged field corn throughout most of southern part of State. (Thomas).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Ranged 1-3 per 100 sweeps in small grains in La Crosse, Trempealeau, Buffalo, Waushara, Marquette, Green Lake, and Fond du Lac Counties. Ranged from 5 per 100 sweeps in Green County to 1 per 500 sweeps in Sauk County. (Wis. Ins. Sur.). ILLINOIS - This species and Rhopalosiphum fitchii (apple grain aphid) infested every field of headed wheat surveyed in St. Clair, Madison, and Greene Counties. Populations light and noneconomic in all cases. Populations heaviest in St. Clair County, averaged 50 percent head infestation and averaged 5 aphids per infested head. Populations in Greene and Madison Counties ranged 8-16 (average 11) percent infestation and averaged 3 aphids per infested head. (Ill. Ins. Rpt.). KANSAS - Very light on flag leaves and heads of wheat in Riley, Pottawatomie, and Wabaunsee Counties. (Bell). OKLAHOMA - Ranged 40-50 per head in wheat in Tillman County and in scattered spots in fields in

Garfield County and in Hennessey area of Kingfisher County. (Okla. Coop. Sur.). MARYLAND - Populations of Macrosiphum avenae still well below economic levels on small grains. Counts ranged 1-8 per 10 sweeps throughout central area. (U. Md., Ent. Dept.).

MEADOW SPITTLEBUG (Philaenus spumarius) - TENNESSEE - Light on weeds in wheat fields in Campbell, Claiborne, Fentress, Morgan, and Scott Counties. These are new county records. (Greene, Snodgrass).

TURF, PASTURES, RANGELAND

BANKS GRASS MITE (Oligonychus pratensis) - WASHINGTON - Heavy, damaged experimental bluegrass seed field at Prosser, Benton County. (Klostermeyer).

FORAGE LEGUMES

PEA APHID (Acyrthosiphon pisum) - WASHINGTON - Averaged 30 per 10 sweeps in alfalfa near Brownstown, Yakima County, May 10. (Landis). NEVADA - Averaged 3 per sweep in Fallon, Churchill County, alfalfa fields and 25-30 per sweep in Lovelock area, Pershing County, with absence of predators. Ranged 5-100+ per sweep in Smith Valley, Lyon County, with few predators evident. (Clark et al.). NEW MEXICO - Heavy on alfalfa at Tucumcari, Quay County, and Roswell, Chaves County. (N.M. Coop. Rpt.). TEXAS - Heavy in 2 alfalfa fields in Fort Bend County; averaged 5,000 per 100 sweeps. Lady beetle larvae averaged 15 per 100 sweeps in same fields. (Green). ARKANSAS - Continued at very low level. Counts far below normal for time of year. (Boyer). OKLAHOMA - Light in alfalfa in Pawnee County, moderate in Lincoln County. Moderate in vetch in Cotton County and in sweetclover in McIntosh, Okfuskee, Hughes, Pittsburg, and Creek Counties. (Okla. Coop. Sur.). KANSAS - Generally light in alfalfa in most crop reporting districts. (Bell). NEBRASKA - Ranged 4-104 (averaged 40) per 100 sweeps in 8 alfalfa fields in Dawson County. (Manglitz). MINNESOTA - Continued at low level in alfalfa in southeast and south-central districts. Ranges of 40-50 per 100 sweeps common. No alates observed. (Minn. Pest Rpt.). WISCONSIN - Populations remain generally light in alfalfa, rarely exceeded 1 per sweep. Few alates appeared. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Egg hatch increased 36-fold in Grant County field and 4-fold in Sauk County field. (Wis. Ins. Sur.). INDIANA - Percent of plants with spittle masses as follows (range in parentheses): Daviess 5 (0-16); Dubois 6 (0-12); Harrison 25 (4-44); Washington 13 (0-32). (Meyer). MARYLAND - Heaviest nymphal counts ranged 10-26 per square foot in alfalfa and red clover in Frederick County. Pest controlled only when treatments applied for weevil control in alfalfa. Of fields surveyed, 90 percent hosted populations of 0-10 nymphs per square foot; most in third instar. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma saucia) - NEVADA - This species and Spodoptera exigua (beet armyworm) heavy on about 200 acres of alfalfa at Las Vegas, Clark County. Holding back growth of second crop with plants completely defoliated and stem damage evident. (Zoller). KANSAS - P. saucia larvae moderate in alfalfa in Harper and Sumner Counties. Infestations suspected high enough in some

fields in area to cause significant damage. (Bell). OKLAHOMA - Nearly mature larvae light in alfalfa in Lincoln, Okfuskee, and Okmulgee Counties and in sweetclover in Hughes and Pittsburg Counties. (Okla. Coop. Sur.).

REDBACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - Still causing damage to alfalfa at George, Grant County. Populations vary counts up to 70 larvae per square foot noted. Sweeping at night yielded 2-3 larvae per sweep. Many larvae still small indicating hatch not complete. (Klostermeyer).

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - OKLAHOMA - Single full-grown larva swept from sweetclover in Pittsburg County for first report of season. (Okla. Coop. Sur.).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - PENNSYLVANIA - Three fields sampled in Nazareth area of Northampton County May 10. No mines found in leaflets in one field, less than 1 percent with mines in other 2 fields. (Valley). NEW JERSEY - Mines found in alfalfa leaves in several Burlington County fields May 15. (Ins.-Dis. Newsltr.). VERMONT - Adults present in large numbers at south Burlington. Feeding punctures readily apparent on alfalfa leaflets. (MacCollom, May 15).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Mostly early instar larvae ranged 15-30 per sweep in Fallon area, Churchill County. Early instar larvae ranged 5-15 per sweep in Lovelock area, Pershing County. Numerous eggs in stems, dark and ready to hatch. Early instar larvae ranged 5-100 per sweep in Mason and Smith Valleys, Lyon County, alfalfa with damage evident. Small larvae averaged 6 per sweep at Jungo, Humboldt County. Treatments underway in several areas. (Hilbig et al.). UTAH - Development slow due to cold, wet weather. Anticipated damage to alfalfa will be later or lighter than normal. (Davis). Infestations light to moderate in Washington County alfalfa. (Huber). NEW MEXICO - Larvae generally moderate on alfalfa at Albuquerque, Bernalillo County; ranged 5-28 per 25 sweeps. (N.M. Coop. Rpt.).

TEXAS - H. postica larvae continued to damage alfalfa in Hardeman and Motley Counties. Also detected in some fields in Wilbarger County but have decreased greatly. Adults heavy in Wilbarger County fields recently cut for hay. Adults averaged 10 per 100 sweeps and larvae 50 per 100 sweeps in Fort Bend County alfalfa. (Boring et al.). ARKANSAS - Peak infestation appears to have passed although counts still high. Weevils per 100 sweeps decreased from 4,000-5,000 to about 3,000 in untreated check plot in Washington County. (Boyer). OKLAHOMA - Continued moderate to heavy in alfalfa in most areas of State. Numbers declining in south and increasing in north. Adults common in many areas with counts of 30 per square foot reported from Beaver County. Larvae averaged 10 per square foot in vetch in Crescent area of Logan County. (Okla. Coop. Sur.).

KANSAS - Some adult H. postica emergence noted in Harper and Barber Counties; large numbers of pupae seen in cut alfalfa. Some pupal mortality indicated in cut fields. Damage to regrowth noted as much more severe in areas in cut fields where hay windrowed than between windrows. Some treating underway in this area; most fields cut. Little damage noted in alfalfa in Pratt and Kingman Counties.

Damage noted in scattered fields in Wabaunsee, Pottawatomie, and Riley Counties, particularly in areas along Kansas River and in Ottawa, Lincoln, Rush, and Reno Counties. Cutting underway as far north as Riley and Pottawatomie Counties in northeast district, all counties in central district, and Ottawa County in north-central district. (Bell). MISSOURI - Larval counts per 100 plants in southern area demonstration plots by county as follows: Wright 788, Greene 345, Lawrence 521, Osage 726, Cedar 658, Cass 282. Survey taken in untreated plots; all plants completely defoliated except in Cass County. Pupation began in all fields except Cass County. (Munson). NEBRASKA - Larvae ranged 0-4 and adults 0-10 per 100 sweeps in 12 alfalfa fields in Lexington area of Dawson County; larvae ranged 0-8 and adults 4-42 in Gothenburg area of same county. Lincoln County field had 84 adults per 100 sweeps and in 22 Otoe County fields, adults ranged 0-53 and larvae 0-6 per 100 sweeps. (Manglitz, Stevens). IOWA - Average larval counts per 100 sweeps by county in alfalfa: Decatur 211, Lucas 38, Monroe 2, Page 4, Ringgold 81, Taylor 18. Most larvae first and second instar. One field reported treated in Lee County. (DeWitt). NORTH DAKOTA - Adults ranged 4-42 per 100 sweeps in 6-inch irrigated alfalfa in McKenzie County; no larvae noted. (Brankvik).

MINNESOTA - H. postica larvae not found in Steele, Dodge, and Olmsted County alfalfa. One adult taken in 300 sweeps in Steele County May 15. (Minn. Pest Rpt.). WISCONSIN - Activity minimal; larvae ranged up to 1 per 20 sweeps in some alfalfa in Dodge and Fond du Lac Counties. Counts comparable in fields in Grant, Kenosha, Sauk, Dane, and Racine Counties. (Wis. Ins. Sur.). ILLINOIS - Populations in alfalfa continued to increase rapidly with onset of warm, dry weather. Untreated fields in Adams County averaged up to 85 larvae per sweep, mostly first and second instars. Populations in western part of State much heavier. Three fields in Champaign County averaged 25 larvae per 100 sweeps; in Douglas County, counts ranged 5-10 per sweep. Area of potential economic damage is south of line from Mercer County to Douglas County. Most alfalfa in State ranged 16-24 inches tall and within 14 days of cutting. (Ill. Ins. Rpt.).

INDIANA - Third and fourth-instar larvae of H. postica dominant in alfalfa in Daviess, Dubois, and Harrison Counties. Second-instar larvae appearing in Washington County, even in treated alfalfa. Field in Morgan County 100 percent infested with average of 4+ larvae per terminal. Field in Shelby County 80 percent infested with average of 2 larvae per terminal. In northern area of State, fields averaged 24 (ranged up to 75) percent infested with one early instar larva per terminal. Alfalfa in latter area about ready for harvest; most fields will not require controls for at least first cutting. Stubble sprays required in several southern area fields following harvest. Blossoms appeared in Daviess and Dubois County fields. (Huber et al.). MICHIGAN - Larvae light in Ingham County alfalfa, ovipostion increased. Hatch slow due to cool weather. (Sauer).

OHIO - H. postica oviposition still in progress. Larvae present statewide. Counts of 1 larva per sweep found in Franklin and Clinton County alfalfa. (Horn). KENTUCKY - Larvae averaged 300+ per 100 sweeps in prebloom alfalfa in western areas. (Barnett). TENNESSEE - Percent infested tips by county: Madison 100 (2 fields), Carroll 100, Crocket 80, Lake 50 and 100 (2 fields), Chester 4, and Dyer 8. (Gordon, Bruer). WEST VIRGINIA - Larvae

averaged 7 per 10-tip sample in alfalfa with 30 percent foliar damage in Pleasants County. (Cutlip). VIRGINIA - Based on 12 fields sampled (117 acres) in 7 counties, tip infestation of alfalfa less than 6 inches high was 96 percent. Average estimated defoliation 22.5 percent. Two fields exceeded economic threshold of infestation (25 of 50 tips infested or 50 percent defoliation). Alfalfa 7 inches tall or above averaged 28.7 percent defoliation with 60 percent of fields exceeding threshold of 20 percent defoliation. (Allen). MARYLAND - Heaviest infestations still found in Frederick, Carroll, and upper Montgomery Counties. Treated areas include 2,500 acres in Frederick County. Treatments expected to end this period. Growers with marginal infestations will be cutting early. In heaviest infested fields, second through fourth-instar larvae ranged 100-300 per 10 sweeps. Pupation underway throughout State; expected to peak in next 14 days. (U. Md., Ent. Dept.). NEW JERSEY - Damage to alfalfa more noticeable as populations increase in southern area. (Ins.-Dis. Newsltr.).

VETCH BRUCHID (Bruchus brachialis) - OKLAHOMA - Adults averaged 100 per 10 sweeps in roadside vetch in Lincoln County. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Ranged 400-1,000 per sweep on alfalfa in Smith Valley, Lyon County. (Clark, Pursel).

COTTON

BOLL WEEVIL (Anthonomus grandis) - MISSISSIPPI - Leggett trap catches as follows: Averaged 1.46 per trap for 13 traps in Grenada County, 4.15 per trap for 20 traps in Yalobusha County (both counties in diapause control areas), and 5.6 per trap for 19 traps in Webster County (in nondiapause control area). (Andrews). ALABAMA - Live weevil counts on 18 farms in Henry, Covington, Monroe, Dallas, Montgomery and Autauga Counties extremely low. Although weevils out of hibernation in large numbers, cotton plants not yet attractive due to lateness of crop. Live weevils appear to be much heavier for this time of year than in most previous years. (Gilliland et al.). GEORGIA - Emerging adults heavy in cotton in southern part of State, up to 83 per week taken in Leggett traps near newly planted cotton fields; none noticed on seedling cotton. Cotton 14-21 days late due to adverse weather conditions. (Barry, Womack).

BEET ARMYWORM (Spodoptera exigua) - NEW MEXICO - Spotted infestations on cotton in southern Dona Ana County; some early season treatments applied. (N.M. Coop. Rpt.).

TOBACCO

TOBACCO BUDWORM (Heliothis virescens) - ALABAMA - First to third-instar larvae in 90 percent of buds of 6 to 12-inch high plants in 40 acres of tobacco in Covington County. Control efforts 98-99 percent effective. (McQueen).

MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy to very heavy on 40-acre planting of dill in Riverside County. Control necessary as crop nearing harvest. (Cal. Coop. Rpt.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Averaged 4 alates per 10 sweeps in field of potatoes near Wapato, Yakima County. (Landis).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW JERSEY - Adults and eggs numerous on potatoes in central and southern counties. (Ins.-Dis. Newsltr.).

PEPPER WEEVIL (Anthonomus eugenii) - FLORIDA - Increased rapidly in recent weeks; 90 percent of pods infested in untreated bell pepper fields in Palm Beach County. (Fla. Coop. Sur.).

BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Peak adult movement from alfalfa and other legumes to emerging spring-seeded peas apparent. Pea plants emerging in Potlatch, Viola, Genesee, and Southwick areas of Latah County, Cavendish area of Clearwater County, and Reubens area of Nez Perce County, often infested with economic populations. Occasionally, entire, large fields infested. In some cases seedling alfalfa and clover required treatment. Nondamaging populations noted at Weippe, Clearwater County, and near Nezperce, Lewis County. Treatment general in Genesee, Latah County, although many pea fields not treated appear to have escaped economic damage. Treatment localized in other areas. (O'Keeffe).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Larvae very abundant and caused heavy ragging of collard leaves in Palm Beach County. Polyhedrosis virus brought larvae under control so that only minimum injury occurred directly on heads. (Fla. Coop. Sur.).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - INDIANA - Adults ranged 6-8 per melon transplant in Jackson County. Reported heavy in Daviess and Gibson Counties. Mating observed in all areas. (Huber). MISSISSIPPI - This species and Diabrotica undecimpunctata howardi (spotted cucumber beetle) moderate to heavy on watermelons in George County. (McNeill).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - In combination with Pseudolplusia includens (soybean looper) caused much economic loss to celery at Belle Glade, Palm Beach County. (Fla. Coop. Sur.). NEW MEXICO - Economic on lettuce in Dona Ana County, treatments applied. (N.M. Coop. Rpt.).

CARROT BEETLE (Bothynus gibbosus) - GEORGIA - Heavy infestation severely damaged carrot roots in Washington County. (Andrews).

DECIDUOUS FRUITS AND NUTS

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - MAINE - Adult catches in pheromone traps ranged from 1-3 per trap per day in treated orchards to 6-12 per trap per day in untreated orchards during period May 3-10. First egg mass observed May 14. (Gall). MASSACHUSETTS - Adult males decreased in pheromone traps in Hampshire County. Averaged 2.3 and 14.5 per trap in treated and abandoned orchards, respectively, in Delchertown, and 6.4 and 5 per trap in treated and abandoned orchards, respectively, in Easthampton. (Jensen).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - Taken May 11 from plum at Wooster, Wayne County, for first report of season. (Gregory).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Overwintering adults, summer adults, eggs, and third through fifth instars taken on pear at Naches. Summer adults, eggs, and fourth and fifth instars taken at Wapato, Yakima County, week ending May 11. (Gregorich).

GREEN PEACH APHID (Myzus persicae) - NEVADA - Heavily infested peach in southern Washoe County. (Smith et al.). WASHINGTON - Caused some damage to peach trees at few locations in Chelan County. (Anthon, Smity).

ROSY APPLE APHID (Dysaphis plantaginea) - MICHIGAN - Colonies and leaf curling visible on watersprout growth, terminal leaves, and fruit clusters in several orchards from Berrien to Ionia Counties. Treatments should be applied before young apples are stunted and deformed. (Sauer). OHIO - Noted in orchard in Wooster County about 10 days ago and now hatched statewide. This is the most injurious species of aphid occurring on foliage of apple. (Hall).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Very light on pecans in much of south-central area. Treatment began in counties south of line from Travis to Brazos County. Treatment will be necessary about May 16-20 in Milam and Williamson Counties. Larvae still found in terminals in Wilbarger County. Pupae collected May 11 from 2 orchards in Young County, 28 pupae and 8 larvae collected from 71 bands; 3 apparently parisitized pupal cases found. In another orchard 54 bands removed with 56 pupae and 15 larvae collected. (Cole, Boring).

ORNAMENTALS

HOLLYHOCK WEEVIL (Apion longirostre) - VIRGINIA - Adults emerged and mating in Rockingham, Shenandoah, Frederick, Fauquier, Orange and Culpepper Counties. Culpepper County is a new county record. (Allen).

CALICO SCALE (Lecanium cerasorum) - MARYLAND - Reports of infestations more numerous than past 3 years. Silver maple, dogwood, and crab apple appear most heavily infested in several areas of Montgomery, Prince Georges, and Anne Arundel Counties. This species and wax scales seem to be increasing within State. Crawlers will emerge first week in June. (U. Md., Ent. Dept.).

A SOFT SCALE (Pulvinaria floccifera) - DELAWARE - Taken May 14, 1973, at Newark, New Castle County. Very abundant on taxus and holly with egg laying in progress. Collected and determined by D.F. Bray. This is a new State record. (Burbutis).

AN ARMORED SCALE (Pseudaonidia paeoniae) - SOUTH CAROLINA - Collected from azalea in Richland County May 8, 1973, by O. Huff. Determined by D.K. Pollet. This is a new county record. (McCaskill).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Problem still very serious. Activity has begun, many new spots observed. Salvage operations continued, possibly hampered by wet spring. (Hunt).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - GEORGIA - Caused 10-15 pitch tubes per tree on 1,500 trees in 500-acre tract in Emanuel County; 500-700 trees dead. (Price, Smith).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Early spring observations of overwintered second-instar larvae showed low population levels in General Andrews State Forest area. There may be some localized areas of heavy populations, however. (Minn. Pest Rpt.).

LARCH CASEBEARER (Coleophora laricella) - MAINE - Infestations appear more widespread than in past. Feeding resulted in yellowing of many new needles in some areas of southern and central parts of State. (Gall).

A CONIFER SAWFLY (Neodiprion taedae linearis) - KENTUCKY - Damage in 1973 very light, probably less than 5 percent defoliation, compared to 30-40 percent at this time in 1972. This correlates well with winter egg counts which were unusually low. Heaviest current damage observed in Calloway County. (Barnett). TENNESSEE - Light population of immatures feeding on pines in Franklin County. Unusual weather conditions caused high mortality of immatures; 80-90 percent died by third instar in pines checked past 7 days. (Gordon, Bruer).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - MINNESOTA - Preliminary checks in area heavily defoliated in 1972 near Bethel, south of Cambridge, revealed low population of overwintering prepupae. Decline apparently due to predation by shrews. Areas of oak heavily defoliated in 1972 near Stacy and Zimmerman showed continued heavy population of prepupae. (Minn. Pest Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Eggs hatched in Cass County, light feeding on elm. (Brandvik). SOUTH DAKOTA - Defoliated windbreaks and shelterbelt trees near Letcher, southern Sanborn County. Treatments expected to be applied. (O'Connell).

BIRCH CASEBEARER (Coleophora fuscedinella) - MAINE - Light feeding damage noted in Aurora area. Larval cases still sickle-shaped. Treatments should be effective now to stop current and prevent future damage to birches where insect is problem. Only few reports received on this pest. (Gall).

ALFALFA LOOPER (Autographa californica) - IDAHO - Heavy, severely damaged woody broadleaf plants north of Hayden Lake, Kootenai County. (White).

A WEEVIL (Trachyphloeus aristatus) - MAINE - Several specimens collected in drop pan on ground beneath large white oak in study plot near Rockport, Knox County, June 9, 1966, by L.P. Lipovsky. Oak was in open stand with many species of ground plants. Exact host not known. Determined by R.E. Warner. This is a new State record. (Dearborn). Only other record for U.S. is from Pennsylvania. Also recorded in Canada. Nothing is known concerning biology of this weevil except that, like closely related species, it feeds on roots. Host plants are not known. (PPQ).

A MIRID (Orthotylus chlorionis) - OHIO - Very heavy on honey-locust near Marietta, Washington County. This species caused much damage to this host in northern half of State in 1972. (Fox).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 46 confirmed cases reported in the continental U.S. during period May 6-12 as follows: Texas 13, Arizona 27, New Mexico 5, and California 1 (reported from Riverside County, first case of the calendar year). Total of 634 cases confirmed from Mexico. Number of sterile flies released in U.S. during this period totaled 91,453,800 as follows: Texas 76,813,800; New Mexico 2,850,000; Arizona 11,790,000. Total of 85,533,500 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae, mostly H. bovis (northern cattle grub), averaged 2 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett).

FACE FLY (Musca autumnalis) - MARYLAND - Still most annoying livestock fly species in central area. Counts ranged 10-40 per head on beef and dairy stock. (U. Md., Ent. Dept.). IOWA - Ranged 1-3 per head on beef livestock in Boone County. (DeWitt). IDAHO - Annoying herd of Hereford cattle in Moscow area, Latah County. Above normal pinkeye incidence reported in area. (Hagedorn).

HORN FLY (Haematobia irritans) - ALABAMA - Increased to 100-300 per head on untreated beef and dairy herds throughout southern area. Reported increasing in Wilcox County. (Farquar et al.). MISSISSIPPI - Averaged 200+ per head on beef cattle in Oktibbeha County. (Robinson). TEXAS - Activity increased in Throckmorton and Wilbarger Counties. Light to moderate infestations of 50-200 per animal observed on cattle in these counties. Very heavy on cattle in Brazos County; averaged 2,000 per animal. (Boring, Green). OKLAHOMA - Averaged 250 per head on cows and 1,000 per head on bulls in Payne County. Moderate in Nowata, Pawnee, and Oklahoma Counties and light in Blaine and Tillman Counties. (Okla. Coop. Sur.). NEBRASKA - Averaged 50 per animal in Lincoln, Logan, and McPherson Counties. (Campbell). UTAH - Moderate on cattle in warmer areas of Washington County. (Huber).

MOSQUITOES - MINNESOTA - Moderate to heavy brood resulting from rains of April 30-May 2 now mostly third instar with some fourth instars. If nights continue cool, adults will emerge in about 7 days. Metropolitan Mosquito Control District reports larvae heaviest in Scott and Dakota Counties. (Minn. Pest Rpt.). KANSAS - Adults abundant in certain areas of Manhattan, Riley County. (Bell). UTAH - Troublesome to man and livestock in St. George, Bloomington, and Washington areas and along Virgin River in Washington County. (Huber).

BLACK FLIES - VERMONT - Severe on livestock and man May 10 in Addison County prior to heavy rains. "Clouds" of flies drove woodsman from work. (MacCollom). RHODE ISLAND - Adult females biting humans, numerous in vicinity of breeding streams in Washington and Providence Counties. (Field, Stelle). KANSAS - Adults heavy in certain areas of Wellington, Sumner County, and caused much annoyance to residents; some treating reported. (Bell). WISCONSIN - Heavy along Mississippi River and along streams in central area, but not biting. (Wis. Ins. Sur.).

SHEEP KED (Melophagus ovinus) - WYOMING - Ranged 9-34 (averaged 25) per head on lambs, 7-161 (averaged 88) per head on ewes on one flock; on second flock, ranged 16-82 (averaged 40) on lambs and 2-24 (averaged 10) on ewes in Laramie County. (Pfadt et al.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - OKLAHOMA - Heavy on flock of laying hens in Greer County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy on cattle in McCurtain County, light on dogs in Marshall County. (Okla. Coop. Sur.).

GULF COAST TICK (Amblyomma maculatum) - OKLAHOMA - Heavy in ears of cattle in several areas of Nowata County. (Okla. Coop. Sur.).

MISCELLANEOUS WILD PLANTS

PAINTED LADY (Cynthia cardui) - WASHINGTON - Adult migration heavy at several locations; no larval damage to thistle reported. Heavy flights noted at Vancouver, Clark County. About 20 adults per mile of road travel observed in Benton County. C. cardui also observed in Spokane and Whitman Counties. (Harwood et al.). OREGON - First adults noted in West Salem, Polk County, indicating species northward migration reached north-central area. In subsequent days, reports widespread in Willamette Valley. Motorists reported "clouds" of butterflies along Interstate Highway 5 between Woodburn and Wilsonville afternoon of May 15. Adults also seen east of the Cascades near Culver, Jefferson County, May 16 and observed laying eggs on upper leaves of peppermint. C. cardui is generally considered beneficial since its primary hosts are thistles. Occasionally, however, when occurring in heavy numbers, larvae can cause local damage to artichoke, mint, beans, and ornamentals. (Westcott, Penrose).

NEVADA - Larvae heavy, migrating into yards and cultivated fields in Dixie Valley, Churchill County, and in Silver Springs area, Lyon County. (Bechtel). IDAHO - Adult flight of 7-10 miles wide occurred May 14 between Rigby, Jefferson County, and Idaho Falls, Bonneville County. Forced motorists to have windshields washed for safe driving. (Gooch). UTAH - Adult migration sporadically noticeable throughout northern and central areas. (Knighton et al.). MONTANA - Flight widely spread over east side of Gallatin Valley near Bozeman, Gallatin County. (Pratt). WYOMING - Flight heavy in Albany County. (Spackman). COLORADO - Mass migration moving north in northern part of State. (Colo. Pest Sur.).

STORED PRODUCTS

RICE WEEVIL (Sitophilus oryzae) - SOUTH DAKOTA - Taken from home in Lincoln County. Identified by B. Kantack. This is a new county record. Previously collected at Chester, Lake County (1929), and Vermillion, Clay County (1940). (Jones).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - NEBRASKA - Adults of this species and Coleomaegilla maculata ranged 0-12 (averaged 3.7) per 100 sweeps in 8 alfalfa fields in Dawson County. (Manglitz).

A MYMARID WASP (Patasson luna) - OHIO - Parasitized 25 percent of all alfalfa weevil eggs sampled in Wayne County. (Horn).

AN ICHNEUMON WASP (Bathyplectes curculionis) - ILLINOIS - Adults of this alfalfa weevil parasite averaged 150 per 100 sweeps of alfalfa in Douglas County. (Ill. Ins. Rpt.).

HONEY BEE (Apis mellifera) - UTAH - Winter colony losses ranged 8-60 percent in commercial bee yards; averaged about 40 percent. (Nye). Orchardists in central and northern areas concerned about inadequate fruit pollination as A. mellifera and wild bees less numerous than normal. (Davis).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BEET LEAFHOPPER (Curculifer tenellus) - CALIFORNIA - Spring nymphal treatment completed. About 27,177 acres sprayed on west side of Kern County, about 29,751 acres treated in Kings, Merced, and Fresno Counties. Treatment of roadsides underway in Kern County. Leafhoppers moved to lower areas adjacent to cultivated crops. (Cal. Coop. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - Averages of larvae and eggs, respectively, per square foot by county (host in parentheses): Pleasants 5, 2 (wheat); Putman 2, 4 (oats); Cabell 3, 2 (oats). (Tustin, Hacker). KENTUCKY - Surveys negative in Christian, Logan, Todd, Trigg, and Warren Counties. (Greene). TENNESSEE - All surveys to date within State negative. (Gordon).

GRASSHOPPERS - MINNESOTA - Egg masses in Sibley County in coagulated stage. Melanoplus femurrubrum and M. sanguinipes dominant. (Minn. Pest Rpt.). NORTH DAKOTA - Nymphs per square yard ranged up to 9 in Burleigh County, up to 4 in Morton County, and 12 in Williams County field margins. Development ranged from first through third instar. M. sanguinipes, M. bivittatus, and M. packardii dominant species. (Brankvik). SOUTH DAKOTA - Generally light hatch began in warmer and drier areas in southwestern part of State. Some M. confusus taken in Custer, Fall River, and Shannon Counties. In Gregory County, first-instar nymphs of M. sanguinipes and M. bivittatus light, less than 2 per square yard. East of Missouri River, in Charles Mix, Douglas, and Hutchinson Counties, M. bivittatus just began to hatch, less than 1 first-instar nymph per square yard. (Zimmerman).

NEW MEXICO - First-instar nymphs on rangeland between Artesia and Carlsbad, Eddy County, averaged 13 per square yard week ending May 11. Heavy on rangeland 5 miles east of Tatum, Lea County. Nymphs averaged 15 per square yard and adults 8 per square yard. Lighter on rangeland in Cottonwood area, southern Chaves County, and 5 miles north of Roswell, Chaves County. (N.M. Coop. Rpt.). UTAH - Scattered egg hatch and some scattered overwintered adult activity observed in "Dixie" area of Washington County. (Huber). OREGON - Rangeland grasshopper survey May 9-11 showed possible economic levels at several areas in northern Morrow and northwestern Umatilla Counties. Nymphs averaged 19 per square yard on about 19,800 acres on Umatilla Ordinance Depot in Umatilla and Morrow Counties. Also heavy on portions of northeastern sector of Boardman Naval Bombing Range, Morrow County. (Brown).

GYPSY MOTH (Porthetria dispar) - MAINE - In spite of general presence in 1972, populations appear light this year. Egg hatch began in southern and central areas in late April and early May. Only few reports of infestations received. (Gall). RHODE ISLAND - First and second-instar larvae feeding and damaged emerging oak leaves in Providence County. (Field et al.). PENNSYLVANIA - Hundreds of wind-swept first and second-instar larvae observed at Kutztown Airport, Berks County, on aircraft and glider wings and on several hundred feet of paper placed on ground for calibrating insecticide coverage by aircraft. Early instar larvae also swept from wheat in Lehigh County May 10. (PPQ). On May 10, 970 acres, mainly oak forest, treated in Bucks County for larval control. Treatment also applied in Berks County. (Blippey). DELAWARE - First and second-stage larvae on birch and beech in northern New Castle County. (Burbutis). MICHIGAN - Egg hatch 50+ percent complete in 200-acre core area of high egg mass density in Isabella County. This area treated for third time May 15. (Smith, Menzloff).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Larvae fed on grass roots within one-quarter inch of crown in Providence County, damaged turf in Kent County week ending May 11. (Relli).

WHITEFRINGED BEETLES (Graphognathus spp.) - GEORGIA - Caused light to moderate damage to Colquitt County tobacco. (French, Belisle). ALABAMA - Larvae damaged stands of corn and peanuts in several fields in Geneva County. (Reynolds).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Second treatment of infested areas in Carlsbad, San Diego County, and in San Clemente, Orange County, completed. Five infestations now known in Orange County. Surveys continue in these areas. (Cal. Coop. Rpt.).

General Vegetables - PEPPER WEEVIL (Anthonomus eugenii) adults moderate on eggplant fruits and larvae moderate on bell pepper fruits at Waikapu and Kahului, Maui. (Miyahira). Nymphs and adults of a MEMBRACID (Antianthe expansa) heavy on stems of Cestrum nocturnum (night cestrum) in Lanikai, and heavy on tomato plants at Ewa, Kaneohe, Lanikai, and Honolulu (Palolo), Oahu. (Davis et al.). LEEK MOTH (Acrolepia assectella) larvae infested about 25 percent of green onion leaves in older planting and 5-10 percent of leaves in younger planting at Waikapu, Maui. (Miyahira).

Fruits - Larvae of a NOCTUID MOTH (Phlegetonia delatrix) moderate (averaged 2 per terminal) on 6 mountain apple trees in Kaneohe and Nuuanu, Oahu. Defoliation of terminal foliage very evident. WOOLLY APPLE APHID (Eriosoma lanigerum) nymphs heavy on stems and twigs of Osteomeles anthyllidfolia (ulei), a native shrub with edible fruits, at Polipoli Springs, Kula, Maui, at elevation of 2,000 meters. (Miyahira).

Beneficial Insects - A LADY BEETLE (Coccinella septempunctata), purposely introduced from Okinawa in 1958, becoming one of most common predators of aphids on Oahu. Adults and larvae heavy in various areas on variety of aphid infested plants. Known to occur only on Oahu, two lots recently released on Hawaii Island in three macadamia orchards to aid in control of Toxoptera aurantii (black citrus aphid), which is heavy on macadamia racemes. (Kawamura).

Miscellaneous Insects - Several adults of an ICHNEUMON WASP (Pachysomoides stupidus), a parasite of Polistes wasps, collected on mustard cabbage leaves at Kahului, Maui. P. stupidus first reported in State on Oahu in 1970. (Kawamura).

DETECTION

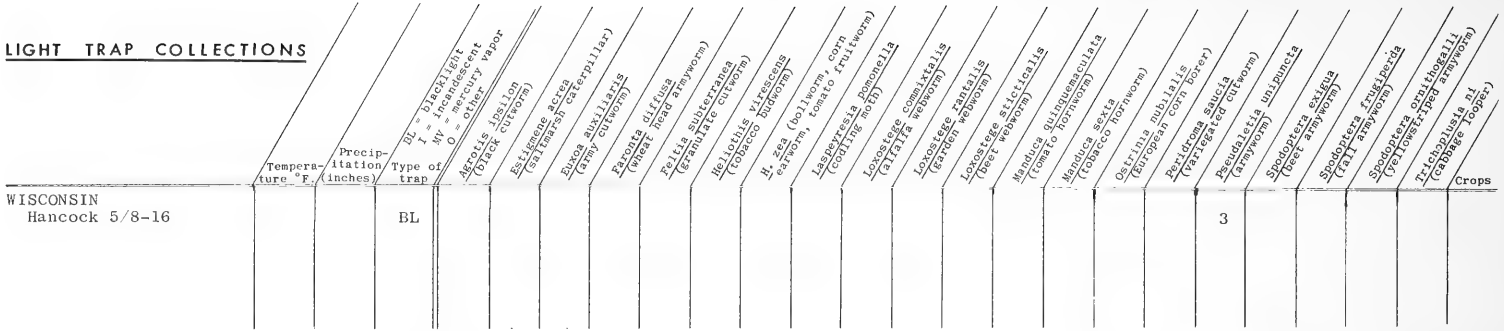
New State Records - A SOFT SCALE (Pulvinaria fioccifera) - DELAWARE - New Castle County. (p. 304). A WEEVIL (Trachyphloeus aristatus) - MAINE - Knox County. (p. 306).

New County Records - AN ARMORED SCALE (Pseudaonida paeoniae) SOUTH CAROLINA - Richland (p. 305). HOLLYHOCK WEEVIL (Apion longirostre) VIRGINIA - Culpeper (p. 304). MEADOW SPITTLEBUG BUG (Philaenus spumarius) TENNESSEE - Campbell, Claiborne, Fentress, Morgan, Scott (p. 299). RICE WEEVIL (Sitophilus oryzae) SOUTH DAKOTA - Lincoln (p. 308).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (salt marsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Isperesia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																								
Dell 5/9-15			BL	4														7						
Kelso 5/9-15			BL	4						2														
FLORIDA																								
Gainesville 5/14-18			BL				6										2		5		1			
ILLINOIS (County)																								
Ogle 5/8-14			BL	1														19						
INDIANA (County)																								
Lawrence 5/3-9			BL	6	7												2	40				1		
KENTUCKY																								
Lexington 5/12-17			BL															1						
MICHIGAN (Counties)																								
Lenawee 5/11-18			BL															12						
Oceana 5/11-18			BL															21						
MISSISSIPPI																								
Stoneville 5/11-17	51-90	0.43	2BL	9	1		7	4	7								5		1		8			
MISSOURI																								
Platte City 5/10-16			BL															4						
NEBRASKA (County)																								
Clay 5/9-17			BL	7			13											18						
OHIO																								
Wooster 5/11-18			BL	4														12						
OREGON (Counties)																								
Linn 5/10-16			BL	1													5							
Marion 5/10-16			2BL	2													34							
Washington 5/10-16			BL														10							
TENNESSEE (Counties)																								
Hardeman 5/14-18			BL	2	1		5									13		8				1		
Lake 5/14-18			BL	3						2						62	3	6						
Washington 5/14-18			BL	3														14						

LIGHT TRAP COLLECTIONS



Weather of the week continued from page 296.

TEMPERATURE: It was unseasonably warm in the Nation's western third. Most of the area ranged from 6 degrees to 12 degrees above normal. The mercury hit over 100 degrees in some desert areas; western Washington and Oregon recorded unusually high temperatures in the 80's and low 90's. In contrast the East experienced a cold, almost winterlike week. Most of the Nation east of the Mississippi remained 6 degrees to 12 degrees below normal. Temperatures fell 46 degrees at New Orleans, Louisiana, and 39 degrees at Atlanta, Georgia, Wednesday. From 5 to 6 inches of snow fell in parts of New York and Pennsylvania Thursday. A bizarre temperature distribution marked Monday. Heavy clouds kept areas in the Texas Panhandle 30 degrees below normal. The afternoon high at Lubbock, Texas, hit 55 degrees. Afternoon temperatures from there to New England remained in the 50's and 60's. Warmer air flowing from the southwestern deserts invaded the Pacific Northwest, where afternoon readings soared into the 80's, 20 degrees above normal. A High centered over the Plains kept Tuesday cold over most of the Nation's middle. Ft. Smith, Arkansas, recorded 38 degrees, the lowest ever for so late in the season. To the north, a High and Low, in combination over Canada, drove cold air into the upper Mississippi Valley. The front passed through North Dakota during midafternoon. Fargo reported 81 degrees at 2 p.m., while 80 miles north Grand Forks reported 59 degrees. The cold continued eastward.

Bradford, Pennsylvania, hit 22 degrees Wednesday, for the Nation's low. Record low temperatures were recorded at many points, as low as 25 degrees. Elkins, West Virginia, Roanoke, Virginia, 34 degrees. Later in the day, a series of cold fronts swept the eastern two-thirds of the Nation, chilling off northern Michigan enough for a little snow. More springlike weather dominated the South, while extreme heat marked the West, with desert areas in California topping 100 degrees. Thursday the mercury dipped to 37 degrees at Chicago, a new record low for the date. The Northeast remained cold; the mercury hovered near the freezing mark at Syracuse, New York, all day. The Southeast enjoyed a springlike day with afternoon temperatures in the 60's to 80's. Friday dawned on record low temperatures throughout the Nation's eastern third. Oneonta, New York, had 6 inches of snow which downed trees and power lines. In midafternoon the area remained cold; Ithaca had 40 degrees at 2 p.m. In the West, intense heat continued. In California, Thermal baked at 109 degrees, as did Blythe and Needles. To the north, the hot spell in Washington and Oregon broke when Pacific air pushed inland. Over the weekend, the weather heated considerably in Texas. Del Rio reached 104 degrees and San Angelo 102 degrees. Heat embraced most gulf areas, but it remained on the chilly side throughout the Northeast.

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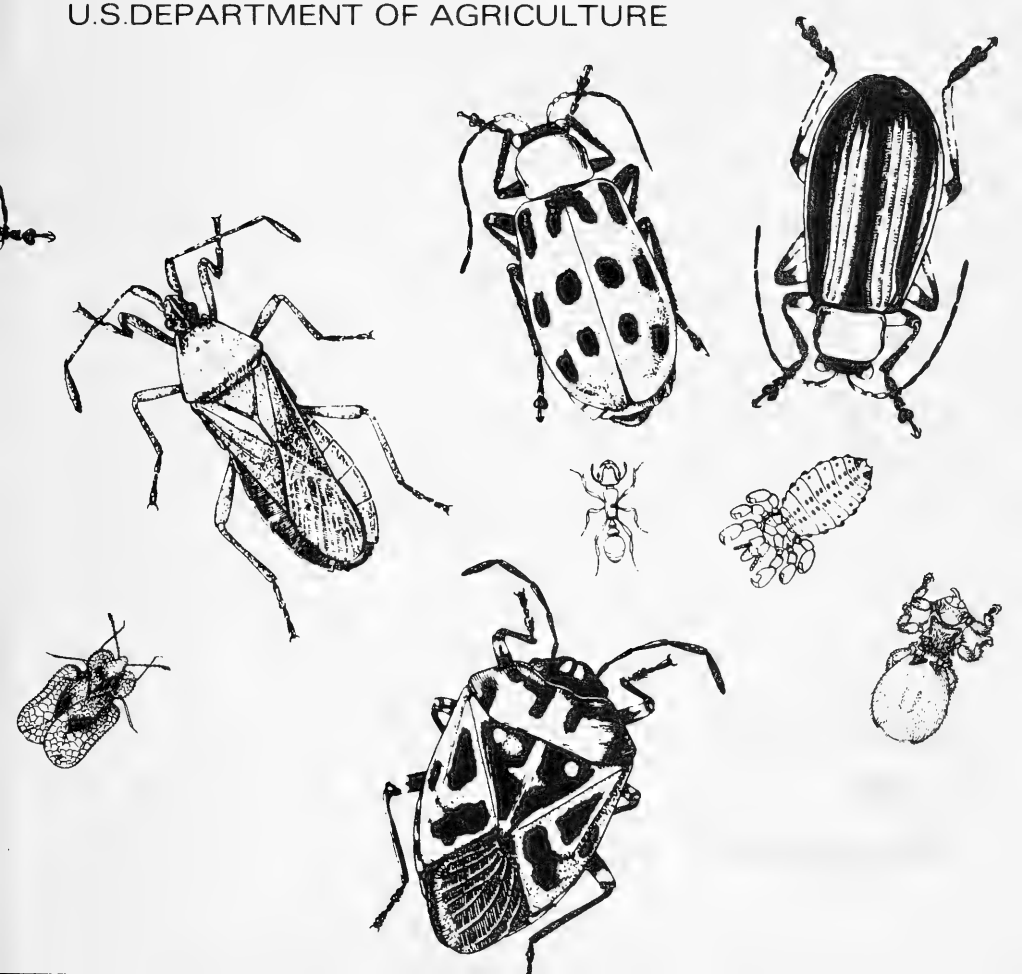

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 larvae heavy and damaged sorghum in coastal area of Texas; some controls applied in central Oklahoma. ASTER LEAFHOPPER reported in small grains in North Dakota and Minnesota for first time this season; populations lightest in 20 years in Minnesota. (p. 315).

ALFALFA WEEVIL caused most severe damage to alfalfa ever recorded in Iowa. Damage beyond economic threshold in west-central Maryland. Populations in other areas of Nation increased with damage appearing. Some control by parasites reported. (pp. 317-318).

An ALFALFA WEEVIL complex developed damaging situation on cherries in California. Also damaged apricots and beans in State. (p. 321).

BOLL WEEVIL adults increased in some cotton areas. (p. 319).

PAINTED LADY adult flights still heavy in western area; reported from South Dakota and North Dakota this period. (p. 324).

GRASS BUGS damaged wheatgrass in Utah, Colorado, and Nebraska. GRASSHOPPERS heavy on rangelands in some Western States. (pp. 325-326).

Detection

A THRIPS reported for first time in California is a new State record. (p. 326).

For new county records see page 326.

Special Reports

A Leafminer of Ragweeds (*Ambrosia* spp.), *Calycomyza ambrosiae* (Frick) (Diptera, Agromyzidae). (pp. 329-330).

The Genus *Emmesomyia* Malloch in North America (Diptera, Anthomyiidae). (pp. 331-332).

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

CONTENTS

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Larvae damaged wheat and alfalfa in west-central counties and in Canadian County. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Larvae heavy and damaged grain sorghum in Calhoun and Matagorda Counties. (Cole). OKLAHOMA - Heavy in field of vetch and rye in Carter County. Reported in wheat in Kingfisher County with some fields treated. (Okla. Coop. Sur.). KANSAS - Larvae ranged to one per 10 drill row feet in headed wheat in Labette and Montgomery Counties. None found in headed wheat in Wilson and Neosho Counties. In headed barley in Labette County, larvae averaged 1.6 per drill row foot. (Bell). ILLINOIS - Conspicuous by general absence in lodged spots in wheat fields in usually infested areas of State. Counts much lighter than in 1972; late spring may mean later than usual infestation. (Ill. Ins. Rpt.). KENTUCKY - Infestations absent or very light on barley in Muhlenburg and Metcalfe Counties. (Barnett, Gregory).

VIRGINIA - P. unipuncta larvae in corn in Culpeper County. Averaged one per row foot in 4 fields totaling about 140 acres; fields treated. Corn planted late in Carroll, Pulaski, and Wythe Counties (in mountains), many fields not yet emerged. Populations may become severe next few weeks. Growers urged to make daily checks of no-til corn. Single adult taken in blacklight trap at Blacksburg, Montgomery County, during period May 17-25. (Allen). MARYLAND - Populations in small grain and no-til corn remain below economic levels. Heaviest infestation occurred in 10 acres of barley near Denton, Caroline County; counts of second and third instars in lodged areas ranged 2-6 per square foot. (U. Md., Ent. Dept.).

ASTER LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Adults 4 per 100 sweeps in Bowman County winter wheat and 20 per 100 sweeps in Golden Valley County winter wheat. First appearance of season. (Brandvik). MINNESOTA - First of season observed on oats in Houston County May 22; ranged 10-12 per 100 sweeps. This is lowest count in 20 years. (Minn. Pest Rpt.).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Roadside populations and abandoned fields of mustard, Russian thistle, and lambsquarter treated near Kettleman City and Huron; 215 acres of abandoned fields treated as well as 85 miles of roadside weed hosts. In southwestern Kern County, 100 acres of abandoned fields treated in addition to 83 miles of roadside weed hosts. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Moderate in 80-90 percent of whorls in field of 3-inch milo and in field of 8-inch corn and Johnson grass in Montgomery County. Light in 5-50 percent of whorls of 1 to 1.5-inch milo in Wilson and Montgomery Counties. (Bell). TEXAS - Very light on grain sorghum in Brazos, Grimes, Waller, and Fort Bend Counties. Ranged 0-100 per plant in these counties. Parasitism by small wasps noted. R. maidis populations declined rapidly. Terminal leaves on most infested plants in Fort Bend County with 20-60 parasitized aphids. R. maidis light to moderate on grain sorghum in Coryell, Falls, McClennan, Navarro, and Bell Counties. (Green, Hoelscher).

GREENBUG (Schizaphis graminum) - TEXAS - Continued light in grain sorghum in south-central area. Populations lighter than in 1972. Survey of grain sorghum in Fort Bend County negative in fields examined. Light, widespread populations reported from Guadalupe and McCulloch Counties. (Cole et al.). KANSAS - Winged forms flying into sorghum in some southeast district counties where planting now underway; seedlings emerged in very few fields. Infestations ranged from none in 1-inch milo in Neosho County to high of 1.7 per plant in 3-inch milo in Montgomery County; no obvious damage noted. Sticky traps on Hays Agricultural Experiment Station indicated first flight in area occurred May 20; small colonies detected on volunteer sorghum May 24. Winged greenbugs and small colonies of young on 8-inch Johnson grass in Montgomery County cornfield. Winged forms and immatures averaged 1.5 per drill row foot in field of wheat in this county, but none found in wheat checked in Wilson, Neosho, and Labette Counties. (Bell).

NEBRASKA - S. graminum ranged 1-17 (average 9) per 100 sweeps in 3 wheat fields in Gage, Johnson, and Lancaster Counties. (Koinzan). WASHINGTON - Light to heavy on 200 acres of barley and wheat near Wilson Creek, Grant County. (Foeppel).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Light in alfalfa at Los Lunas, Valencia County. (N.M. Coop. Rpt.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - WISCONSIN - Dissection of corn stubble in early April revealed 80-85 percent winter survival in areas surveyed. First pupation noted May 10 in sandy area of Dane County. (Wis. Ins. Sur.). ILLINOIS - Development near normal. Some moth emergence in southern third of State. (Ins. Sur. Bull.). INDIANA - Pupation nearly complete as far north as Tippecanoe County; adult emergence began in same area. (Hogg). KANSAS - One female moth, first of season, found in weeds bordering cornfield in Montgomery County. (Bell). DELAWARE - Adults in blacklight traps increased sharply; counts for 7 traps averaged 21. (Burbutis). NEW JERSEY - Some male adults taken in blacklight traps at Thorofare, Gloucester County, and Elmer, Salem County. First collections of season. (Vasvary).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Infestation on newly emerged corn in Kent, Queen Annes, Talbot, Caroline, and northern Dorchester Counties continued above normal; adults ranged 6-12 per plant. Corn presently outgrowing injury; however, several hundred acres of early sweet corn sprayed to lessen incidence of bacterial wilt. (U. Md., Ent. Dept.). OHIO - Adults light on seedling corn in central area. Ranged 8-10 and 13-15 per 50 plants in Pickaway and Logan Counties, respectively. Lighter on corn in other central counties. Damage neglible. (Fox).

SEEDCORN MAGGOT (Hylemya platura) - NEBRASKA - Destroyed 15 percent of corn stand in Hall County field. (Lundquist).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light in wheat in many central, west-central, and southwest counties. (Okla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEVADA - Larvae ranged 1-20 per sweep in Jungo and Orovada, Humboldt County, alfalfa seed fields. (Stitt). Ranged 20-150 per sweep in Lovelock area, Pershing County. (Philips). Several fields in Fallon area, Churchill County, had all larval instars in excess of 150 per sweep with heavy damage evident. (Adams). Treatments in progress in these areas and in Smith and Mason Valleys, Lyon and Douglas Counties, respectively. Recent warm weather caused populations to develop rapidly but cool, windy weather latter part of this period retarded larval development and slowed or stopped control applications. (Nev. Coop. Rpt.). UTAH - Adults and larvae increased in Cache County alfalfa. (Davis, Nebeker). Populations increased, light to moderate infestations with damage noted in some fields in Weber County and at Draper, Salt Lake County. (Roberts). NEW MEXICO - Larvae heavy, ranged 30-90 per 25 sweeps of alfalfa at Los Lunas, Valencia County. (N.M. Coop. Rpt.).

TEXAS - H. postica larvae medium to heavy on alfalfa in Kent and Carson Counties. Controls applied in Carson County. (Geeslin, Fields). OKLAHOMA - Larvae decreased in alfalfa in most areas of southern half of State. Ranged 20-30 per square foot in Custer County. Still heavy in some northern counties; stubble treated. Adults heavy in many southwest and west-central counties. (Okla. Coop. Sur.). ARKANSAS - Active in alfalfa in northwest area. Little change in counts from previous period in untreated check plot on experiment station near Fayetteville, Washington County. Continued presence of small larvae indicates eggs hatched over extended period. Larvae collected in roadside vetch in Jefferson and Lonoke Counties. (Boyer).

MISSOURI - Average H. postica larval counts in south-central and central areas by county: Boone 1,239; Callaway 477; Lafayette 476; Miller 2,725; Saline 658. Alfalfa harvest complete in southern areas where weather favorable. Alfalfa for dehydration mills being harvested in northern areas. (Munson). KANSAS - Larvae generally decreased in cut, untreated alfalfa in Labette, Wilson, and Montgomery Counties to point some regrowth occurred. In northern portion of Wilson County, much larval feeding on regrowth still occurring in parts of fields where windrows present prior to bailing and regrowth limited to area between windrows. (Bell).

NEBRASKA - In 12 alfalfa fields sampled in Gothenburg and Cozad area of Dawson County, H. postica larvae ranged 1-677 and adults 2-30 per 100 sweeps. In Lexington and Overton area of Dawson County, adults ranged 0-14 (average 4.6) and larvae 15-162 (average 63.7) per 100 sweeps in 10 alfalfa fields. (Manglitz). In 2 fields in Johnson County, larvae ranged 65-140 (average 102.5) and adults 5-6 (average 5.5) per 100 sweeps. (Koinzan). IOWA - Most severe damage on alfalfa ever recorded in State observed in southern and southeastern counties. Larvae increasing. Larval counts per sweep by county May 17-18: Appanoose 1-3; Decatur 2-22; Lee 7-15; Van Buren 2-8; averaged less than 1 per sweep in Davis, Page, Ringgold, Taylor, and Wayne Counties. Damage evident in Lee and Van Buren Counties; tip damage ranged 50-82 percent. Treatments applied in Lee County. Most larvae second or third instars. (Iowa Ins. Sur.).

MINNESOTA - First Hypera postica larvae of season collected by vacuum machine at Rosemont experiment station April 23. Adults averaged 3 per 500 sweeps of alfalfa at St. Paul May 18. First larvae in southeast district found May 23 in Fillmore County; averaged 2 per 100 sweeps. Adults 4 per 100 sweeps in Houston County field. (Minn. Pest Rpt.). WISCONSIN - Generally light in alfalfa; damage expected to be minimal. Egg hatch insignificant, despite some heavy oviposition in some fields. Increased egg laying began this period, but cutting of alfalfa expected before noticeable damage occurs. Population collapse attributed to heavy parasitism by Bathyplectes circulionis (an ichneumon wasp) in 1972. Survey indicates some potential for heavy damage to alfalfa in sandy soiled areas near Wisconsin River; larvae mostly third and fourth instars in this area. Adults averaged about 4 per 50 sweeps; larval counts about same. (Wis. Ins. Sur.).

INDIANA - Half of observed fields in southern districts cut. Stubble treatments applied even where first crop treatments applied; damage due to early and late instar H. postica larvae. Heaviest infestations in northern districts occurred in Lagrange County; ranged 36-80 percent infested with about 2 larvae per terminal. Harvesting will probably preclude treatment in many northern district fields; second-crop damage expected. (Meyer). MICHIGAN - Young larvae present at Gull Lake, Kalamazoo County. Sparse, weedy alfalfa stands tended to have more larvae. (Casagrande). OHIO - Larval counts in clover and alfalfa by county: Hardin and Coshocton, less than 3 to 7 per 25 sweeps in clover; Logan, 5 per 25 sweeps in clover; Knox, 8-9 per sweep in alfalfa; Muskingum, 3-4 per sweep in alfalfa; Columbus, less than 2 per sweep in alfalfa. Oviposition decreasing. Larvae caused heavy damage to alfalfa in Knox and Columbus Counties. (Fox, Horn).

KENTUCKY - H. postica larvae decreased in alfalfa in southern areas. (Barnett). WEST VIRGINIA - Larvae caused 8 percent damage to alfalfa with 90 percent of 50 tips infested in Roane County. (Hedrick). VIRGINIA - Based on 6 fields sampled (50 acres) in 3 counties, average estimated defoliation 18.73 percent; 33 percent of fields exceeded threshold of 20 percent defoliation. (Snyder et al.). MARYLAND - Damage to alfalfa continued to increase beyond economic thresholds in Washington, Frederick, and upper Montgomery Counties. First cuttings delayed due to rains. Pupation continued statewide, but less than 10 percent to date. (U. Md., Ent. Dept.). NEW YORK - Eggs averaged 84.4 and 87.8 per square foot in 2 alfalfa fields in Tompkins County May 4, and 29.4 per square foot in Livingston County field May 10. First-instar larvae increased. (N.Y. Wkly. Rpt., May 21).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Generally moderate on alfalfa at Los Lunas, Valencia County. (N.M. Coop. Rpt.). KANSAS - Moderate in alfalfa in Morris and Chase Counties. (Bell). NEBRASKA - Increased in alfalfa, ranged 523-600 per 100 sweeps in 2 fields in Johnson County. (Koinzan). MINNESOTA - Counts variable in southeast district alfalfa, ranged 0-400 per 100 sweeps. Winged forms appeared in trace numbers in some fields in Houston, Fillmore, and Olmsted Counties. (Minn. Pest Rpt.). WISCONSIN - Remains light in alfalfa, heaviest counts averaged about one per sweep. Winged forms increased. (Wis. Ins. Sur.). ARKANSAS - Increased slightly in alfalfa in northwest area. (Boyer). KENTUCKY - Populations seem stabilized or decreasing in alfalfa in southern areas. (Barnett). NEW JERSEY - Heavy in one Mercer County alfalfa field; no problem anticipated. (Neuberger).

MEADOW SPITTLEBUG (Philaenus spumarius) - MINNESOTA - Young nymphs formed spittle masses on upper leaves of alfalfa; ranged 0-22 nymphs per 100 sweeps in southeast district. Spittle masses averaged one per 5 stems in few fields. (Minn. Pest Rpt.). MISSOURI - Light in all alfalfa checked in north-central and northeast areas. Ranged 3-12 nymphs per 100 stems in most fields; averaged 29 nymphs per 100 stems at one site. (Munson). KENTUCKY - Populations heavy and increased in Allen and Simpson Counties. Adults averaged 300 per 100 sweeps of alfalfa. (Barnett).

VARIEGATED CUTWORM (Peridroma saucia) - OKLAHOMA - Heavy in alfalfa checked in Stephens and Grady Counties. Damage continued on alfalfa, gardens, and ornamentals in many west-central counties. (Okla. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - NEVADA - Young larvae ranged 0-4 (average 2) per sweep in alfalfa seed fields at Orovada, Humboldt County. (Stitt).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Heavy on alfalfa in Chittenden County; leaf punctures apparent. No evidence of flies in Orange County alfalfa fields. (Nielsen). NEW YORK - Active in alfalfa. Feeding and egg laying observed in Otsego County, central area; no mines seen. (N.Y. Wkly. Rpt., May 21).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Infested seed alfalfa, being especially heavy in drier parts of fields, at Jungo, Humboldt County. (Stitt).

A SPRINGTAIL (Sminthuris dorsalis) - NORTH DAKOTA - Ten per 100 sweeps of alfalfa in Bowman and Slope Counties. These are new county records. (Brandvik).

COTTON

BOLL WEEEVIL (Anthonomus grandis) - TEXAS - Traps in Coryell and Hill Counties indicate weevils increased in seedling cotton. Average trap catches 6.4 and 1.6 weevils per trap in these counties. Heavy increase in weevils in pheromone traps noted in Calhoun County. Catches expected to decline rapidly as cotton begins to grow. Although cotton not up in Rollings Plains area, weevils taken on pheromone traps in several counties. No weevil activity noted in Hall, Knox, and Jones Counties. Catches increased in Taylor, Tom Green, and Runnels Counties. (Hoelscher et al.). OKLAHOMA - First of season taken in Leggett traps in Jackson, Washita, and Caddo Counties. (Okla. Coop. Sur.). ARKANSAS - Number of weevils taken in Leggett traps variable as shown by catches in 10 traps each in following counties: Clay 78, Mississippi 18, Phillips 105, Chicot 7, Conway 3. (Boyer).

MISSISSIPPI - Leggett trap catches of A. grandis in Webster County indicate weevils moving from overwintering quarters. Average counts per trap by county as follows: Webster 29.7 (19 traps); Grenada, 7.7 (15 traps); Yalobusha, 12 (20 traps). In Bolivar County near Scott, 5 weevils taken in 186 traps. (Robinson). ALABAMA - Live weevil counts on 9 farms in Covington, Monroe, and Montgomery Counties light; two weevils collected on 2 farms in Covington County at rate of 14 and 18 per acre. (Pike et al.).

BEET ARMYWORM (Spodoptera exigua) - NEW MEXICO - Scattered infestations on cotton in Dona Ana County. (N.M. Coop. Rpt.).

CUTWORMS - MISSISSIPPI - Peridroma saucia (variegated cutworm) and Agrotis ipsilon (black cutworm) larvae damaged 470 acres in Sunflower County; 30-40 acres replanted. (C. Black, R. Black).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Heavily infested one cotton field at Safford, Graham County. (Ariz. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

POTATO FLEA BEETLE (Epitrix cucumeris) - OHIO - Adult damage moderate to tomatoes in Marietta area, Washington County. Damage moderate to heavy on potatoes in same area. (Sleesman).

GREEN PEACH APHID (Myzus persicae) - WYOMING - Light to heavy on tomatoes and peppers in Albany, Goshen, and Laramie Counties. (Daiss).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Larvae very abundant and caused heavy ragging of collard leaves in Palm Beach County. Polyhedrosis virus brought larvae under control so that only minimum injury occurred directly on heads. (Fla. Coop. Sur.).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Adults active in watermelon and cantaloupe fields in Dorchester and Wicomico Counties. Damage light to date. Most growers held off sprays due to rain. Sprays expected in all fields within next 7 days. (U. Md., Ent. Dept.).

GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - VIRGINIA - C. asparagi (asparagus beetle) and C. duodecimpunctata (spotted asparagus beetle) feeding and laying eggs on asparagus at Blacksburg, Montgomery County, May 24. (Kosztarab). MICHIGAN - C. asparagi and C. duodecimpunctata very active and ovipositing in Oceana County asparagus fields. Fields should be checked and treated where necessary. (Sauer).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Generally light to medium in lettuce in Dona Ana County; treatments applied. (N.M. Coop. Rpt.).

A CUTWORM (Abagrotis barnesi) - NEVADA - Averaged 10 per leaf on rhubarb plants with heavy damage at Lovelock, Pershing County. (Melis, Munk).

DECIDUOUS FRUITS AND NUTS

ALFALFA WEEVIL (Hypera spp.) - Unusual, unpredicted, and damaging situation developed on cherries in Stockton area of San Joaquin County and Brentwood area of Contra Costa County. Newly emerged adults in mass flights into cherry orchards, where cherries ripening; fed and mined into fruit. Doubles and close-contact clusters seem most damaged. Growers concerned as damage equivalent to bird picks plus wet frass. In some orchards, damage near 5 percent. Harvest still 2-10 days away. Cullage may reach 25 percent in few instances. Weevils have always been host specific on clovers and alfalfa. Adults leaving alfalfa and moving into nearby orchards, normally move to windrows, bark of trees, and onto and into buildings for summer aestivation. Populations heavier in centers of orchards than in margins; probably due to interior of orchard being cooler. Probably mostly H. brunneipennis (Egyptian alfalfa weevil). No apparent population pressure in nearby alfalfa fields. In past few days apricots in Contra Costa County also involved. Bean growers in Tulare County experiencing damage this season for first time ever. (Cal. Coop. Rpt.).

CODLING MOTH (Laspeyresia pomonella) - NEW MEXICO - Moderate flights of male moths noted in pheromone traps in apple orchards in Lincoln, Chaves, Otero, De Baca, Rio Arriba, Valencia, and Sandoval Counties. (Durkin). MICHIGAN - Spring emergence began May 18-20 in southwest area. Adults appeared in sex lure traps from Berrien County to Ionia County. (Sauer).

LESSER PEACHTREE BORER (Synanthedon pictipes) - MICHIGAN - Partially emerged moth found May 24 in abandoned peach orchard near Berrien Springs, Berrien County. Expect routine seasonal emergence next week. Peak emergence usually occurs about mid-June in southern counties and early July in northern areas. (Sauer).

GREEN PEACH APHID (Myzus persicae) - OREGON - Very heavy on peach trees in various parts of Treasure Valley. In Ontario area, Malheur County, traps attracting heaviest number of aphids recorded for this early in season, indicating unusually high aphid movement. (Henninger).

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Second-generation eggs numerous on leaves in orchards where weather interfered with satisfactory prebloom mite control. (Sauer). CONNECTICUT - Heavy infestation in fruit trees in East Lyme, trace in Storrs; many eggs noted in New Haven. (Kersting).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Control applications should be made in Blacklands area May 24-30 based on "hatchout" of pupae as well as pecan grove observations in Earth and surrounding counties. In Rolling Plains area, moths emerged in Jones, Young, Wichita, Baylor, Wilbarger, and Archer Counties. Controls anticipated by May 31-June 4 in Rolling Plains area. (Green). NEW MEXICO - Infested new growth of pecan trees in Eddy and Chaves Counties. (Marek, Chappell).

PECAN PHYLLOXERA (Phylloxera devastatrix) - ALABAMA - Damaging populations developed on pecans over wide area in Dallas County. Some growers treated with little success. (Hines).

SMALL FRUITS

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Adults heavily damaged 30 acres of strawberries near Salisbury, Wicomico County. Sprays applied too late to save crop. (U. Md., Ent. Dept.)

A GEOMETRID MOTH (Itame argillacearia) - NEW HAMPSHIRE - Third-instar larvae infested 300 acres of lowbush blueberries at Alton and Gilford, Strafford County; caused extensive damage. (Bauman).

CURRANT BORER (Syanthedon tipuliformis) - OREGON - Adults averaged 3 per 25 sweeps in 6-acre planting of currants at Cornelius, Washington County. (Collins).

FOREST AND SHADE TREES

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsuga) - OREGON - Larvae began to hatch in foothills of Mt. Emily near LaGrande, Union County. Treatment planned for 25,000-40,000 acres in LaGrande area; first to begin within next 7 days. All timberlands to be treated are privately owned. (Larson).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MISSISSIPPI - Volumes of beetle-killed salvaged wood in State through March totaled 228,000 board feet on State land and 2,048,000 board feet on Federal land. (Miss. For. Comm.).

PINE SPITTLEBUG (Aphrophora parallela) - FLORIDA - Adult taken in blacklight trap in pine-hardwood forest at Gainesville, Alachua County. This is first record of season in State. (Fla. Coop. Sur.)

A CONIFER SAWFLY (Neodiprion pratti pratti) - WEST VIRGINIA - Collected on pitch pine in Calhoun County by J.M. Atkins. Determined by A.R. Miller. This is a new county record. (Hacker).

SPRING CANKERWORM (Paleacrita vernata) - INDIANA - Defoliation of Moraine honeylocust, an unusual host for this species, noted in Tippecanoe County. (Schuder). SOUTH DAKOTA - This species and Alsophila pometaria (fall cankerworm) infested elms in windbreaks and shelterbelts throughout State. Damage on elms 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 per 2 feet of twig). Infestations treated; some may require second treatment. (Jones). NEBRASKA - P. vernata and A. pometaria damaged shade trees statewide, with much control underway. Heavy infestations reported in Lancaster, Hall, Lincoln, Holt, and Boone Counties. (Roselle et al.).

LARCH CASEBEARER (Coleophora laricella) - MAINE - Populations seem heavier than previous years. Very heavy damage reported May 18 on about 10 acres in Weeks Mills but casebearer pupating. Heavy along U.S. Route 6 at Springfield, Carroll, Lincoln, and Lee areas Light infestations widespread. (Gall).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MARYLAND - Infestations this season lightest of past 4 years statewide. In areas east of Frederick County, pupation underway and damaged trees recovering. (U. Md., Ent. Dept.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Adults damaged new growth on Siberian elms in Alburquerque, Bernalillo County. (N.M. Coop. Rpt.). TEXAS - Larvae fed on elms in north-central counties. (Turney). MISSOURI - Larval damage to elms reported from southeast, south-central, and southwest areas. (Munson).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 69 confirmed cases reported in the continental U.S. during period May 13-19 as follows: Texas 6, New Mexico 4, Arizona 57, California 2. Total of 698 cases confirmed from Mexico. Number of sterile flies released in U.S. during this period totaled 93,604,050 as follows: Texas 78,712,000; New Mexico 2,917,500; Arizona 11,253,750; California 720,000. Total of 76,852,050 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MARYLAND - Populations stable; ranged 10-40 adults per head on beef and dairy stock. (U. Md., Ent. Dept.). OHIO - Generally light on beef and dairy cattle in central area; heaviest count averaged 7 per face on Hereford cattle in Champaign County. (Fox).

MOSQUITOES - MAINE - Most single-generation Aedes species pupated, many adults emerging. Some biting reported in southern half of State. (Gall). OHIO - Larval survey in Huron County May 14 and 15 showed Culex pipiens pipiens and C. restuans to be 4 times as common as A. canadensis and A. vexans. Only few Culiseta inornata recovered in area. About 14 days of sustained warm weather may result in large scale adult emergence. (Dept. Health). ARKANSAS - Psorophora confinnis very light to date, but numbers will likely increase rapidly next few weeks as few rice fields up to stand and being flooded. Few Culex spp. larvae present in roadside ditches. (Boyer). WISCONSIN - Mosquitoes biting week ending May 19; increased gradually; currently severe in some lowland areas. Biting should intensify next several weeks. Light annoyance to dairy cattle reported in Polk, Burnett, and Chippewa Counties. (Wis. Ins. Sur.).

MINNESOTA - Heavy rains during week of May 21 resulted in heavy hatch of Aedes vexans in parts of Ramsey, Washington, Anoka, Hennepin, and Dakota Counties. Hatch light in other parts of these counties. A. vexans brood that hatched first week of May now in pupal stage with some adult emergence. Emergence of single-brooded spring Aedes spp. now about complete. (Minn. Pest Rpt.). ARIZONA - A. vexans and Culex tarsalis moderate to heavy from north of Dateland to Dome Valley along Gila River Bed. City of Yuma expected to have heavy infestations next few weeks. (Ariz. Coop. Sur.). NEVADA - Aedes spp. adults heavy in McDermitt area, Humboldt County. (Lauderdale). CALIFORNIA - Orthopodomyia signifera larvae taken from large water-filled hole in cottenwood tree by K. Hansgen in Ione, Amador County. This species is vicious biter. Tree-hole sources often missed as source of infestation. This is new area of infestation. (Cal. Coop. Rpt.).

HORN FLY (Haematobia irritans) - MARYLAND - First adults of season found on dairy stock in Caroline and Queen Annes Counties. Ranged 10-80 per head in 3 herds of 200 head. (U. Md., Ent. Dept.). FLORIDA - Adults averaged 271 per animal on beef cattle at Gainesville, Alachua County. (Fla. Coop. Sur.). ALABAMA - Continued to increase on cattle in Wilcox County. (Farquhar). MISSISSIPPI - Average counts per head on various breeds in Oktibbeha County: Angus 1,100; Barzona 1,000; Santa Gertrudis 1,000; Polled Hereford 1,500; Horned Hereford 800. (Combs). OKLAHOMA - Ranged 200-500 per head on cattle in Major County. Moderate to heavy in Carter and Marshall Counties and moderate in Pawnee, Kiowa, Garvin, and Pontotoc Counties. (Okla. Coop. Sur.).

TEXAS - Ranged 50-100 per animal in Fort Bend County. Generally widespread and heavy on cattle in Guadalupe County. Heavy and widespread in San Marcos County; ranged 1,800-2,500 per animal. Increased in many Blacklands, North Central, and Rolling Plains counties. Heavy on cattle in Shackelford County, moderate in Wilbarger, Knox, and Clay Counties. Light to heavy in McCulloch, Gillespie, Llano, Irion, Blanco, and Mason Counties. (Green et al.). NORTH DAKOTA - Populations heavy for time of year on cattle in southwestern counties. Counts averaged 100 per animal on beef cows on range in Slope and Billings Counties. (Brankvik).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Light annoyance to cattle reported in Chippewa, Polk, and Burnett Counties; none noted on dairy heifers in Waushara County. (Wis. Ins. Sur.). TENNESSEE - Populations built up in central area. Counts in Warren County ranged 2-5 per head. (Gordon).

TURKEY GNAT (Simulium meridionale) - FLORIDA - Heavy at Blountstown, Calhoun County; adult bites caused death of young chicks on farm. (Fla. Coop. Sur.).

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

MISCELLANEOUS WILD PLANTS

PAINTED LADY (Cynthia cardui) - CALIFORNIA - Adult flights heavy in Fresno area. Motorists complained about dirty windshields. Females heavy with eggs. Cool days and nights this period slowed major flight. Adult numbers increased in coastal areas. (Cal. Coop. Rpt.). NEVADA - Larval migrations caused concern to residents of Hualapai Valley, Washoe County. (Spoo). Larvae heavy on thistle in Verdi area, Washoe County. (Adams et al.). WASHINGTON - Heavy adult migration observed at Yakima May 17. (Landis). Heavy adult flights and larval feeding on Canada thistle seen May 23 in Othello and Warden areas of Grant and Adams Counties. (Hunter). IDAHO - Large migratory flights reported in many northern areas May 18-23. Adult migration began May 16 and continued northward May 17 through Canyon County. Very often up to 100 butterflies per minute passed given point 100 feet in width. SOUTH DAKOTA - Adults heavy, observed in migratory flight in Moody, Lake, Brookings, and Minnehaha Counties. (Jones). NORTH DAKOTA - Heavy migration noted in southwestern counties. Movement appeared to be from southwest to northeast with heaviest flights around Dickinson area. (Brandvik).

BENEFICIAL INSECTS

ICHNEUMON WASPS - MICHIGAN - Adults of Lemophagus curtus and Diaparsis n. sp., larval parasitoides of Oulema melanopus (cereal leaf beetle), collected from emergence trap in Berrien County by T.L. Burger May 13, 1973. Determined by J.R. Coulson. (PPQ). OHIO - Bathyplectes curculionis parasitized about 80 percent of H. postica larvae in Columbus County alfalfa field. (Horn, Flessel).

A BRACONID WASP - OHIO - Microctonus colesi recovered April 20 from Hypera postica (alfalfa weevil) adults collected in Franklin County. This is a new county record. (Horn).

A CHALCID WASP (Brachymeria intermedia) - WEST VIRGINIA - Adults of this pupal parasite of Porthetria dispar (gypsy moth) released in Jefferson, Berkeley, Hampshire, Pocahontas, and Hardy Counties. (Hacker).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema Melanopus) - VIRGINIA - Small larvae collected on winter wheat in Augusta County May 16 by W.D. Jones. (Allen). WEST VIRGINIA - Larvae averaged 3 per square foot in oats in Putnam County, 4 per square foot in oats in Jackson County. (Hacker). Eggs averaged 7 per square foot and larvae 11 per square foot in oats in Mason County. (Holler). KENTUCKY - Adults, larvae, and eggs collected on small grains in Grant County May 17. Surveys negative in Christian, Hopkins, McLean, Muhlenburg, Todd, Union, and Webster Counties. (Greene et al.). TENNESSEE - Immatures found on Pickett County small grains. Feeding signs difficult to find; populations very light. Numbers greatly reduced compared to 1972 when O. melanopus first found in State. (Gordon). MICHIGAN - Adults averaged at least 1 per sweep in Berrien County wheat fields with counts up to 3 per sweep in some cases. Larvae still scarce in these fields. One wheat field near Berrien Springs had at least 1 egg per stem. Population at Gull Lake, Kalamazoo County, at lowest point in last 5 years. (Casagrande, Webster).

GRASS BUGS - UTAH - Several hundred Labops hesperius per sweep taken in some crested wheatgrass areas in Wanrhodes Canyon, Utah County; 10 percent adults May 15. First through third-instar nymphs, including Irbesia sp., very numerous in Major Flat area, Sar te County. L. hesperius averaged 120 per sweep in Salina Canyon, Sevier County. (Haws). COLORADO - Irbisia sp. very numerous on intermediate wheatgrass in Custer County. Controls applied. (Hantsbarger). NEBRASKA - L. hesperius heavy in 5 to 6-square-mile area of Scotts Bluff and Banner Counties. Mature bugs ranged 433-1,030 per 10 sweeps in several wheatgrass pastures. Moving into adjacent wheat. Damage expected to continue for another 7-10 days. (Hagen).

GRASSHOPPERS - WASHINGTON - Economic populations of Melanoplus sanquinipes, M. packardii, M. bivittatus, Oedaleonatus enigma, and Aulocara elliotti developed throughout eastern part of State. In Franklin County, grasshoppers moved into irrigated crops on several farms. Ranged up to 25 per square yard in alfalfa. Ranchers organized cooperative control program on about 200,000 acres of rangeland in Franklin and Benton Counties; treatment to begin June 5 or 6. Ranged 20-30 per square yard May 16 near Wilson Creek and

Coulee City, Grant County. (Foeppel). OREGON - Grasshoppers, mainly Oedaleonotus enigma, economic on 23,000 acres of rangeland in Morrow and Umatilla Counties where heavy populations found in 1972. About 1,200 acres delimited in Umapine area. Heavy in crops, mainly alfalfa and potatoes, in these counties. Extremely light in Grant, Gilliam, Wallowa, and parts of Malheur Counties. Sporadic counts of up to 50 per square yard noted in some areas of Malheur County. (Goeden, Brown).

NEVADA - Grasshoppers, mostly first-instar nymphs of O. enigma, ranged 2-4 per square yard on 5,000 acres of rangeland near Upper Clover Ranch, Elko County. (Giles, May 18). Over 90 percent first-instar nymphs averaged 11 per square yard along field and road margins and 2 per square yard on rangeland in Orovada area, Humboldt County, except for 300 acres near Home Ranch which averaged 50 per square yard. Averaged 25 per square yard on pastureland and field margins and 1+ per square yard in alfalfa in northeastern part of Kings River Valley, Humboldt County. Averaged one per square yard in Paradise Hill area. O. enigma (50 percent), M. bivittatus (25 percent), and M. sanguinipes (25 percent) averaged less than one per square yard in Paradise Valley, Humboldt County. (Wilson, et al.). WYOMING - Hatch of Aulocara elliotti, Amphitornus coloradus, Ageneotettix deorum, and M. confusus light in Goshen and Platte Counties. (Hardy).

JAPANESE BEETLE (Popillia japonica) - VERMONT - Larvae averaged 1 per square inch in Bellows Falls athletic field; appear to be resistant to treatment made. (Nielsen).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae of these pests and Elasmopalpus lignosellus (lesser cornstalk borer) destroyed 5-acre field of corn in Covington County. (Linder).

DETECTION

New State Record - A THRIPS (Oedaleothrips hookeri) - CALIFORNIA - Adults collected from garden in Kneeland, Humboldt County, by T. Haig April 24, 1973. Determined by T. Kono. Confirmed by K. O'Neill. No host given. (Cal. Coop. Rpt.).

New County Records - A BRACONID WASP (Microctonus colesi) OHIO - Franklin (p. 325). A CONIFER SAWFLY (Neodiprion pratti pratti) WEST VIRGINIA - Calhoun (p. 322). A SPRINGTAIL (Sminthuris dorsalis) NORTH DAKOTA - Bowman, Slope (p. 319).

General Vegetables - DIAMONDBACK MOTH (Plutella xylostella) larvae moderate to heavy on mustard cabbage planting at Pearl City, Oahu; 15 percent of larvae collected were parasitized by Diadegma insularis (an ichneumon wasp). Larvae negligible to trace in all other mustard cabbage plantings on Oahu. (Otsuka).

Forest and Shade Trees - Surveys in Wailuku and Makawao areas on Maui revealed backyard infestations of an ADELGID (Pineus pini) on potted pine plants at several residences. All infested plants sprayed. In spite of these finds, it appears eradication of this pine pest can be acheived on the Island of Maui. (Miyahira). Adults and larvae of a BARK BEETLE (Xylosandrus compactus) heavy on branches of lantana (Eucalyptus robusta) and Java plum at Kalepa Ridge in Lihue and on Nounou Mountain in Kawaihau, Kauai. Dieback of lateral branches due to moderate larval infestations noted on native Hawaiian persimmon (Diospyros sp.) and olomea (Perrottetia sandwicensis) on Mt. Kaala, Oahu. (Sugawa, Rose). A CONIFER APHID (Cinara carolina) heavy on terminals of slash pine (Pinus elliottii) at Poli Poli Springs, Kula, Maui, and in Hanalilolilo and Pepeopae areas of Molokai Forest Reserve, Molokai. (Rose). Larvae of a NOCTUID MOTH (Melipotis indomita) heavy under flaky bark of kiawe at Lahaina, Maui; damage to foliage light. Larvae light on kiawe at Kahului and Kihei. Few larvae found under debris at bases of young monkey-pod trees at Wahiawa and Port Allen, Kauai. (Ah Sam, Sugawa).

Miscellaneous Insects - Single male specimen of a VESPID WASP (Vespula vulgaris) collected above Olinda, Maui, at elevation of 1,200 meters January 23, 1973, by F.G. Howarth. Determined by A.S. Menke. This species is widespread in Nearctic and Palearctic Regions and occurs in New Zealand. (Howarth).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (salt marsh caterpillar)	Euxoa auxiliaris (army cutworm)	Paronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege comstockalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Mamestra quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellow-striped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																								
Kelso 5/16-22			BL	1					1															
Pickens 5/16-22			BL	43				5	21									9	1					
Tomberlin 5/16-22			BL					1	26															
INDIANA (Counties)																								
Lawrence 5/10-16			BL		3														4					
Randolph 5/10-16			BL	1	11														15					
KANSAS (Counties)																								
Barton 5/10-21			BL	1															225			1	10	
Republic 5/23			BL			9												3	3					
Stafford 5/21			BL			1																		
KENTUCKY																								
Lexington 5/17-24			BL	1															1					
MINNESOTA																								
Crookston 5/24-30			BL																1					
Worthington 5/24-30			BL																1					
NEBRASKA (County)																								
Clay 5/17-24			BL	7		25													22					
WEST VIRGINIA (Counties)																								
Harrison 5/9			BL																					
Mason 5/9, 15, 21			BL															1	1					
WISCONSIN																								
Hancock 5/17-22			BL	1														1	1					
Lancaster 5/17-22			BL																3					
Mazomanie 5/17-22			BL																1					

A Leafminer of Ragweeds (Ambrosia spp.), Calycomyza ambrosiae (Frick) (Diptera, Agromyzidae)

George C. Steyskal 1/

The species was described as Phytobia (Calycomyza) ambrosiae by Frick (1956:299) from specimens reared from Ambrosia artemisiifolia L. and A. trifida L. in Tennessee, Indiana, Pennsylvania, and Florida. The mine in leaves of A. artemisiifolia was figured by Stegmaier (1967). No further data have been available until I received for determination three specimens from California reared or captured on Ambrosia confertiflora DC. (reared: Hollywood, Los Angeles County, June 14, 1970, and Otay, San Diego County, April, 8, 1970; captured: Beaumont, Riverside County, April 2, 1970). These were all taken by Richard D. Goeden and D.W. Ricker of the Division of Biological Control, University of California, Riverside, California.

The species is thus of far greater distribution than has heretofore been suspected and affects at least three species of Ambrosia. It may therefore well be considered a likely prospect for biological control of these weeds.

Calycomyza is considered by most workers on Agromyzidae at present as being of generic rank. Keys to North American species, including C. ambrosiae, are by Frick (1956, 1959). Other pertinent keys, such as those by Spencer (1963, neotropical; 1969, Canada and Alaska), do not include C. ambrosiae. The group of species to which C. ambrosiae belongs has been termed the "malvae group." Species of that group cannot be determined satisfactorily on external characters, but characters of the leaf-mine in association with the species of host plant or those of the male postabdomen are needed.

Inasmuch as no figure of the male postabdomen of C. ambrosiae has been published, a male from Otay, California, was prepared and compared with the postabdomen of the type specimen from Tennessee. No differences were noted. The postabdomen of the California specimen is shown in the accompanying figure.

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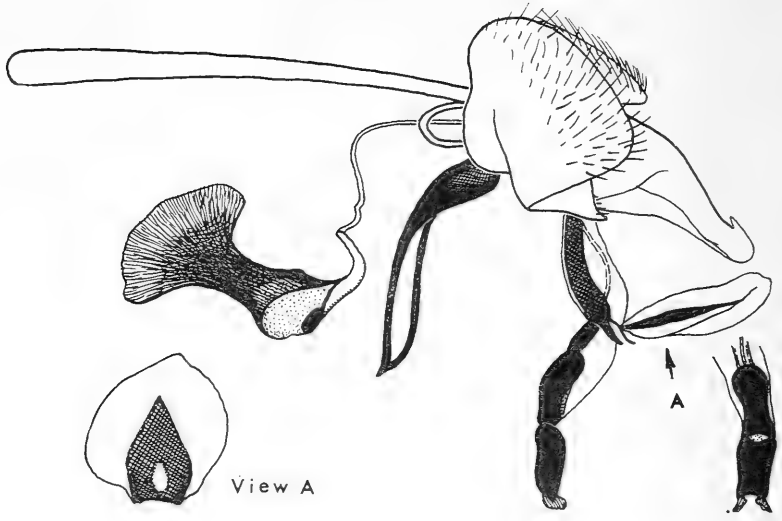

Calycomyza ambrosiae (Frick). Left lateral view of male post-abdomen.

U.S. Dept. Agr.
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23(22):329-330, 1973

The Genus Emmesomyia Malloch in North America

(Diptera, Anthomyiidae)

George C. Steyskal 1/

Two species of the genus Emmesomyia are listed in the North American catalogue of Diptera (Stone et al., 1965:858): E. apicalis Malloch, 1917, and E. socialis (Stein), 1898. It has become evident recently that these are merely color varieties and that E. apicalis should be considered a junior synonym of E. socialis.

Another species, E. socia (Fallen), was recorded for the first time from North America in this journal (1971, CEIR 21:5). In the latest fascicle on the palaearctic species of Anthomyiidae (Hennig, 1972:450) it is shown that 2 species have been confused under the name E. socia for a long time. Reexamination of the specimens recorded as E. socia from North America shows that they are not the true E. socia, but a species that should be called Emmesomyia villica (Meigen).

The 2 species of Emmesomyia now known to occur in North America may be distinguished as follows:

(a) Femora at least in considerable part yellowish; 5th sternum of male with posteriorly directed lobes (fig. A).....E. socialis (Stein).

(b) Femora black, only extreme apex yellowish; 5th sternum of male with downcurved apical lobes (fig. B).....E. villica (Meigen).

The only available data on the biology of species of Emmesomyia consist in the record of the rearing of E. villica from cells of the wasp Oxybelus uniglumis quadrinotatus cited previously in these Reports and some notes cited by Hennig (1972:453) indicating that either socia or villica or both may develop in human feces in Europe.

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For illustrations see page 332.

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Lateral view of lefthand side of 5th sternum of males of Emmesomyia species.

A - E. socialis (Stein); B - E. villica (Meigen).

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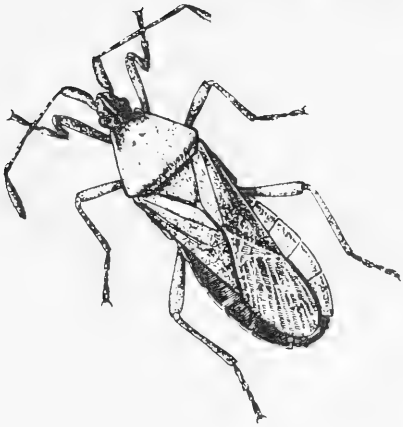

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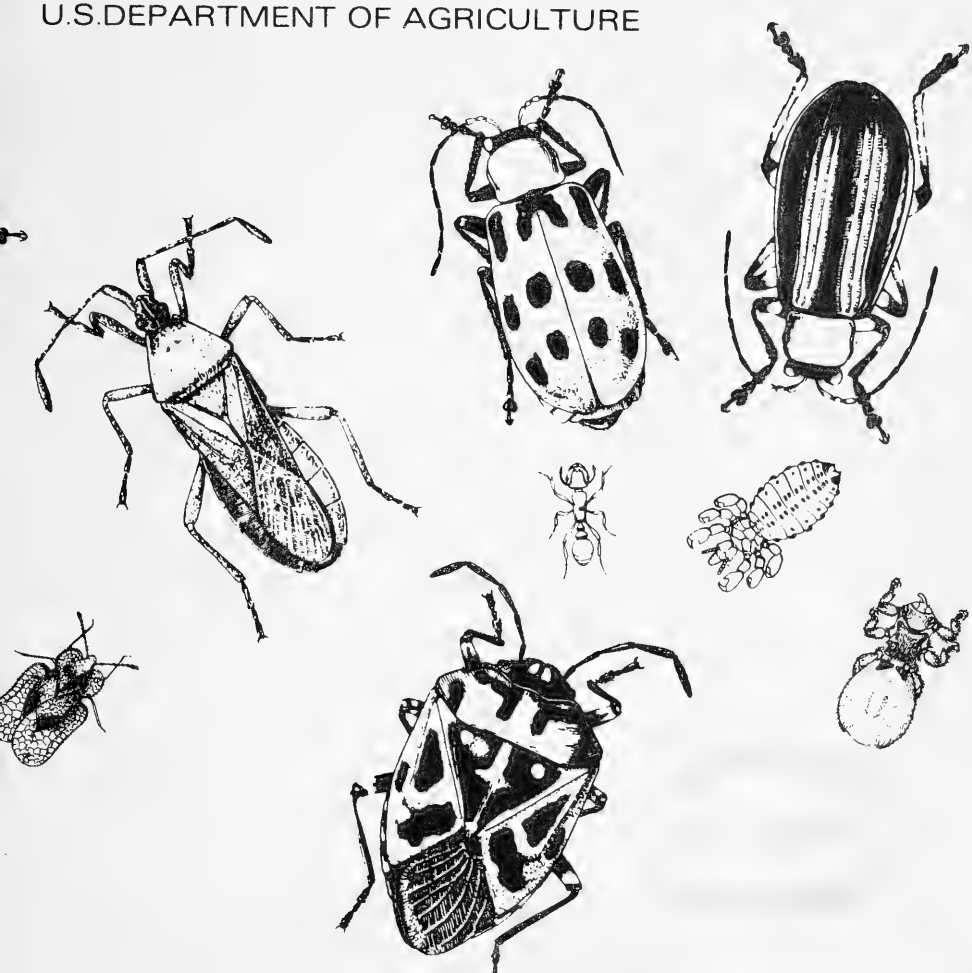

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 heavy and scattered on small grains in western Oklahoma and south-central Kansas; moth collections increased sharpley in Michigan. Armyworm not expected to be widespread problem in Illinois this season; infestations below economic levels in Maryland. (p. 335). See Light Trap Collections, pages 350 and 351. POTATO LEAFHOPPER heavy for time of year in alfalfa in east-central Illinois. (p. 336).

ALFALFA WEEVIL damaged alfalfa in eastern two-thirds of Kansas. Damage and larval populations light in Wisconsin, generally lighter than 1972 in Ohio. Predation continued to reduce ALFALFA SNOUT BEETLE populations in infested areas of New York. (pp. 338-339).

An ALFALFA WEEVIL COMPLEX in California damaged strawberry fruit. Controls in cherry orchards effective. (p. 343).

BOLL WEEVIL feeding on small cotton squares in Texas. BEET ARMYWORM larvae heavily damaged 1,900 acres of seedling cotton in Pahrump Valley of Nevada. (p. 340).

DARKSIDED CUTWORM required some controls in sugar beets in Minnesota. (p. 341).

COMMON CATTLE GRUB adult incidence and FACE FLY heavier than normal in California; STABLE FLY epidemic in some northern areas of State. MOSQUITO adults and larvae reported heavy in several areas. (pp. 345, 346).

PAINTED LADY larvae moving into crops in some Western States. (p. 346).

GRASS BUGS damaged range grasses in some Western States. (pp. 347-348).

Detection

New State records include two DROSOPHILID FLIES in Hawaii (p. 349), a LECANODIASPIDID SCALE in South Carolina (p. 344), and TUMID SPIDER MITE in Delaware (p. 343).

For new county records see page 349.

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

CONTENTS

WEATHER OF THE WEEK ENDING JUNE 4

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

HIGHLIGHTS: The Pacific Northwest remained dry, as did California. A Low charted a rainy, sometimes destructive, course across the Nation's eastern half early in the week. A rather confusing conglomeration of weather systems brought some storms, some sunshine east of the Rockies during midweek. A huge Low deepened in Canada north of the Dakotas over the weekend, spreading violent weather over the Nation's midsection.

PRECIPITATION: Early in the week the weather was dominated by a Low that made things wet and sometimes dangerous east of the Rockies. Monday through Wednesday the Low drifted from the central Corn Belt northeastwards into Labrador, with a cold front trailing through roughly the Nation's eastern third. Saturday the 26th through Tuesday the 29th, at least 195 tornadoes occurred which were associated with this storm system, mostly in the South, Illinois, and Indiana. Cloudy and wet Memorial Day weather affected most of the Nation's eastern half. North Georgia had 5.58 to 5.91 inches of rain that morning. A strip extending from south-central North Carolina through Georgia's southwestern tip was deluged with 2.10 to 3.39 inches of rain. The storm wove an erratic pattern of destruction throughout the South into Tuesday. It generated rain and drizzle elsewhere east of the Mississippi. Behind the storm, the sun shone Tuesday afternoon over the Mississippi Valley, the Plains, the southern Rockies, and the intermountain region, as a High moved in from Canada. Through midweek, clear weather prevailed through most of the Nation. New England and eastern areas did, however, receive some rain caused by a Low which had moved north of Labrador. A midweek Low intensified over northern Ohio, generating some light precipitation and cloudiness Wednesday and Thursday, before it filled and dissipated. Local midweek thunder-

Weather of the week continued on page 352.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - OKLAHOMA - Moderate larval populations continued to damage alfalfa in Woodward County. (Okla. Coop. Sur.). KANSAS - First-generation moths in flight in Barton, Finney, and Greeley Counties. (Bell).

ARMYWORM (Pseudaletia unipuncta) - OKLAHOMA - Scattered, heavy infestations in wheat and barley in Blaine, Washita, Beckham, Custer, Caddo, Grady, Kingfisher, Canadian, Garfield, and Kay Counties. Ranged 0.2-5 per linear foot and up to 50 per square foot in blown-down areas. Head clipping light to date with most feeding on awns and leaves, but many fields being treated. Damage more common in barley than in wheat in Garfield and Kingfisher Counties. Moderate in spots in wheat in Garvin and Alfalfa Counties and in barley in Jackson County. Scattered, heavy infestations reported in Bermuda grass pastures in Comanche County; moderate in lawn checked in Payne County. (Okla. Coop. Sur.). KANSAS - Damaging infestations reported in barley from Cowley County and in wheat in Sedgwick and Harvey Counties. (Bell).

ILLINOIS - P. unipuncta overall populations very light week ending May 25, although small larvae found in roadside grasses as far north as Champaign County. Species not expected to be widespread problem in State in 1973. Current populations up to 3 per plant in field of 6 to 8-inch corn in Calhoun County; treatment required. Second field in Calhoun County averaged 3 small larvae per 100 plants. Larvae generally light in wheat throughout southern half of State. Larvae averaged one per 10 row feet in 2 fields in Washington County. Heaviest infested wheat field surveyed averaged 3 larvae per 10 feet in Calhoun County. (Ill. Ins. Rpt.). MICHIGAN - Adult collections increased sharply in all blacklight traps; total of 123 taken in Lenawee County week ending June 1. Larvae can be expected in fields next 14-21 days. (Sauer).

VIRGINIA - P. unipuncta damage to corn began in Wythe, Montgomery, Roanoke, and Pulaski Counties; some fields required treatment. Damage light in Franklin County even with high percentage of infested plants. Control critical in first 21 days following planting of no-til corn. (Allen). MARYLAND - Remained below economic levels in all sections. Heaviest larval counts ranged 3-4 per square foot in Dorchester County barley; counts taken in lodged areas only. (U. Md., Ent. Dept.).

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Slight increase in small grains noted. About one adult per 200 sweeps taken in eastern Sauk and northern Grant Counties, 2 per 200 sweeps near Spring Green, southern Sauk County. (Wis. Ins. Sur.). MINNESOTA - Counts in alfalfa over State increased; ranged 30-40 per 100 sweeps. (Minn. Pest Rpt.).

CORN EARWORM (Heliothis zea) - OHIO - First adult of season collected May 27 in blacklight trap at Wooster, Wayne County. This is unusually early for State as first moths normally not collected until early August. Possibly carried in by high winds from more southern region, or may have overwintered in area. (Rings). GEORGIA - Fed in whorls of corn in Louisville area, Jefferson County. (Jordan).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Present in many grain sorghum and cornfields in Calhoun County; no economic damage noted. Moderate on grain sorghum in Erath and surrounding counties in Blacklands area. Light to moderate on older grain sorghum in Knox County. (Cole et al.). KANSAS - Light in 10 percent of whorls of 2-inch sorghum in Wabaunsee County. (Bell).

GREENBUG (Schizaphis graminum) - TEXAS - Survey indicated light, scattered populations on grain sorghum in Calhoun County; no economic damage reported. Light to moderate infestations reported from Knox County on grain sorghum. (Cole, Boring). OKLAHOMA - Destroyed stands of Sudan grass, and sorghum and Sudan crosses in Garfield and Noble Counties. Also discoloring leaves of seedling sorghum in several areas of Garfield County. (Okla. Coop. Sur.). KANSAS - Alates, along with small colonies of immatures, noted on lower leaves of 20 percent of 2-inch sorghum plants in field in Pottawatomie County and on 30 percent of 3-inch plants in Wabaunsee County field. None found in newly emerged sorghum field in Shawnee County. No serious infestations on sorghum reported; however, all fields where seedlings emerged require frequent checking for damaging buildups. (Bell).

POTATO LEAFHOPPER (Empoasca fabae) - MINNESOTA - Few found on alfalfa in Red River Valley, but some heavy concentrations found in roadsides. Ranged 10-20 per 100 sweeps, with 70 per 100 sweeps found at one location, in Marshall County. Some yellowing noted in occasional alfalfa field. (Minn. Pest Rpt.). WISCONSIN - Adults being collected more frequently in alfalfa; averaged up to 3 per 25 sweeps in some fields. (Wis. Ins. Sur.). ILLINOIS - Counts per 100 sweeps, week ending May 25, by county as follows: Ogle 60, Grundy 40, Champaign 400, Ford 100, Livingston 320, Adams 125. Champaign and Livingston Counties considered heavy for time of year. (Ill. Ins. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - TEXAS - Caused light to moderate damage to alfalfa in Hardeman County. (Boring).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - TENNESSEE - Immatures damaged whorls of corn in several western area fields. (White). DELAWARE - Adult collections in Kent and Sussex County light traps ranged 4-5 per night. (Burbutis). OHIO - First-generation moths emerging in northeast area. Mating and oviposition will occur soon. (Rings). MICHIGAN - First female moth of season taken in blacklight trap May 24 in Lenawee County. (Sauer). KANSAS - Light trap catches indicate moths flying in Finney and Brown Counties. (Bell).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARIZONA - Larvae found in damaging populations in two Salt River Valley area, Maricopa County, sorghum fields. (Ariz. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - This species and Euetheola rugiceps (sugarcane beetle) damaged 50-acre field of 18-inch corn in Henry County. Most damage occurred in sandier soils where 70 percent of plants badly damaged. (Bond et al.).

BLACK CUTWORM (Agrotis ipsilon) - ILLINOIS - Moderate in some corn in St. Clair County; widespread in Cass County; treatment applied in selected areas of heaviest infested fields. Damage reported in Clay, Montgomery, and Pike Counties. (Ill. Ins. Rpt.). MISSOURI - Heavy infestation reported on corn in Boone County; field will probably be replanted. (Keaster).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Caused light damage in most cornfields in west-southwest and southwest districts. Field of 8-inch field corn in Calhoun County averaged 50 beetles per 100 plants; damage noneconomic. (Ill. Ins. Rpt.). INDIANA - Adults present in all corn checked in southern districts; averaged less than one per plant on corn in 2 to 4-leaf stage. (Meyer). OHIO - Caused extensive damage to seedling corn in Huron County; adult damage heavy on all of 50 plants examined in one 10-acre planting. Lighter damage to 2-inch corn observed in Clark and Preble Counties with minor damage on less than 30 percent of plants. (Fox). MARYLAND - Damage levels decreased in Talbot, Queen Annes, Dorchester, and Caroline Counties due to good growing conditions. Counts ranged 3-10 per corn plant statewide. (U. Md., Ent. Dept.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - UTAH - Damaged young corn and sorghum throughout southern Washington County. (Huber).

CORN ROOTWORMS (Diabrotica spp.) - TEXAS - Heavy population damaged corn about 3 miles northwest of Beeville, Bee County. Corn lodged and heavy populations of adults noted cutting silks off ears of corn. (Deer).

CORN BLOTCH LEAFMINER (Agromyza parvicornis) - NORTH CAROLINA - Larvae caused blade damage to scattered cornfields in Coastal Plain. Damage noted in 8 fields in Sampson, Bladen, and Duplin Counties; 60-acre field in Sampson County hosted general infestation. Yield reduction rare except in cases of extreme foliar damage. (Heath, Hunt).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Populations appeared in some sorghum fields in Calhoun County. (Cole).

SMALL GRAINS

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - ARKANSAS - Due to late rice crop, only small percent of fields flooded in Lonoke and Prairie Counties. Feeding signs found on average of 35 percent of new leaves in 20 fields checked; ranged zero to 90 percent with only 2 fields ranked zero. Heaviest count 3 adults per square foot. Weevils found in ground trash samples in most fields, indicated some weevils still in hibernation; however, counts low and feeding signs light in oldest rice. (Barnes, Boyer).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Continued moderate in wheat heads in Garfield and Kingfisher Counties. (Okla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - GEORGIA - Pupae heavy on wheat in Dougherty County. (Hays, Harris).

TURF, PASTURES, RANGELAND

TWOLINED SPITTLEBUG (Prosapia bicincta) - ALABAMA - First adult emergence of season occurred on lawn in Lee County with 1-5 adults per 500 square feet. Controls applied. (Henderson).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEVADA - Larvae ranged 20-30 per sweep with up to 70 per sweep in Orovada, Humboldt County, alfalfa seed fields. Treatments completed or to be completed this period in Churchill, Douglas, Lyon, and Pershing Counties. (Hilbig et al.). UTAH - Development slowed by late spring and cool weather. Much control expected after first alfalfa crop harvested. (Davis). Some damage apparent in Utah County alfalfa. (Daniels). COLORADO - Erratic in occurrence; ranged 20-1,200 larvae per 100 sweeps of alfalfa in Otero County. (Schweissing).

TEXAS - H. postica infestations reported in northern Panhandle in Hansford, Lipscomb, Ochiltree, and Donley Counties. In Donley County, adults ranged 1-2 per sweep. Hansford is a new county record. (Clymer). OKLAHOMA - Still light in alfalfa in southern half of the State. Larvae still damaging in few west-central and northwest counties; adults moderate to heavy in many counties in these 2 areas. (Okla. Coop. Sur.). MISSOURI - Larval counts per 100 alfalfa stems by county: Adair 160, Marion 361, and Schuyler 281. (Munson). KANSAS - Damaging infestations common in alfalfa in many areas of eastern two-thirds of State, especially in cut fields where regrowth delayed. Infestations generally light in fields surveyed in southwest district; ranged about 50-100 larvae per 100 sweeps. Some damaging infestations reported in some fields of Clark County. (Bell).

NEBRASKA - H. postica larvae ranged 12-97 (averaged 53.9) and adults 0-3 (averaged 0.3) per 100 sweeps in 23 alfalfa fields in Otoe County week of May 23. Larvae 28 and one adult per 100 sweeps taken in one field at Mead, Saunders County. In Gothenburg and Cozad areas of Dawson County, larvae ranged 14-2,095 (averaged 261.9) per 100 sweeps in 11 fields; adults ranged 1-39 (averaged 6.5). Counts in Lexington and Overton ranged 0-520 larvae (averaged 114.8) and 0-8 adults (averaged 2.6) per 100 sweeps in 10 fields. (Manglitz). SOUTH DAKOTA - Moderate in alfalfa near Spearfish, Lawrence County, week ending May 25. Adults ranged 32-225 per 100 sweeps. (Walstrom).

WISCONSIN - H. postica damage and larval survey underway; completed in some areas. Data indicate light damage and very low larval counts in alfalfa due to fact many eggs still being laid. Females heavy with eggs but warm evenings needed for oviposition. Hatch will not occur for about 7 days. Most alfalfa probably will be cut prior to significant feeding. Hatch underway in some sandier soiled areas and in fields with southern exposure. Increased numbers of first instars noted in such fields but alfalfa in hard-bud stage, some laying in progress. Some cocoons of Bathyplectes curculionis (an ichneumon wasp) appeared where larvae from overwintered eggs pupated. Heaviest H. postica larval counts reached 5 per 25 sweeps with comparable number of adults taken. (Wis. Ins. Sur.).

ILLINOIS - Hypera postica larval counts per 100 sweeps, week ending May 25, by county as follows: Ogle 60, Grundy 40, Champaigne 400, Ford 140, Livingston 120, Adams 10,000. (Ill. Ins. Rpt.). INDIANA - Larvae active in northernmost counties. In 29 fields checked in northernmost tier of counties, average infestation ranged 53-77 percent and larvae per terminal ranged from 1-2.5 to 1-3. Infestation much heavier in northernmost tier of counties than in tier immediately south. Damage to alfalfa reported in counties south of Indianapolis. (Huber, Meyer). MICHIGAN - Egg hatch rapid in Lansing area alfalfa May 28 and larvae common in southern part of State. (Sauer). OHIO - Larval counts and damage generally lighter in alfalfa and clover than in 1972. First cutting of alfalfa underway; anticipated that hay will be cut before damage occurs in many areas. Some economic damage reported in Knox, Franklin, and Pickaway Counties, however. (Fox).

WEST VIRGINIA - H. postica tip infestation 88 percent with 20 percent defoliation to alfalfa in Pleasants County May 23. (Cutlip). VIRGINIA - Defoliation 50 percent on 5 acres of alfalfa at one Montgomery County location and 95 percent on 10 acres at another location. (Surles). MARYLAND - Damage levels declined statewide, pupation underway. First cuttings of alfalfa underway throughout central area. (U. Md., Ent. Dept.).

ALFALFA SNOUT BEETLE (Otiorhynchus ligustici) - NEW YORK - Predation continued to reduce populations as this pest entered oviposition period. First eggs of season found in Wayne County May 25. Controls can still be made where necessary with expectations of success as egg laying proceeds slowly. Beetles continued to move about in northern areas of Jefferson County infestation. (N.Y. Wkly. Rpt., May 29).

ALFALFA LOOPER (Autographa californica) - OREGON - Very heavy in many parts of State. Adults 150+ nightly in light traps at Ontario, Malheur County; 75+ per night taken in blacklight trap at Hermiston, Umatilla County. Total of 252 adults taken in pheromone traps at university vegetable farm in Linn County, May 22-29. (Brown et al.).

VARIEGATED CUTWORM (Peridroma saucia) - OKLAHOMA - Larvae continued to damage alfalfa in Washita and Caddo Counties. (Okla. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - NEVADA - Averaged 5 per sweep in Reese River, Lander County, alfalfa seed fields and 100 per sweep in Virgin Valley, Clark County, alfalfa hay. (Zoller et al.). ARIZONA - Ranged 200-400 per 100 sweeps of alfalfa at Yuma Valley, Yuma County, and 50 in western area of Phoenix, Maricopa County. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Vacuum samples in Bolivar County alfalfa indicate 10,000 adults per acre. (Schuster).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Adults prevalent in alfalfa, leaf mines appeared week ending May 30. (MacCollom).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Occasional specimens taken from alfalfa at Reese River, Lander County. This is a new county record. (Bechtel, Peters).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Overwintered adults active throughout Eastern Shore and southern area. Light, less than 6 adults per 20 row feet in newly emerged soybeans. Egg laying underway in Somerset, Worcester, Wicomico, and Dorchester Counties. Overwintered populations appear to be moderate. (U. Md., Ent. Dept.). TENNESSEE - Fed on soybeans in Franklin County. (Cagle).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Overwintered adults feeding in small squares in Calhoun County; infestation appears very light. Pheromone traps continued to catch weevils in Blacklands area. In McLennan County, catch of 14 weevils from 6 traps reported. In Hill County weevils averaged 2 per trap; Coryell averaged 3.5. In Rolling Plains, 37 weevils captured on pheromone trap in Cottle County and 10 each in Hardeman and Wilbarger Counties. Nine weevils trapped in Childress County; 3 in Haskell County. None taken in Jones, Knox, and Hall Counties. (Cole et al.). OKLAHOMA - Leggett trap collections showed 3 adults in Jackson County and one adult in Caddo County. (Okla. Coop. Sur.). ARKANSAS - Total weevils taken in Leggett traps increased over previous period. Generally, numbers heavier in northern area than in southern area, except in Phillips County in east-central area where 230 weevils taken in 10 traps this period. (Boyer).

MISSISSIPPI - Leggett traps indicate weevils emerged in many counties where no diapause control used. Average trap catches by county: Holmes 3.8 per trap (10 traps); Bolivar 3 per 173 traps; Grenada 9.4 per trap (19 traps); Webster 28.4 per trap (17 traps); Panola 27.6 per trap (8 traps); Tallahatchie 18.8 per trap (6 traps; Yalobusha 5.55 per trap (31 traps, 41 acres), 8.58 per trap (26 traps, 47.5 acres), 4.31 per trap (26 traps, 24 acres), 3.84 per trap (31 traps, 28 acres). (Robinson). ALABAMA - Live weevil counts on presquare cotton in 3 to 5-leaf stage in Covington County much heaiver than previous weeks. None found on 4 farms in Monroe County and several farms in Shelby and Limestone Counties. (Pike et al.). GEORGIA - Up to 155 adults per Leggett trap taken in southern area; adults feeding on seedlings and caused "black flagging." (Womack, Barry). TENNESSEE - One weevil found in cotton terminal in Fayette County. Survey limited due to excessive rains. (Locke).

BOLLWORMS (Heliothis spp.) - GEORGIA - Fed on seedlings in southern area. (Womack). ARKANSAS - Due to lateness of cotton crop, sugar lines being operated primarily on vetch. Few H. zea (bollworm) moths observed in Lonoke and Mississippi Counties, none seen on vetch in Jackson County. (Boyer).

BEET ARMYWORM (Spodoptera exigua) - NEVADA - Larvae heavily damaged about 1,900 acres of seedling cotton in Pahrump Valley, Nye County. Treatments applied. (Hoff, Zoller).

FLEAHOPPERS - ARIZONA - Spanogonicus albofasciatus averaged 2 per plant in one cotton field on west side of Maricopa County. Some fields treated at Yuma, Yuma County. Averaged 5 per 100 sweeps in 2 cotton fields at Yuma. (Ariz. Coop. Sur.). TEXAS - Pseudatomoscelis seriatus (cotton fleahopper) heavy on horsemint in south-central area. Some adults may be found in cotton fields but no reproduction noted. Slight damage recorded in some cotton. (Cole).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Sweep samples from Erigeron annus (annual fleabane), a wild host, indicate this plant bug developing in large numbers. Total of 128 adults and 253 nymphs taken in 100 sweeps of 12-inch net in Monroe County. (Robinson).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - ALABAMA - Heavy in field borders on vetch and cotton in 5 cotton fields examined in Limeston County. Controls applied on one field border. (McDonald et al.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults on newly transplanted tobacco ranged 3-8 per plant in northern Prince Georges County. Damage subeconomic to date. Recent rains promoted good growth, plants outgrowing injury. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - Reached threshold levels in about 25 percent of tobacco fields in Bladen and Robeson Counties. Fields with plants "buttoning" or near this stage usually have higher percentage of plants infested. (Robertson, Hunt).

SUGAR BEETS

DARKSIDED CUTWORM (Euxoa messoria) - MINNESOTA - Present in sugar beet fields in Norman and Clay Counties. Damage noticeable enough in some fields to start controls. Situation expected to become more serious; growers advised to watch fields closely next 7-14 days. (Minn. Pest Rpt.).

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Most larvae have pupated; fly emergence about 10 percent in Walsh and Pembina Counties. Flies moved into new beet fields, up to 25 eggs per plant present on beets. Most beets in 4-leaf stage. (Kaatz). MINNESOTA - Adults very active in 1972 beet fields in Norman and Clay Counties. Egg laying probably underway in area. (Minn. Pest Rpt.).

MISCELLANEOUS FIELD CROPS

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Larvae pupating in Culver City area, Jefferson County, mint fields. First pupae (3) found May 30. It is estimated that about 1 percent of population pupated. (Berry).

BEET ARMYWORM (Spodoptera exigua) - NEVADA - Larvae of this species and Trichoplusia ni (cabbage looper) caused moderate damage to about 300 acres of mint and required treatment in Pahrump Valley, Nye County. (Hoff).

WHITELINED SPHINX (Hyles lineata) - NEVADA - Larval migrations heavy into cropland and across roads in Fallon area, Churchill County, and Schurz, Mineral County. (Knous et al.).

POTATOES, TOMATOES, PEPPERS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Heavy populations defoliated potatoes near Munday, Knox County. Also damaged lettuce, beans, and tomatoes in home gardens in Brazos County. (Boring et al.).

TOMATO PINWORM (Keiferia lycopersicella) - TEXAS - Light to moderate populations attacked tomatoes at several locations in Brazos County. Tomatoes averaged 2 infested leaves per plant in two gardens examined. (Green).

POTATO SCAB GNAT (Pnyxia scabiei) - WASHINGTON - Field infestations in central area not evident at present. Suspect that populations greatly reduced by sudden cold conditions in late fall. (Landis).

BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - WASHINGTON - Population levels, based on damage to young peas, much lower in Whitman County than in previous 2 years; suspect cold dry conditions last winter and early spring responsible. (Landis, Entenmann).

PEA APHID (Acyrthosiphon pisum) - TENNESSEE - Heavy on pea plantings in Fayette County. (Gordon).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - MISSISSIPPI - Larvae of this pierid and Trichoplusia ni (cabbage looper) moderate on 100 acres of cabbage in Copiah County. (Ray).

CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Adults active in watermelon and cantaloupe fields in Dorchester and Wicomico Counties. Damage light to date. Most growers held off sprays due to rain. Sprays expected in all fields within next 7 days. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

ALFALFA WEEVIL COMPLEX (Hypera spp.) - CALIFORNIA - Still entering cherry and apricot orchards in several areas; damaged ripening fruit and stems of cherries. Treatment applied by many cherry growers very effective. Weevils still moving from alfalfa in unusual numbers. Even in areas far from alfalfa, homeowners complained about weevils entering homes. Bur clover hard hit this spring and widespread in occurrence. Due to plentiful rainfall, clover unusually succulent. (Cal. Coop. Rpt.).

CODLING MOTH (Laspeyresia pomonella) - MICHIGAN - Pheromone trap catches indicate moth emergence underway throughout western area fruit belt. Moths appeared in northern counties about May 23. (Sauer).

CALIFORNIA PEARSLUG (Pristiphora abbreviata) - CALIFORNIA - Active in northern pear-growing areas; defoliated pear orchards. Treatment required. (Cal. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Egg laying unusually light in all areas checked through May. White eggs found as far north as southern Pottawatomie County by May 31; red and white eggs present in south-central counties. Infestations averaged 1 or 2 percent in most areas but ranged up to 6 percent in few areas. (Okla. Coop. Sur.). TEXAS - Based on moth emergence, control measures indicated for Cottle County and counties farther north during period June 4-9. Moths continue to emerge in Wichita, Wilbarger, Young, and Baylor Counties in Rolling Plains. Producers in Hill, Limestone, and other counties urged to continue checking trees in central area. (Boring, Hoelscher).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TENNESSEE - Caused light to severe damage to wild and cultivated pecans in several western counties. (H.D. Gordon, C.D. Gordon).

SMALL FRUITS

ALFALFA WEEVIL COMPLEX (Hypera spp.) - CALIFORNIA - Adult weevils damaged strawberry fruit in 30-acre planting in Sanol, Alameda County. Damage occurred in dooryard strawberry patches and commercial plantings in San Joaquin County. Also reported on cherries, apricots, and beans. (Cal. Coop. Rpt.). See CEIR 23(22): 321.

EUROPEAN RED MITE (Panonychus ulmi) - PENNSYLVANIA - Overwintering eggs in one Concord grape vineyard averaged 33 per nodal area. Eggs hatched, larvae and nymphs appeared on grape leaves. Motile forms averaged 3 per leaf in one vineyard. (Jubb, May 25).

ORNAMENTALS

TUMID SPIDER MITE (Tetranychus tumidus) - DELAWARE - Very common on philodendron house plant in Newark, New Castle County, May 23, 1973. Collected and determined by G. Ide. Confirmed by E. Baker. This is a new State record. (Burbutis).

SPRUCE SPIDER MITE (Oligonychus ununguis) - FLORIDA - Nymphs and adults severely infested 90 percent of 7,450 juniper plants (Juniperus excelsa) and 90 percent of 81,000 arborvitae plants at nursery in Baker County May 24. (Fla. Coop. Sur.).

TEA SCALE (Fiorinia theae) - SOUTH CAROLINA - Infested sasanqua in Greenville County May 17, 1973. This is a new county record. (McCaskill).

AN ARMORED SCALE (Pseudaonidia paeoniae) - SOUTH CAROLINA - Moderately infested camellia plants in Greenville County May 17, 1973. Collected and determined by D.K. Pollet. This is a new county record. (McCaskill).

A LECANODIASPIDID SCALE (Lecanodiaspis prosopidis) - SOUTH CAROLINA - Heavy infestation on wild azalea in Oconee County April 30, 1973. Collected and determined by D.K. Pollet. This is a new State record. (McCaskill).

A SOFT SCALE (Ceroplastes ceriferus) - SOUTH CAROLINA - Light on camellias in Pickens County nursery. Moderate to heavy on sasanqua at same nursery. Controls applied. (McCaskill).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - MISSISSIPPI - Moderate to heavy on pine at several locations in Madison County. (Boone).

PINE SAWFLIES (Neodiprion spp.) - MASSACHUSETTS - Several larval infestations of N. sertifer (European pine sawfly) noted on pines at Longmeadow, Hampden County; pines almost totally defoliated. (Jensen). WEST VIRGINIA - N. pratti pratti heavily defoliated one Virginia pine in Doddridge County, May 27, 1973. Collected and determined by A.R. Miller. This is a new county record. (Hacker). TENNESSEE - N. taedae linearis defoliated 50 percent of year-old needles in pine stand in Haywood County. (Gordon).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Larvae defoliated Siberian elm single-row shelterbelts in Mayville area, Traill County. Some trees now 80 percent defoliated. Additional defoliation will occur; some shelterbelts expected to be 100 percent defoliated. (Brandvik).

ELM CALLIGRAPHA (Calligrapha scalaris) - KANSAS - Light larval infestations on American elm were found in Macksville, Stafford County, and heavier than usual infestations found on elms in McPherson, McPherson County, where significant defoliation observed. (Bell).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 148 confirmed cases reported in the continental U.S. during period May 20-26 as follows: Texas 10, New Mexico 11, Arizona 123, California 4. Total of 220 cases confirmed from Mexico. Number of sterile flies released in U.S. during this period totaled 100,971,900 as follows: Texas 81,641,400; New Mexico 3,630,000; Arizona 14,800,500; California 900,000. Total of 82,222,800 sterile flies released in Mexico. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae, mostly H. bovis (northern cattle grub), averaged 0.8 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). CALIFORNIA - H. lineatum (common cattle grub) still running cattle; season late with plenty of moisture. Fly incidence heavier than normal; will result in many infested animals. (Cal. Coop. Rpt.).

FACE FLY (Musca autumnalis) - CALIFORNIA - Occurred in heavier than usual numbers in infested counties. Infestations more general than past years; livestock owners who previously escaped infestation now feeling brunt of this pest. Mountain areas especially bad; calf populations suffering from attacks. Pinkeye increased, previous control materials inadequate due to resistance to phosphate materials. Livestock on irrigated pastures annoyed more than those on open range due to lack of shade or protection. (Cal. Coop. Rpt.). MISSISSIPPI - Adults averaged 6 per face on cattle in Monroe and Chickasaw Counties. (Robinson). INDIANA - Averaged 20 per head on some horses in Warren County. (Chandler). OHIO - Counts variable on beef and dairy cattle; ranged from 9 per face in Richland County to less than one per face in Butler County. (Fox).

MOSQUITOES - MARYLAND - Aedes sollicitans adults active in Wicomico and Prince Georges Counties. Landing counts ranged up to 23 females per 5 minutes. A. canadensis active in central area with landing counts in range of 2-4 per 5 minutes. (Md. Dept. Agr.; U. Md., Ent. Dept.).GEORGIA - Mosquitoes heavy, annoyed residents throughout State. (Nolan). TENNESSEE - Adults of various species heavy in flooded areas of western part of State. (Locke). INDIANA - Second and third-instar larvae of Culex restuans collected in Warren County May 25. Determined by D.A. Shroyer. (Meyer). WISCONSIN - Mosquitoes heavy in wooded lowlands. Cool, wet weather retarded activity; biting not as serious as could be, or as it will be. Light annoyance to dairy cattle reported in some areas. (Wis. Ins. Sur.).

MINNESOTA - Very heavy brood of Aedes vexans that hatched as result of rains May 21-25 now mostly third instar. Other important species in larval collections in Metropolitan Mosquito Control District include A. cinereus and Culiseta inornata. Light trap collections week ending May 25 totaled 382 females from 16 light traps; C. inornata comprised 30 percent of catch; remainder composed of 10 species of early spring Aedes spp. Daytime bite collections totaled 106 females; Aedes abserratus most frequently taken. (Minn. Pest Rpt.). OKLAHOMA - Psorophora ciliata, P. ferox, and P. cyanescens larvae ranged up to 60 per dip in temporary pools in Payne County area. (Okla. Coop. Sur.). UTAH - Aedes dorsalis and A. nigromaculis larvae heavy in irrigated pastures in Weber County; varied 0-500 per dip. (Fronk). NEVADA - Aedes spp. adults very heavy in McDermitt area, Humblodt County, and Virgin Valley, Clark County. (Lauderdale, Zoller).

HORN FLY (Haematobia irritans) - GEORGIA - Increased on cattle throughout State. (Nolan). MISSISSIPPI - Averaged 300 per cow in Monroe, Chickasaw, and Lee Counties; 200 per head in Newton County. (Robinson). TEXAS - Heavy on livestock throughout south-central area; heavy in Brazos County. Heavy numbers attacked untreated cattle in Blacklands counties near Stephenville. Moderate infestations reported from Wilbarger, Wichita, Knox, and Clay Counties in Rolling Plains. Built up throughout Panhandle on

cattle. (Cole et al.). OKLAHOMA - Ranged 700-750 per head on cattle checked in Payne County; moderate in southwest counties and in Pontotoc County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - GEORGIA - Increased on cattle and horses throughout State. (Nolan). ILLINOIS - Averaged 43.5 per animal in two pastured herds in Jersey County. (Ill. Ins. Rpt.). OKLAHOMA - Averaged 4 per head on dairy cattle checked in Payne County. (Okla. Coop. Sur.). CALIFORNIA - Almost epidemic in some valley areas in northern part of State. Wet winter and poor sanitation contributing factors to this situation. (Cal. Coop. Rpt.).

SHEEP KED (Melophagus ovinus) - WYOMING - Ranged 2-21 and 2-39 on ewes in two Platte County flocks; ranged 108-242 and 19-54 on lambs in same flocks. Ranged 0-21, 24-37, and 1-17 on lambs in 3 Goshen County flocks. (Pfadt et al.).

BLACK FLIES - GEORGIA - Attacked horses in Clarke County and humans in Banks County. (Nolan, Jordan). WISCONSIN - Populations very heavy in some areas, i.e. Vilas, Iron, Lincoln, Fond du Lac, Juneau, Wood, and Portage Counties. In most areas, no biting reported, but heavy biting reported in Vilas County; probably due to species differences in various areas. (Wis. Ins. Sur.).

BITING MIDGES (Culicoides spp.) - INDIANA - Adults very annoying at dusk in Warren County; stopped field work in several instances May 26-27. (Chandler).

HOG LOUSE (Haematopinus suis) - OHIO - Infested about half of 525 feeder pigs in Preble County and 2 Duroc sows and 7 young pigs in Morrow County. (Deacon).

HEAD LOUSE (Pediculus humanus capitis) - CALIFORNIA - Several school buses treated in Sacramento, Sacramento County. "Gray backs" crawling over seats and bus interiors. Such infestations not seen for many years. (Cal. Coop. Rpt.).

TICKS - SOUTH CAROLINA - Populations very heavy in many sections of State. One death contributed to Rocky Mountain spotted fever to date. (McCaskill). GEORGIA - Large numbers of Amblyomma americanum (lone star tick) and Dermacentor variabilis (American dog tick) collected on tick drags in coastal recreational areas. D. variabilis infested horses in Clarke County. (Nolan).

MISCELLANEOUS WILD PLANTS

PAINTED LADY (Cynthia cardui) - MONTANA - Present in all western counties of State east to Yellowstone County, from Beaverhead County to Canadian border. (Pratt). IDAHO - Larvae moved from several patches of stripped Canadian thistle to peppermint plants in a 20-acre mint field at Boise, Ada County. (Peterson). OREGON - Larvae very numerous, caused heavy damage to foliage of bull thistle (Cirsium vulgare) in Dixie Creek area (near Lime) of Baker County. (Brown). NEVADA - Heavy larval migrations occurred in Seven Troughs area, Pershing County; Eureka, Eureka County; Crescent Valley, Elko County; and Lake Valley, Lincoln County. In some areas migrating into alfalfa and barley. (Nev. Coop. Rpt.). Heavy larval infestations noted on musk thistle in Verdi area, Washoe County. (Adams, Martinelli). UTAH - Adults very abundant

on warm days; may be second generation from southern range areas. Appear to be smaller and browner (less orange) than earlier flights. (Davis et al.).

BENEFICIAL INSECTS

ICHNEUMON WASPS - MICHIGAN - Lemophagus curtus and Diaparsis n. sp. parasitized Oulema melanopus (cereal leaf beetle) larvae up to 28 percent in a field insectary in Berrien County. (Berger). WEST VIRGINIA - Diaparsis spp. released May 22-24 in Putnam, Cabell, and Jackson Counties. (Hacker). MISSISSIPPI - Bathyplectes curculionis, a parasite of Hypera postica (alfalfa weevil), averaged 1,300 per acre in alfalfa in Bolivar County. (Schuster).

A CHALCID WASP (Brachymeria intermedia) - WEST VIRGINIA - This pupal parasite of Porthetria dispar (gypsy moth) released May 25 in Kanawha County. (Coffman). Adults released in Jefferson, Berkeley, Hampshire, Pocahontas, and Hardy Counties. (Hacker).

A EULOPHID WASP (Tetrastichus julis) - OHIO - This larval parasatoid of Oulema melanopus (cereal leaf beetle) recovered for first time in Fairfield, Jackson, and Muskingum Counties. These are new county records. WEST VIRGINIA - Recovered for first time in Mason, Wood, and Pleasants Counties. These are new county records. (Berger).

A MYMARID WASP (Anaphes flavipes) - WEST VIRGINIA - This egg parasitoid of Oulema melanopus (cereal leaf beetle) released in following counties (number of release sites in parentheses): Jackson (2), Roane (1), Tyler (6), Preston (11), Taylor (4), Monroe (14), Raleigh (3), Summers (4), Mercer (2), Fayette (1), Nicholas (1). (Brooks et al.).

A LADY BEETLE (Coleomegilla maculata) - MISSISSIPPI - Averaged 16,000 adults and 25,000 larvae per acre in alfalfa in Bolivar County. (Schuster).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Adults collected from winter wheat at West Sparta, Livingston County, April 30 by R.E. Maire, and from wheat at Ulysses, Tomkins County, May 11 by P.E. Gerber. VIRGINIA - Adult collected on wheat at Purcellville, Loudoun County, May 6 by R.H. Morris. Larvae collected on barley at Orange, Orange County, May 14 and on barley and rye at Ruckersville, Greene County, May 16 by R.H. Morris and E.L. Thompson; and on wheat near Bassett, Henry County, May 23 by W.D. Jones. All determined by R.E. White. These are new county records. (PPQ). WEST VIRGINIA - Average counts per square foot in oats by county: Monroe - larvae 2, eggs 3; Pleasants - larvae 6, eggs 7; Putnam - larvae 2, 1 egg; Mason - larvae 11, eggs 5; Roane - larvae 2, eggs 3; Jackson - 1 larva, 3 eggs. (Bestiem, Hacker). KENTUCKY - Completed surveys negative in Christian, Webster, and Union Counties. (Greene). MICHIGAN - Adults active in oats and eggs found in native grasses in Osceola County May 25. (Krich).

GRASS BUGS - NEVADA - Irbisia pacifica ranged from 9 per plant on small plants to 19+ per plant on large plants of ryegrass in McDermitt area, Humboldt County. (Lauderdale). IDAHO - Labops spp.

and Irbisia spp. present in spotted areas of about 400 acres of rangeland near Donnelly, Valley County; removed chlorophyll from grass leaves. (Olsen). UTAH - Labops spp. and Irbisia spp. ranged 200-300 per square foot in areas from Cedar City to Kanarraville, Iron County; grasses, mostly crested wheatgrass, badly bleached. Counts, mostly L. hesperius (90 percent adults), ranged 175-796 (average 470) per sweep in Wanrhodes Canyon, Utah County; 90 percent of grass leaf surfaces yellow. Damaged range areas will produce no seed. Other areas of damage observed in Sanpete, Sevier, and Garfield Counties. (Haws). WYOMING - L. hesperius ranged 75-100 per square yard on wheatgrasses in Laramie County. (Hardy, Patch).

GRASSHOPPERS - NORTH DAKOTA - Infestations in field margins, drainage ditches, and roadsides ranged up to 10 (averaged less than 1) per square yard in northern Cass and southern Traill Counties. Development first through third instar. Melanoplus bivittatus dominant species. Damaged sunflowers in Grandin and Drayton areas. Only scattered economic infestations expected in eastern counties this season. (Brandvik). WYOMING - Aulocara elliotti, Amphitornus coloradus, Ageneotettix deorum, and Melanoplus spp. ranged 2-6 per square yard in Hot Springs and Sheridan Counties. (Hardy). IDAHO - Grasshopper egg hatch well underway May 24, some second instars present; population not as heavy as one year ago north of Gooding, Gooding County. (Koester).

GYPSY MOTH (Porthetria dispar) - MAINE - Larvae produced minor but noticeable defoliation of elm at Augusta, Kennebeck County, and may have caused like symptoms on other hardwoods, such as oak in southern area. (Gall). VERMONT - Controls applied to 800 acres in residential and recreation areas in Burlington, Chittenden County, May 30. Larvae began entering second instar May 25. Defoliation apparent in some larger oaks in spray block. About 100 percent defoliation expected in some areas of block where no controls applied. (Benedict). MASSACHUSETTS - Larvae heavy on foliage of abandoned apple trees at Easthampton, Hampshire County. (Jensen). RHODE ISLAND - Some third-instar larvae found in Washington and Providence Counties. Heavy infestation of oaks in home grounds and adjacent areas reported from Washington, Kent, and Providence Counties. (Relli et al., May 23). NEW JERSEY - Larvae easy to find in blueberry fields in some Burlington and Ocean County areas. Controls recommended. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Treatment for this pest totaled 8,596 acres in Bucks, Berks, Lebanon, Lehigh, Northampton, Schuylkill, and Carbon Counties. Treatment completed by May 28 in all but Berks, Carbon, and Schuylkill Counties. (Pa. Dept. Env. Res.).

JAPANESE BEETLE (Popillia japonica) - GEORGIA - First adult of season collected from trap May 22 in Richmond County. (Fortson).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae and adults damaged corn, grass in pastures, and peanuts on farm in Henry County. First report of adult emergence for 1973. (Burns et al.).

New State Records - One male and one female of Drosophila virilis Sturtevent taken at bait at Kihei, Maui, in June 1971. Leucophenga maculosa Coquillett, first collected during 1971 in Pohakuloa area on Hawaii, has since been collected at Kamuela, Hawaii, and several localities on Maui, Lanai, and Oahu. Determinations by M.R. Wheeler. These drosophilid flies are common over North and South America. (Kaneshiro).

General Vegetables - TOBACCO FLEA BEETLE (Epitrix hirtipennis) adults heavy on foliage of eggplants in Pearl City and in some fields at Waimanalo, Oahu. "Shothole" damage conspicuous on many leaves. (Kawamura).

Ornamentals - CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy on foliage of commercial roses in Waianae, Oahu. (Haramoto).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) heavy under bark and under debris at bases of kiawe trees at Hickam Air Force Base, Honolulu, Oahu; 800+ larvae collected from 5 trees by 2 men in less than 30 minutes. (Kahale, Kumashiro). Light buildup of CUBAN LAUREL THRIPS (Gynaikothrips ficorum) occurred on Chinese banyan trees in Honolulu, Pearl City, Kaneohe, and many other areas on Oahu. Montandoniola moraguesi (an anthocorid bug), a purposely introduced predator, numerous in curled leaves and preyed on eggs, nymphs, and adults of G. ficorum in the areas. (Kawamura).

Miscellaneous Insects - Nymphs and adults of a small BANDEDWING GRASSHOPPER (Oedaleus abruptus) heavy in large weedy area adjacent to new stadium site at Halawa, Oahu; up to 10 individuals per square foot. (Kawamura).

DETECTION

New State Records - Two DROSOPHILIS FLIES - HAWAII - Drosophila virilis - Maui; Leucophenga maculosa - Hawaii. (p. 349). A LECANODIASPIDID SCALE (Lecanodiaspis prosopis) - SOUTH CAROLINA - Oconee County. (p. 344). TUMID SPIDER MITE (Tetranychus tumidus) - DELAWARE - New Castle County. (p. 343).

New County Records - HOLLYHOCK WEEVIL (Apion longirostre) VIRGINIA - Adults taken in Roanoke, Franklin, Pittsylvania, Campbell, and Bedford Counties May 30, 1973. (Allen).

ALFALFA WEEVIL (Hypera postica) TEXAS - Hansford (p. 338). AN ARMORED SCALE (Pseudaonidia paeoniae) SOUTH CAROLINA - Greenville (p. 344). BROWN WHEAT MITE (Petrobia latens) NEVADA - Lander (p. 340). CEREAL LEAF BEETLE (Oulema melanopus) VIRGINIA - Loudoun, Orange, Greene, Henry (p. 347). A CONIFER SAWFLY (Neodiprion pratti pratti) WEST VIRGINIA - Doddridge (p. 334). A EULOPHID WASP (Tetrastichus julis) OHIO - Fairfield, Jackson, Muskingum; WEST VIRGINIA - Mason, Wood, Pleasants. (p. 347). TEA SCALE (Fiorinia theae) SOUTH CAROLINA - Greenville (p. 344).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Mandura quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
NEW HAMPSHIRE																							
Hollis 5/4			BL	1														5					
OREGON																							
Canby 5/24-30			BL	1													34						
Dever 5/24-30			BL	7													49						
PENNSYLVANIA (Districts)																							
Central 5/20-30			BL	1												1		8			1		
Southeast 5/20-30			BL	43														2					
TENNESSEE (Counties)																							
Fayette 5/29-6/1			BL	2	1		2		1									14			11	9	
Hardeman 5/29-6/1			BL	1			2									1	3	22			10	3	
TEXAS																							
Waco 5/25-31			BL	8	3		20		66								303	570	62		228	90	
WEST VIRGINIA (Counties)																							
Kanawha 5/29			BL	1														14					
Monroe 5/22, 29			BL	1	21											1		26				5	
WISCONSIN																							
Darien 5/14			BL															14					

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege comstralis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																							
Kelso 5/24-30			BL	4														1					
Pickens 5/24-30			BL	14					1	31							3	1					
FLORIDA																							
Gainesville 5/25-31			BL	1	1			32		3									1	1	1		
ILLINOIS (County)																							
Ogle 5/22-28			BL														1	12					
INDIANA (Counties),																							
Lawrence 5/17-23			BL	1	9											1		9					
Tippecanoe 5/17-23			2BL		36												2	72					
KANSAS																							
Great Bend 5/22-30			BL	126		305	56										76	256			10		
Manhattan 5/29			BL	1			10											1					
KENTUCKY																							
Bowling Green 5/30			BL														2	3			3		
Lexington 5/25-6/1			BL	2														1					
MINNESOTA																							
Crookston 5/24-30			BL															6					
Worthington 5/24-30			BL	1														33					
MISSISSIPPI																							
Stoneville 5/25-31	1.40	59-87	2BL	174				2	3	48					2		138	817	9		212	54	
MISSOURI (County)																							
Platte 5/17-24			BL	1												5	2	3					
NEBRASKA																							
North Platte 5/23, 30			2BL	1		4	67											12					

Weather of the week continued from page 334.

storms broke out over the Nation's midsection. The wettest band dumped from 1 to 2.25 inches of rain over central Oklahoma and northwestern Arkansas Wednesday and Thursday. A Low situated in Mexico caused considerable cloudiness over the west coast, and scattered thundershowers erupted in northern California and Oregon. Also, a tornado was sighted 27 miles north of San Francisc Francisco. Friday was again clear over most of the Nation; however a few thundershowers lingered over Dixie. One storm dropped 4.20 inches of rain in southern Alabama. Friday, a Low drifted south from Canada and sat in the vicinity western North Dakota till mid-Saturday. East of its cold front, and south of an occluded front stretching from the Dakotas to Maine, muggy weather, peppered with thunderstorms and tornadoes, prevailed. Saturday and Sunday this system intensified. Sunday it deepended into a massive Low centere in Canada just north of the Dakotas. Severe weather returned to the Plains; thunderstorms erupted from Texas to the Great Lakes; winds gusted from 50 mph in Oklahoma and 62 mph near Ft. Worth, Texas; Hebron, Nebraska, got 2.82 inches of rain. Late Sunday and early Monday, warm, moist gulf air proceeded north to meet the system, resulting in numerous thunderstorms.

TEMPERATURE: The East recovered from last week's cold snap: Temperatures east of the Appalachians averaged mostly from 1 degre to 3 degrees above normal. Some of New England and eastern New Yor did, however, average from 1 degree to 3 degrees below normal. From the Appalachians through the Rockies, temperatures mainly averaged from 1 degree to 3 degrees below normal, with just a few pockets averaging 6 degrees below normal. The exception here was the northwestern Corn Belt and parts of the Dakotas and Montan which averaged from 1 degree to as much as 6 degrees above average Southern California west into central Arizona had temperatures from 1 degree to 6 degrees above normal. This band of higher than usual temperatures extended inland into Canada, while the northern part of California's coastline and Washington and Oregon coastal areas averaged from 1 degree to 6 degrees below normal. East of the Mississippi, a Low kept the mercury down most of the week. Late in the week a High in the Atlantic off the Carolinas pumped moist, hot air into the East, first warming things up, then making muggy and miserable. Early in the week, morning lows along the gulf were in the high 60's and low 70's; however, warm, moist air pushed inland around Thursday. Morning lows thereafter were in the 60's to high 70's, with afternoon highs in the 80's and 90's. In the Pacific Northwest, Highs in the Pacific kept coastal temperatures relatively normal. While in the interior, some desert air did get north and raise some midweek temperatures as high as 90 degrees.

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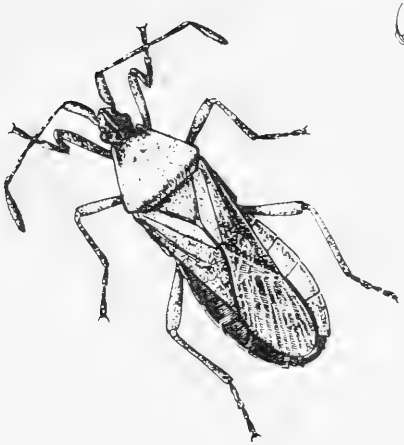

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Cooperative Economic Insect Report

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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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Volume 23 June 15, 1973 Number 24

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM economic on barley in localized areas of Kansas and very spotted outbreak reported on orchard grass in Arkansas. Some controls applied to small grains in Virginia. GREENBUG flights into seedling sorghum heavy in south-central Kansas, killed seedling sorghum plants in isolated areas of Oklahoma. (pp. 355, 356, 369-370).

EUROPEAN CORN BORER moth emergence underway in corn-producing areas, some egg laying and damage to corn reported; infestations expected to be heavy this season in Maryland due to favorable overwintering conditions past winter. (pp. 356-357).

ALFALFA WEEVIL infestations variable; larval populations decreased in some areas, adults increased in other areas. Eggs hatched in North Dakota, larvae and damage increased in southern and central Wisconsin and in southeastern and southern Iowa. (pp. 358-359).

PAINTED LADY larvae damaged crops in some Western States. (pp. 360, 361, 363, 366).

BOLL WEEVIL damage to cotton increased in lower Rio Grande Valley of Texas. (p. 360).

Moth flights of HEMLOCK LOOPER and a GEOMETRID MOTH heavy in hemlock in western Pennsylvania. (p. 364). Weekly SCREWWORM confirmed cases indicate spring buildup in progress. (pp. 364-365).

Prediction

SOUTHERN PINE BEETLE epidemic expected in Virginia which will exceed 1972 record damage in State. (p. 364).

Detection

New State records include a SEPSID FLY and a TACHINA FLY in Hawaii. (p. 362).

For new county and island records see page 368.

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

CONTENTS

WEATHER OF THE WEEK ENDING JUNE 11

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

HIGHLIGHTS: The eastern Corn Belt got 2 inches of unwanted rain early in the week; however, clear weather late in the week allowed farmers to get back into their fields. The rest of the East's precipitation was due to a slow moving cold front that took most of the week to cross the Nation. It was warmer than normal over most of the Nation, and uncomfortable in the East because of high humidity.

PRECIPITATION: The western two-fifths of the Nation received virtually no rain. Scattered areas did get 0.30 inch, while daily showers brought coastal areas up to 0.80 inch. In contrast, areas from the Corn Belt to the Atlantic were peppered with thunderstorms. Areas in Texas, South Carolina, and Georgia got 4 inches or more of rain, while a large area in the eastern Corn Belt got 2 inches or more. Severe thunderstorms struck the Nation's midsection Monday. An intense Low, centered over Lake Winnipeg, Manitoba, spread them from the central Plains to the Appalachians. In 6 hours Monday afternoon, Lafayette, Indiana, had 1.81 inches of rain, Martinsburg, West Virginia, 1.80 inches; Cedar Rapids, Iowa, 1.12 inches. Twenty tornadoes tore into seven States and Louisville, Kentucky, had a 70 m.p.h. wind gust. Tuesday, the cold front extending from the Manitoba Low divided the Nation weatherwise from Michigan to Texas. To the west, the sun shone and dry weather prevailed; to the east, it was hot and humid with locally heavy rains. Findlay, Ohio, got 1.42 inches of rain in the afternoon. The front slowly crept eastwards. It reached the Appalachians on Thursday, and sat along the mountains, stretching north through New York. On Friday, the front finally dissipated over New England. Along its way it had distributed heavy thunderstorms from the Great Lakes to the gulf. Tuesday and Wednesday Muscle Shoals, Alabama, got 2.50 inches of rain. On Thursday, another cold front moved southwards from Canada into Montana, Minnesota, and the Dakotas, bringing gloomy skies and some thundershowers to the Dakotas.
Weather of the week continued on page 371.

ARMYWORM (Pseudaletia unipuncta) - KANSAS - Economic infestations common in Cowley County barley. Some severely damaged barley with large proportion of heads clipped reported southeast of Arkansas City. Light to economic in wheat in Cowley, Chautauqua, Sumner, Harper, Sedgwick, and Harvey Counties; heaviest and only damaging infestations seemed confined to rank, thick stands of wheat, especially downed wheat. Infestations absent to light in wheat and barley in Greenwood, Butler, Wilson, Marion, and Coffey Counties. Large acreage of wheat and barley treated in Cowley County. Some treatments made in Labette County where infestations in wheat generally light. Treatments planned in some Sedgwick and Harvey County fields. Much rank and downed wheat and heavy populations noted in some fields in area. (Bell). OKLAHOMA - Numbers declined in most areas as wheat matured but some fields still treated in northern counties. Larvae ranged third instar to full grown in Garfield County. Some movement to young sorghum noted in Garfield and Grant Counties. (Okla. Coop. Sur.).

ARKANSAS - Very spotted P. unipuncta outbreak occurred in orchard grass in Benton County. Larvae present about 14 days before detected June 6; in one field no small larvae and only few full-grown larvae found. Heavy undetected feeding resulted in all leaves being destroyed. In another field, small to full-grown larvae and few pupae present; larvae ranged up to 10-12 per square foot, all leaves destroyed. Field cut for hay; quality reduced as bulk of forage harvested mostly stems and heads. Some fields with active infestations treated. (Boyer). MISSOURI - Larvae averaged 2 per plant in no-till corn in central area; 2 or 3 fields involved (Craig). Larvae also damaged field of barley in central area, clipped heads noted. (Thomas).

NORTH CAROLINA - P. unipuncta larvae damaged no-till corn, conventional corn, small grains, and pastures in Rowan County. Stand loss very severe in several fields and treatments applied. (McNeely). VIRGINIA - Larval spraying began on about 500 acres of small grain in Lancaster County prior to June 5. Treatment applied to 70 acres of small grain in Page County and an estimated 100 acres of small grain in Amelia County by June 5. (McSwain et al.). Growers should check small grains for this pest now. Populations should build up next 21 days in no-till corn. (Allen). MARYLAND - Infestations generally well below past 3 years moderate to heavy levels. About 2,000 acres of barley sprayed past 2 weeks. Infestations well below 1 percent level in most small grains. (U. Md., Ent. Dept.). DELAWARE - Larvae present on field corn in Sussex County. (Burbutis).

ASTER LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Averaged 12 per 10 sweeps in wheat and oats in Cass County. (Brandvik). MINNESOTA - Populations in grain fields still light; ranged trace to 140 per 100 sweeps, averaged 30. (Minn. Pest Rpt.). WISCONSIN - Heaviest in southwest area, about 4 per 100 sweeps in oats. Lighter in central counties, averaged one per 200 sweeps. (Wis. Ins. Sur.). FLORIDA - Adults 18 per 100 sweeps in maturing alfalfa at Gainesville, Alachua County. (Fla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - FLORIDA - This species and Spodoptera frugiperda (fall armyworm) exerted maximum pressure on sweet corn at Belle Glade, Palm Beach County; growers required to treat silks daily to produce marketable crop. (Fla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Light on grain sorghum in Travis, Victoria, Calhoun, Tom Green, McCulloch, and Blanco Counties. Ranged light to moderate on grain sorghum in Knox County, light in Reeves and Pecos Counties. (Boring et al.). KANSAS - Light in whorls of sorghum in Coffey, Greenwood, Wilson, Montgomery, and Marion Counties. (Bell).

GREENBUG (Schizaphis graminum) - KANSAS - Flights heavy into seedling sorghum in Harper County. Some fields treated May 31 and June 1 reinfested June 8 with heavy numbers of reproducing, winged forms; required second treatment. Most eastern areas protected from damaging buildups on seedling sorghum due to control effects of frequent beating rains. In fields of 3 to 8-inch plants in Coffey, Greenwood, Wilson, and Montgomery Counties, counts ranged trace to 5.4 per plant with 2-95 percent of plants infested. Spotty infestations in other southeast district counties observed; no treating reported. Damaging infestation noted in Marion County near Peabody in field of 6-inch sorghum; populations averaged about 150 per plant with 100 percent of plants infested. About 25 percent of S. graminum found in whorls and caused characteristic yellow mottling of growing leaves emerging from whorls. Buildups in seedling sorghum reported in Sedgwick, Harvey, and Clay Counties. (Bell).

OKLAHOMA - S. graminum killed seedling sorghum plants in isolated fields in Garfield, Grant, Kay, and Wagoner Counties. Controls underway. Some fields replanted. Very light numbers found in Caddo, Washita, and Custer Counties. (Okla. Coop. Sur.). TEXAS - Generally light on grain sorghum in Travis, Victoria, Calhoun, Tom Green, McCulloch, and Blanco Counties. In Knox County, in Rolling Plains area, infestations ranged light to moderate. (Neeb et al.).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Averaged 2 per sweep in alfalfa in Ogle County, 5 per sweep in Champaign County. (Ill. Ins. Rpt.). MINNESOTA - Varied considerably, usually showing only as trace. Averaged 45 per 100 sweeps in one McLeod County alfalfa field. (Minn. Pest Rpt.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Overwintering generation moths flying in Riley County in light numbers according to recent light trap catch. (Bell). IOWA - First mated female and egg mass found in Polk County. Adult emergence increased. Adults abundant in grass near cornfields but most corn too small to attract ovipositing females. (Iowa Ins. Sur.). MINNESOTA - Overwintering larvae pupating in southern area. Overwintering mortality seems higher than normal, ranged 4-90 percent. High mortality and low overwintering populations indicate possible small first-generation brood. Trace populations of newly emerged moths observed in south-central, west-central, and central districts. (Minn. Pest Rpt.). ILLINOIS - Moths emerging throughout State; complete in southern area. Emergence 15 percent in central area, egg laying underway. Pupation 72 percent, moth emergence 4 percent in northern area. (Ill. Ins. Rpt.). INDIANA - Adult emergence 80 percent complete in Tippicanoe County cornfield. (Hogg). OHIO - First-generation moths flying in Wooster area, Wayne County. Oviposition began June 3. (Rings).

MASSACHUSETTS - First O. nubilalis adult of season taken May 30 in light trap at West Bridgewater, Plymouth County. (Marini). NEW YORK - First moths taken in blacklight trap at Geneva, Ontario County, May 28 and 29; catches at low level since. (N.Y. Wkly. Rpt.). NEW JERSEY - Moths increased in light traps in southern area, egg masses present in corn. (Ins.-Dis. Newsltr.). MARYLAND - First injury of season found in earliest planted corn in Wicomico, Dorchester, Somerset, and Worcester Counties. First and second-instar damage in 18-inch corn ranged 2-5 percent; about 900 acres damaged in these counties. Populations this season expected to be heavy due to favorable overwintering conditions past winter. (U. Md., Ent. Dept.). VIRGINIA - First-brood moth flight ended; most egg masses hatched. Controls not necessary after June 7 in Northampton County and after mid-June in upper Accomack County on Eastern Shore. (Hofmaster). NORTH CAROLINA - Larval damage localized in cornfields throughout Coastal Plain. Infested fields observed in Hyde, Johnston, Wilson, Lenoir, and Sampson Counties. Checks in 5 infested Coastal Plain fields showed 15 percent of plants observed were infested. Damage similar to corn earworm damage in whorl; close observations reveal secretions or frass on stalk or midribs. (O'Neal).

BLACK CUTWORM (Agrotis ipsilon) - MISSOURI - Damaged corn in most areas of State. Damage observed in several fields in northeast area; 5-23 percent of plants cut off in 3 fields in area. (Keaster). Damaged 2 fields in southwest area; confined to small areas within fields and treatment applied. Damaged several fields in central area. (Munson). ILLINOIS - Continued number one pest of field corn this season due to extreme wet conditions. One field in Shelby County averaged 7 damaged plants per 100 plants, with 35 larvae per 100 damaged plants found. Larvae about half grown, will feed 7-10 days longer; feeding closer to soil surface due to wet conditions, corn still small. Most plants being cut above growing point will recover. (Ill. Ins. Rpt.). WISCONSIN - Caused light damage to corn in Richland and Adams Counties. Damage expected to increase as more seedlings emerge. (Wis. Ins. Sur.). CALIFORNIA - Larvae damaged 200-acre corn planting in Delta area, Sacramento County; 3-4 larvae per plant common. Area in floodland earlier this spring. (Cal. Coop. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Damage to corn remained stable on Eastern Shore; adults ranged 6-15 per plant. Corn ahead of damage. Central area corn showed heavier feeding injury; counts ranged 4-12 adults per plant. Corn in central area just emerging. (U. Md., Ent. Dept.). KENTUCKY - Damage to corn light statewide. Minor foliar damage observed in Shelby, Nelson, and Spencer Counties on regular tillage corn; light to moderate on no-till corn in Bullitt County. Corn 4-6 inches high. (Barnett).

SUGARBEET WIREWORM (Limonius californicus) - IDAHO - Severely cut 135 acres of corn at Wilder, Canyon County, and heavily damaged stand of corn at Twin Falls, Twin Falls County. (Homa, Youtz).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - NEVADA - Heavy on barley and required controls in Mason Valley, Lyon County. (Guenthner). NORTH DAKOTA - Winged and wingless forms in wheat and oats ranged 2-20 per 100 sweeps in Cass County. (Brandvik). WISCONSIN - Still relatively light in small grains; averaged about 15 per 100 sweeps, occasionally up to 50 per 100 sweeps taken. (Wis. Ins. Sur.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - MONTANA - Infested spring wheat and barley in Jefferson County; large areas in fields bare. Grain about 3-4 inches high where not infested. (Pratt).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - IDAHO - Adults ranged 5-15 per sweep throughout 75,000 acres of alfalfa at Fairfield Valley, Camas County. First larvae of season collected June 4. Treatment expected within 10 days unless frost sets back alfalfa. (Hazen). UTAH - Caused some conspicuous damage to alfalfa about State. Damage generally less than normal at time 10 percent of first crop harvested. Damage to date generally light to moderate. (Davis et al.). COLORADO - Larvae in second and third instars in Larimer County with first cutting of alfalfa progressing, damage still light. (Hantsbarger). OKLAHOMA - Old adults declined to low levels in most areas, egg counts decreased to 2 or 3 per square foot in fields checked in Stephens, Grady, and Payne Counties. New adults common in many areas especially in northern counties. Larvae ranged 30-100 per 10 sweeps in panhandle counties and 150-200 per 10 sweeps in one uncut field in Alfalfa County. (Okla. Coop. Sur.). ARKANSAS - Still active in northwest area alfalfa, but counts declined. Ratio of adults to larvae increased. (Boyer). KANSAS - Larvae decreased rapidly in alfalfa in southern two tiers of counties in south-central and southeast districts with only adults found in some fields in southernmost counties. Further north, some significant stubble feeding occurred. Treating noted in stubble in Osage County in east-central district. Treatment probably applied in scattered areas where damaging infestations occurred in northeast, central, and north-central districts. (Bell).

NEBRASKA - H. postica population neared peak in Otoe County; larvae ranged 14-396 (average 150.3) per 100 sweeps and adults ranged 0-3 (average 0.45) per 100 sweeps. (Manglitz, Stevens, June 1). In 3 fields each in Antelope, Boone, Boyd, Colfax, Garfield, Knox, Madison, Pierce, Platte, Stanton, Wayne, and Wheeler Counties, larvae ranged 0-10 (average 2) per 100 sweeps; adults ranged 0-1 (average 0.06) per 100 sweeps. These are new county records. (Keith, Koinzan, May 30). SOUTH DAKOTA - Adults increased 2-fold in alfalfa near Spearfish, Lawrence County, week ending June 1. Larvae just appearing, most in first instar. Adults averaged 321 (range 268-504) and larvae 28 (range 9-43) per 100 sweeps in field of 14-inch alfalfa; in 2 other fields in same area, adults averaged 228 (range 115-375) and larvae 52 (range 5-75) per 100 sweeps. No weevils observed in dryland alfalfa field east of Hot Springs, Fall River County; in irrigated field with heavier stand, adults averaged 104 (range 40-154) per 100 sweeps. Adults averaged 16 and larvae 41 per 100 sweeps in light stand of alfalfa near Wicksville in eastern Pennington County. West of Murdo, Jones County, 6 adults taken in 400 sweeps and larvae averaged 5 (range 2-8) per 100 sweeps. (Jones).

NORTH DAKOTA - H. postica eggs hatched in McKenzie County alfalfa. Early larvae present June 5 averaged 300 per 100 sweeps in field near Cartwright, McKenzie County; adults 10 per 100 sweeps. Increased to 600 larvae and 60 adults per 100 sweeps by June 7. (Knudsen). WISCONSIN - Larvae and damage increased greatly in some southern and central county fields. Up to 25 per sweep taken in some; range of 1-2 per sweep common. Damage noted on 25+ percent

of alfalfa tips in several fields. Growers not harvesting next 10 days should check to see if treatment will be necessary before harvest. (Wis. Ins. Sur.). IOWA - Larvae increased in alfalfa in southeastern and southern counties week ending June 1. Counts per sweep ranged 32-65 in Decatur County field, 4-8 in Lucas and Ringgold County fields; averaged less than one per sweep in Polk County field. Damage severe in some Decatur, Lee, and Van Buren County fields. (Iowa Ins. Sur.).

MISSOURI - Hypera postica larval damage observed in fields of regrowth alfalfa after first cutting harvested in central area. (Munson). INDIANA - Percent infestation by county (number of fields in parentheses): Steuben (7) 28-100, Lagrange (6) 64-92, Noble (6) 12-72, Elkhart (8) 24-100, Kosciusko (3) 12-64, Marshall (7) 12-96, La Porte (6) 24-96. Larvae mostly third or fourth instar. Little activity noted in central and west-central districts north of Indianapolis through season; economic in southernmost portions of both districts and all of southeast district. Damage present, but noneconomic, as far north as Randolph County. (Huber, Meyer). KENTUCKY - Larval populations on alfalfa declined in northern areas. Averaged less than 10 per 100 sweeps in most fields. (Barnett). OHIO - Heaviest damage to alfalfa occurred generally in central and southern areas. Many fields severely damaged. Regrowth should be closely watched as soon as alfalfa is harvested. (Blair, Fox).

MARYLAND - H. postica larval populations declined statewide. Pupation underway in all counties. Infestations on second-growth alfalfa remain below economic levels statewide. Larvae ranged 2-6 per sweep in most fields. (U. Md., Ent. Dept.). NEW YORK - Damage light in alfalfa checked in Tompkins and Livingston Counties week ending June 4. Alfalfa 20 inches tall, ready for cutting. Eggs of Microctonus aethiops (a braconid wasp) found in female H. postica adults collected in Tompkins County May 25. No M. aethiops larvae found. Bathyplectes curculionis (an ichneumon wasp) recovered from H. postica samples from Niagara and Madison Counties; M. aethiops recovered in Madison County. (N.Y. Wkly. Rpt., June 4). NEW HAMPSHIRE - Light H. postica infestations scattered on alfalfa throughout southern area; not economic, no treatment necessary. (Bowman).

ALFALFA WEEVIL COMPLEX (Hypera spp.) - CALIFORNIA - Adults caused noticeable damage to alfalfa in several areas. Stands 10-12 inches high appear gray; caused by stem feeding of adults, resulting in stem collapse. Normally, weevils would have left fields for summer aestivation by now. Unusual populations at this time and continued feeding probably due to poor timing of treatment. Many fields treated early during heavy rain periods. Burclover also very abundant and succulent this season. (Cal. Coop. Rpt.).

ALFALFA LOOPER (Autographa californica) - NEVADA - Ranged 15-20 per sweep on 120 acres of alfalfa hay in Kings River Valley, Humboldt County. (Rose). Averaged 5 per sweep in several Orovada, Humboldt County, alfalfa seed fields. (Stitt). IDAHO - Larvae, about one inch in length, averaged about 1 per sweep throughout 75,000 acres of alfalfa at Fairfield Valley, Camas County. (Hazen)

PAINTED LADY (Cynthia cardui) - UTAH - Larvae damaged alfalfa at Richland, Sevier County, and Delta, Millard County. (Roberts et al.). COLORADO - Larvae damaged alfalfa in one area of Weld County. Treatment applied. (Rothman).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Adult population decreased in alfalfa in Champlain Valley; increased in remainder of State with about 40 percent of leaflets showing mines. (MacCollom). NEW HAMPSHIRE - First-brood larvae heavy and feeding on alfalfa at Stratham, Rockingham County. (Bowman). MASSACHUSETTS - Larvae infested 2-4 percent of alfalfa leaflets in Hampshire County. Pupation about 50 percent. Feeding and oviposition punctures very numerous on mature alfalfa. (Jensen).

SOYBEANS

SEEDCORN MAGGOT (Hylemya platura) - MISSOURI - Extensive damage to seedling soybeans reported from Audrain County; field will probably be replanted. (Thomas).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - KANSAS - Adults of this species and Cerotoma trifurcata (bean leaf beetle) caused light foliar damage in 6-inch soybeans in Greenwood County. (Bell).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults caused light injury to newly emerged soybeans in Wicomico, Somerset, and Worcester Counties. Several hundred acres sprayed. (U. Md., Ent. Dept.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Punctured squares in lower Rio Grand areas of Brownsville, Primera, Mercedes, Weslaco, and Edinburg ranged 20-30 percent. Activity increased in Edinburg area; ranged up to 52 percent punctured squares. Catches in pheromone traps increased in Blacklands area. McLennan County reported 46 weevils from 6 traps in Elm Mott area. Hill County averaged 9.6 weevils per trap. Coryell County reported 4 weevils per trap. In Fisher County, 175 taken on one trap; Wilbarger 12, Cottle 9, Hardeman 8, Knox 4, and none taken in Jones, Hall, and Haskell Counties. Heavy activity reported past 2-3 weeks near Rule in Haskell and Stonewall Counties. Weevils found in fields in Nolan County. Overwintered weevils trapped in Runnels and Tom Green Counties continued to increase. In south-central area, pheromone trap catches declined significantly indicating emergence of overwintering weevils about complete. (Deer et al.).

ARKANSAS - A. grandis counts continued heavy in Clay and Phillips Counties: In 10 traps each, 239 taken in Clay, 183 taken in Phillips. (Boyer). MISSISSIPPI - Average weevil catches per Leggett trap by county: Grenada 14.64 (17 traps); Webster 31.52 (19 traps); Yalobusha 15.40 (20 traps); Bolivar 0.04 (176 traps). (Moody, Andrews). ALABAMA - Live weevils per acre on 5 to 7-leaf cotton in 3 Covington County fields averaged 45, 144, and 336. Counts in 10+ fields in Macon, Elmore, and Lee Counties ranged 50-550 per acre. None taken on 3 farms in Monroe County. (Pike et al.). NORTH CAROLINA - Adult collections in Leggett traps doubled in most counties during period May 27-June 2. Due primarily to warm weather. (Hunt).

SALTMARSH CATERPILLAR (Estigmene acrea) - TEXAS - Damaged cotton in Baylor and Jones Counties in Rolling Plains. Moderate to heavy around field margins bordering native pastureland in Pecos and Reeves Counties. (Boring, Neeb).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - Light in Coryell County on older cotton. Infestations ranged 10-15 terminals infested in fields in Fisher County. Generally heavy on cotton in lower Rio Grande Valley but treatment not anticipated. Fleahoppers increased over entire south-central area. Little economic damage observed to date. Plants setting very well even where populations exceed 25 per 100 terminals. (Deer et al.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults on newly set tobacco ranged 2-8 (average 3) per plant. About 20 percent of crop planted to date in Prince Georges, St. Marys, and Charles Counties. Damage light. (U. Md., Ent. Dept.). KENTUCKY - Light damage observed on tobacco in Bullitt, Anderson, Spencer, and Nelson Counties. (Barnett).

SUGAR BEETS

AN EPHYDRID FLY (Psilopa leucostoma) - WASHINGTON - First eggs of season appeared on sugar beets in Toppenish area of Yakima County. About 80,000 acres of sugar beets in area for potential infestations; no damage yet observed. (Landis).

PAINTED LADY (Cynthia cardui) - COLORADO - Larvae damaged sugarbeets in one area of Weld County, up to 10 per plant. Treatments applied. (Rothman).

MISCELLANEOUS FIELD CROPS

PAINTED LADY (Cynthia cardui) - OREGON - Larvae light on peppermint leaves at scattered localities in Willamette Valley. Reports of larval activity received from Benton, Linn, Marion, and Polk Counties. Larvae prefer thistles but will feed on nearby crops; problems may develop where waste areas near crops have heavy thistle growth. As preferred food supply becomes scarce, heavy movement into cropland may occur. (Penrose).

ALFALFA LOOPER (Autographa californica) - OREGON - Larvae ranged 2-3 per sweep in peppermint at Junction City, Lane County. Other larvae found in these fields include Spodoptera praefica (western yellowstriped armyworm), Peridroma saucia (variegated cutworm), and an unidentified subterranean species. (Berry).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Adults still active in Worcester, Somerset, and Wicomico Counties. Counts below 2-3 adults per 50 feet of row in potatoes and tomatoes; slightly heavier in potatoes. Larvae in first to third instars in most fields but damage light. Egg laying continued in all sections. (U. Md., Ent. Dept.).

EGGPLANT FLEA BEETLE (Epitrix fuscula) - INDIANA - Light, increasing on potatoes; heavy on solanaceous weeds in Warren County. (Chandler).

TOMATO HORNWORM (Manduca quinquemaculata) - NEW MEXICO - Adult flights very heavy at Albuquerque, Bernalillo County; nuisance to residents in city. (N.M. Coop. Rpt., June 1).

GENERAL VEGETABLES

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Adults active on newly set sweetpotatoes in Wicomico County; about 30 percent of acreage planted to date. Adults ranged 1-3 per shoot with feeding injury well below economic levels. Populations should increase next 2 weeks. (U. Md., Ent. Dept.).

HAWAII INSECT REPORT

New State Records - One female of a TACHINA FLY (Euvespivora sp., prob. decipiens Walker) found on window of home in Honolulu, Oahu, by F.G. Howarth in June 1972. Another female taken in light trap at Halawa, Oahu, in March 1973 by G. Toyama. Species is a parasite of Polistes wasps. Additional specimens, especially males, needed for more specific identification. Determined by R. Crosskey. (Hardy). A SEPSID FLY (Sepsis lateralis Wiedemann) first observed in State on University of Hawaii campus, Oahu, April 17, 1973, by R. Tsuda and J. Fujii. Adults attracted to odor of decaying stump of kukui nut tree. Numerous specimens since collected from and observed on dog dung in Palolo and Manoa areas of Honolulu. Species is widespread over Palaearctic, Ethiopian, and Oriental regions. Determined by D.E. Hardy. (Hardy).

General Vegetables - Larvae of a LEAFMINER FLY (Phytobia maculosa) heavily mined Romaine lettuce in small backyard planting at Kahului, Maui. No infestation in adjacent planting of Manoa lettuce. This is first occurrence of species on Maui. Previously reported only from Oahu and Hawaii. (Miyahira).

Man and Animals - MOSQUITO collections during May from 57 light traps operated on Oahu totaled 206 Aedes vexans nocturnus and 1,209 Culex pipien quinquefasciatus. Aedes catches were heaviest at Waiahole (total 163). Heaviest Culex catches occurred at Kawailoa (total 348). (Vect. Cont. Br., Environ, Health Div., State Dept. Health).

DECIDUOUS FRUITS AND NUTS

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Eggs found in all pecan-producing areas of State, hatched in southern areas. Infestations still light in most areas except for 25 percent larval infestation in one Love County grove; moderate in Atoka County. (Okla. Coop. Sur.). TEXAS - Ranged light to moderate on pecan trees in Tom Green, Runnels, and McCulloch Counties. Egg laying and light feeding reported in Ward, Ector, and Midland Counties. Growers in Winkler, Martin, Upton, Reagan, and Glasscock Counties should watch closely for signs of activity. (Neeb et al.).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Widespread and heavy on pecans in Llano County; some controls applied. Also heavy in Blanco County. (McWhorter).

A DUSKY-VEINED WALNUT APHID (Panaphis juglandis) - CALIFORNIA - Infestations spreading this season; heavy buildups required treatment. Infestations noted on walnuts in Merced, Merced County. This is a new county record. Biocontrol of Chromaphis juglandicola (walnut aphid) took species out of competition; walnut foliage now succulent and attractive to P. juglandis. C. juglandicola, when present, may have conditioned foliage so it was unattractive to P. juglandis. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Some adults noted on pears in Glastonbury, Hartford County; nymphs and adults numerous in New Haven, New Haven County. (Savos, June 5). UTAH - Adults heavy May 30 in pear orchard at Orem, Utah County. This is a new county record. (Davis, Barlow).

EUROPEAN RED MITE (Panonychus ulmi) - NEW HAMPSHIRE - Alates active in apple orchards. (Rochette). CONNECTICUT - Eggs laid by first generation hatched in New Haven, New Haven County. Eggs found in East Lyme, New London County; adults trace in Storrs, Tolland County. (Savos, June 5). UTAH - More numerous than for many years in orchards at Payson, Utah County; moderate in other orchards in county. (Davis, Barlow).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - CONNECTICUT - Migration heavy from mowed ground cover into fruit trees in New Haven, New Haven County; trace in Woodstock, Windham County, and Storrs, Tolland County. (Savos, June 5).

SMALL FRUITS

PAINTED LADY (Cynthia cardui) - UTAH - Larvae infested strawberries and other crops at Fillmore and elsewhere in Millard County. (Chapman et al.).

CURRANT APHID (Cryptomyzus ribis) - WISCONSIN - Severely infested red currant leaves at some Dane County sites. Infestation expected to reduce yield significantly at one location. (Wis. Ins. Sur.).

BLUEBERRY MAGGOT (Rhagoletis mendax) - NORTH CAROLINA - First adult of season collected from sticky traps near Burgaw, Pender County. Treatment underway in most fields. (Weaver).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Heavy April rains, lower than normal salvage through May, and heavier than normal overwintering survival in brood trees portend potential problem. Based on past experience, an epidemic is expected which will surpass 1972 record damage in State. Area involved will expand beyond central Piedmont into Coastal Plain by late 1973. (Va. Div. For., For. Pest Surv. Rpt.).

SPRUCE BUDWORM (Choristoneura fumiferana) - MAINE - Development still slow. In central Aroostook County area, around Oxbow and Ashland and in the Telos Lake country, about 90+ percent of larvae in third instar. Development more advanced with more larvae in fourth instar at St. Francis and Fort Kent and in eastern areas into Washington County. Spraying operations proceeded in experimental blocks. Treatment of principal area not begun. (Gall).

HEMLOCK LOOPER (Lambdina fiscellaria) - PENNSYLVANIA - Moths heavy on hemlock at McConnels Mill State Park, Lawrence County, May 31; collected 263 in single light trap. Total of 885 moths taken in light trap 3 miles south of Rimersburg, Clarion County, on same date. Determined by E.E. Simons. (Haehn, Williams).

A GEOMETRID MOTH (Lambdina athasaria athasaria) - PENNSYLVANIA - Moth flight heavy over area of about 1.5-mile radius two miles east of Clymer, Indiana County, June 1. Most larger hemlocks dead over area of 1-mile radius. Determined by E.E. Simons. (Leach).

LARCH SAWFLY (Pristiphora erichsonii) - PENNSYLVANIA - Larvae moderate May 31 on Larix decidua (European larch) at Dresher, Montgomery County; 12 larvae per branch on 40-foot tree. (Stimmel, Wheeler). Larvae ranged 4-5 per beat in 10 by 12-inch beating tray at Harrisonburg, Dauphin County, on same date. (Henry).

SPRING CANKERWORM (Paleacrita vernata) - SOUTH DAKOTA- Completely defoliated some American elm trees along Sheyenne River from Fargo to Kindred in Cass County. Larvae about full grown; some have spun out to pupate. (Brandvik).

FALL CANKERWORM (Alsophila pometaria) - MARYLAND - Larval defoliation ranged 30-90 percent on about 60 acres of hardwood forest on Sugarloaf Mountain in Montgomery County. (U. Md., Ent. Dept.).

OAK LEAFTIER (Croesia albicomana) - MASSACHUSETTS - Larvae almost completely defoliated oaks in some areas of Hampshire and Hampden Counties. (Mankowsky, Jensen).

SATIN MOTH (Stilpnotia salicis) - MAINE - Heavy on poplars in Farmington area, Franklin County. (Gall).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Weekly confirmations indicate spring buildup in progress. Total of 211 confirmed cases reported in the continental U.S. during period May 27-June 2 as follows: Texas 26, Arizona 156, New Mexico 22, California 7. Total of 478 cases confirmed from Mexico. Number of sterile flies released in

U.S. during this period totaled 105,352,800 as follows: Texas 74,662,800; New Mexico 5,236,500; Arizona 24,328,500; California 1,125,000. Total of 82,084,500 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - VIRGINIA - Ranged up to 25 per face on horses and cattle in Montgomery County area. (Allen). KENTUCKY - Increased, but generally light on beef and dairy cattle in north-central area. Average counts per head by county as follows: Woodford 7.2, Anderson 7.5, Spencer 3.4, Shelby 3.0, Bullitt 1.2. (Barnett). OHIO - Heaviest counts to date, up to 19 per face, occurred on Charolais and Angus cattle in Noble County; caused some annoyance. (Fox). ILLINOIS - Averaged 0.4 per face on pastured cattle herd in Livingston County. (Ill. Ins. Rpt.).

MOSQUITOES - VERMONT - Adult populations increased in State. (MacCollom). RHODE ISLAND - Aedes spp. adult annoyance increased in Providence and Washington Counties May 28-31. (King, Field). Females heavy and biting residents in most areas of State. (Field). OHIO - Identifications and counts from light trap at Belpre, Washington County, showed: Aedes trivittatus 650, A. vexans 240, Culex spp. 100. Bite collections in Knox County revealed presence of A. stimulans. (Ohio Dept. Health, Encephalitis Unit). WISCONSIN - Populations and biting increased greatly due to warm weather. Problem not expected to improve due to abundance of suitable breeding pools. Annoyance to dairy and beef cattle moderate near lowlands or woods. (Wis. Ins. Sur.). MINNESOTA - Aedes vexans present in 90 percent of larval collections made by Metropolitan Mosquito Control District week ending June 2. Brood of A. vexans resulting from rains May 21-25 emerged; nuisance levels very low. A. aberratus most important species in light trap collections week ending June 1. Trap collections light June 2-7. A. stimulans predominant in daytime bite collections. (Minn. Pest Rpt).

INDIANA - Adults of Aedes canadensis canadensis, A. sticticus, A. stimulans, A. trivittatus, and A. vexans collected from woods in Tippecanoe County May 31. (Shroyer). A. sticticus adults also taken in Vigo County and A. canadensis canadensis taken in Jennings County. (Meyer). WYOMING - Aedes spp. adults active at Powell, Park County, and Worland, Washakie County. Larval controls applied in Albany County. (Spackman, Forcum). UTAH - A. dorsalis dominant species in Weber County; caused no serious annoyance to date due to controls. A. vexans and A. nigromaculis present in most Kanesville and Taylor area pastures. Culex tarsalis appeared in light numbers. Controls applied to 3,000 acres during May. Control generally good in Weber County. (Fronk). Mosquito annoyance serious in Delta, Sutherland, and Deseret area; adults very heavy at Topaz, Millard County. (Chapman, Roberts).

HORN FLY (Haematobia irritans) - FLORIDA - Ranged 400-600 per animal on untreated cattle in Palm Beach County and averaged 292 per untreated beef animal at Gainesville, Alachua County. (Fla. Coop. Sur.). TENNESSEE - Ranged 30-50 per animal on dairy herd in Warren County. (Eisler). OHIO - Ranged 25-300+ per one side of back on 28 Charolais and Angus cattle (2-7 years old) in Noble County. Most of animals hosted infestations of 150-300+ per one side of back; heavier than at this time in 1972. (Fox). ILLINOIS - Averaged 8.3 per head on pastured cattle herd in Livingston County. (Ill. Ins. Rpt.). NEBRASKA - H. irritans averaged 100 per

head on untreated cattle in Lincoln County. (Campbell). OKLAHOMA - Counts per head averaged 750 on cows, 850 on steers, and 3,000 on bulls in Payne County. Moderate in Pawnee, Comanche, Pontotoc, and Coal Counties; light in Cleveland County. (Okla. Coop. Sur.). TEXAS - Moderate to heavy in Tom Green County area. Heavy infestations reported from Archer County in Rolling Plains; some treatments applied. Moderate, 200-500 per animal, on cattle in Brewster, Jeff Davis, Midland, and Andrews Counties. Light on sheep in Midland and Glasscock Counties. (Boring et al.).

BLACK FLIES - VERMONT - Severe in most areas of State. (MacCollom). IOWA - Simulium spp. annoying in Plymouth, Scott, Dubuque, Johnson, Des Moines, and Lee Counties. (Iowa Ins. Sur.). NEBRASKA - Unspecified species very heavy; annoyed humans and livestock along Platte Valley in Garden County, and in Cheyenne County. (Roselle). NEVADA - Simulium spp. adults heavy along Humboldt River in Humboldt County. (Rowe).

BENEFICIAL INSECTS

PAINTED LADY (Cynthia cardui) - WASHINGTON - Adults common, many first and second instars on Canada thistle in Ambay area, Clark County. (Shanks). Adults abundant near Sprague, Adams County. (Ericksom). IDAHO - Larvae infested musk thistle, Canada thistle, and related species throughout southern area. Caused minor damage to wheat, alfalfa, sugar beets, and beans when thistle depleted. (Church et al.). MONTANA - Common and not decreasing throughout western area. Larvae abundant on Canada thistle. (Pratt). KANSAS - Heavy larval infestations reported defoliating musk thistle in Cloud, Clay, and Riley Counties. (Bell).

A CINNABAR MOTH (Tyria jacobaeae) - WASHINGTON - Several adults but no eggs or larvae seen on tansy ragwort. At Ambay, Clark County, adults emerged 3-4 weeks earlier than normal. (Shanks).

LADY BEETLES - MISSISSIPPI - Vacuum samples indicated averages of 6,525 adults and 10,000 larvae of Coleomegilla maculata per acre of alfalfa in Bolivar County. (Schuster). INDIANA - Adults of Adalia bipunctata (twospotted lady beetle) present in tuliptrees with infestations of Macrosiphum liriodendri (tuliptree aphid). Up to 5 adults noted on undersides of lower canopy of leaves of one tree in Tippecanoe County. (Meyer). KANSAS - Adults and larvae of Hippodamia convergens (convergent lady beetle) heavy in wheat surveyed in some counties of southeast and south-central districts, especially where infestations of Macrosiphum avenae (English grain aphid) and some Schizaphis graminum (greenbug) found. Immature Nabis spp. (damsel bugs) common and some larvae of Chrysopa spp. (green lacewings) seen in aphid infested wheat. (Bell).

ALFALFA LEAFCUTTER BEE (Megachile rotundata) - WASHINGTON - Heavy male activity in earliest alfalfa seed localities, few females emerged. Parasitic species of Leucospis and Spayga seen flying around field shelters north of Pasco, Franklin County. (Johansen).

ALKALI BEE (Nomia melanderi) - WASHINGTON - Mostly white pupae with colored eyes in late beds, many fully colored pupae and emerging bees in early beds in Touchet area of Walla Walla County. Few females starting to renest; male flight heavy on earliest beds 20 miles north of Pasco, Franklin County. (Johansen).

AN ICHNEUMON WASP (Bathyplectes curculionis) - INDIANA - Pupation occurred in alfalfa fields as far north as Steuben County. (Klingman).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - VIRGINIA - Immatures collected on oats near Gretna, Pittsylvania County, May 31, 1973, by W.D. Jones. Determined by R.E. White. This is a new county record. (PPQ). OHIO - Adults conmon in wheat and oat fields. Species prefers spring seeded oats to fall-seeded wheat for oviposition. Late oat planting forced adults to stay on wheat longer than usual; prolonged feeding damaged several wheat fields. Frosting reported in Perry County. (Blair). Mating and oviposition occurred on oats in Tuscarawas and Stark Counties. Adult counts per 50 sweeps on oats by county: Stark 25, Jefferson 15, Carroll 5, Muskingum 21, Tuscarawas 36, Belmont 11, Coshocton 14. All plants in Tuscarawas County field heavily damaged by adult and larval feeding. (Fox). PENNSYLVANIA - Eggs averaged about 10 per row foot in oats at West Sunbury, Butler County, week ending June 1. (Lilley). Averaged 3 adults and 2 eggs per row foot at 3 locations on university farm in Centre County, June 1. (Keim).

GRASS BUGS - WYOMING - Labops hesperius ranged 1-300 per square yard on roadside plantings of crested wheatgrass throughout Laramie, Goshen, and Platte Counties. Damaged wheat at several locations east of Chugwater, Platte County. (Hardy). UTAH - Irbisia spp. moderate, caused some discoloration of giant ryegrass and other planted grasses in Logan Canyon, Cache County. Some green and tan species numerous, 10-40 percent adults. (Knowlton).

GRASSHOPPERS - TEXAS - Ranged light to moderate around edges of cotton fields in Hardeman County in Rolling Plains. Moderate to heavy activity noted in isolated cotton fields of Glasscock County in Trans-Pecos area. (Boring, Neeb). OKLAHOMA - Nymphal surveys in areas where economic adult populations found during 1972 showed general hatch underway in southwest and south-central counties week of May 7. Surveys week of May 14 in 10 west-central and northwest counties showed 5-8 species hatched in all rangeland areas checked; 90 percent first and second instars. Surveys week of May 21 in areas of expected economic populations showed threatening nymphal populations in selected habitats. These surveys indicate major hatch and nymphal development about 10 days later than in 1972. (Okla. Coop. Sur.). NEW MEXICO - Heavy, averaged about 20 per square yard, on rangeland southwest of Artesia, Eddy County; heavily damaged sparse grass. (Perry).

WYOMING - Ageneotettix deorum, Melanoplus spp., Amphitornus coloradus, and Cordillacris occipitalis ranged 20-30 per square yard on 15 sections of rangeland in Hot Springs County. (Patch). MONTANA - Psoloessa delicatula ranged up to 6 per square yard on rangeland in Blaine County. (Pratt, June 1.). WASHINGTON - Cooperative grasshopper control programs planned for about 895,000 acres of rangeland in eastern part of State. Treatment started in Franklin County. Much private spraying being done. Controls applied in Benton, Walla Walla, and Franklin Counties. Counts generally heavier than in 1972 with development most advanced in southern Benton County; few Oedaleonotus enigma in adult stage. Grasshopper eggs still hatching in Doutlas, Okanogan,

and eastern Whitman Counties. (PP). NEVADA - Aulocara elliotti (35 percent), Melanoplus sanguinipes (15 percent), and Oedaleonotus enigma (50 percent) ranged 6-12 (average 8) per square yard on 12,000 acres of rangeland near Upper Clover Ranch, Elko County. (Giles, Wilson). M. bivittatus and O. enigma ranged 6-12 per square yard on 100 acres in northern Kings River Valley, Humboldt County, O. enigma ranged 4-5 per square yard on east side of valley. (Corta, Rowe).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Parasites released by State Forest Pest Management personnel during May at several eastern locations included 1,100 Apanteles melanoscelus (a braconid wasp) and 1,000 Brachymeria intermedia (a chalcid wasp). (Rhoads, Simons).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Larvae in lawns in Washington County June 6. (Hannah). VIRGINIA - First adult of season found in Southampton County June 2 by H.L. Smith. (Allen). OHIO - Larvae maturing at rate similar to 1972. Surveys at 2 Akron locations showed up to 18 and 33 larvae per square foot, most in last instar. Some specimens in prepupal stage. Favorable turf growing weaker prevented damage from being visible. (Lawrence).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - First-instar larvae appeared in range areas of Union, Colfax, and Harding Counties. (Liesher).

DETECTION

New State Records - A SEPSID FLY (Sepsis lateralis) - HAWAII - Oahu. (p. 362). A TACHINA FLY (Euvespivora sp., prob. decipiens) - HAWAII - Oahu. (p. 362).

New County and Island Records - MEADOW SPITTLEBUG (Philaenus spumarius) TENNESSEE - Observed June 1, 1973, in Anderson, Cumberland, Union, Loudon, Roane, Putnam, and White Counties. (Snodgrass).

ALFALFA WEEVIL (Hypera postica) NEBRASKA - Antelope, Boone, Boyd, Colfax, Garfield, Knox, Madison, Pierce, Platte, Stanton, Wayne, Wheeler (p. 358). CEREAL LEAF BEETLE (Oulema melanopus) VIRGINIA - Pittsylvania (p. 367). A DUSKY-VEINED WALNUT APHID (Panaphis juglandis) CALIFORNIA - Merced (p. 363). A LEAFMINER FLY (Phytobia maculosa) HAWAII - Maui (p. 362). PEAR PSYLLA (Psylla pyricola) UTAH - Utah (p. 363).

CORRECTIONS

CEIR 23(22):322 - "CURRANT BORER (Syanthedon tipuliformis) ..." should read "CURRANT BORER (Synanthedon tipuliformis) ..."

CEIR 23(23):349 - Detection - "TWO DROSOPHILIS FLIES ..." should read "TWO DROSOPHILID FLIES ..." (PPQ).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Lagerevsia pomonella (codling moth)	Loxostege comstockalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																								
Kelso 5/31-6/6			BL	10					2								1	13						
Pickens 5/31-6/6			BL	8					5								1							
FLORIDA																								
Gainesville 6/1-7			BL		1			36											4				1	
ILLINOIS (County)																								
Ogle 5/29-6/4			2BL	1												30	18	176						
INDIANA (Counties)																								
La Porte 5/24-30			BL		23													6						
Lawrence 5/24-30			BL	1	9											1		9						
Tippecanoe 5/24-30			2BL		19											12	1	37						
IOWA																								
Beaconfield 5/25-31			BL	2			6									3		15						
Dubuque 5/25-31			BL	2														14						
Gilbert 5/25-31			BL	2			1										1	3						
KANSAS																								
Great Bend 5/31-6/3			BL	72		672	157										31	302			47	16		
Hiawatha 6/6			BL	1			4									4	3	11			3	4		
Manhattan 6/6			BL	23		1	61									2	8	78			20	3		
MINNESOTA																								
Crookston 5/31-6/6			BL															3						
Shakopee 5/31-6/6			BL													1		1						
Worthington 5/31-6/6			BL	1														13						
MISSISSIPPI (County)																								
Washington 6/1-7	63-90	0.47	2BL	89	2		3	8	18						11		230	717	1		103	9		
NEW HAMPSHIRE																								
Dover Point 6/1			BL															8						
NEW YORK																								
Minnetto 5/29-6/4			BL	2														4						

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (salt marsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Mamestra quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellow-striped armyworm)	Trichoplusia ni (cabbage looper)	Crops
OHIO																								
Wooster 6/1-7			BL	8												101	15	145			2			
OREGON (Counties)																								
Clackamas 5/31-6/6			BL														23							
Linn 5/31-6/6			2BL	2													41							
Marion 5/31-6/6			2BL	1													77							
PENNSYLVANIS (Districts)																								
Northeast 5/25-6/4			BL	1	1													3						
Southeast 5/25-6/4			BL	3													1	23						
Southwest 5/25-6/4			BL															13						
SOUTH DAKOTA																								
Brookings 5/30-6/8			BL	2			109									130	10						8	
TENNESSEE (Counties)																								
Hardeman 6/4-8			BL	25				2	2	6					2		4	35			42	13		
Henry 6/4-8			BL	12										2		2	18	69			6	3		
Weakley 6/4-8			BL	13													7	56			3	2		
TEXAS																								
Waco 5/30-6/7			BL	11	2			19		37							211	488	55		277	49		
WISCONSIN																								
Hancock 5/31-6/5			BL													1								
Janesville 5/28-6/3			BL														5							
Mazomanie 5/30-6/6			BL													3		1						

Weather of the week continued from page 354.

Friday, the weather was sunny over most of the Nation, but a cold front brought cloudy skies and a few showers from the north Pacific coast to the Rockies, and scattered thundershowers to the Great Lakes and Michigan. Saturday, the front moved south, stretching from Kansas to Michigan, but it dissipated and disappeared. Late in the week another cold front entered from the Pacific Northwest. Sunday, it embraced the northwestern fifth of the Nation, causing cloudiness and thunderstorms across the northern Plains and Great Lakes. Dixie managed to generate its own kind of weekend thunderstorm activity. A High off the east coast pumped warm humid air into the East. In the South, ground temperatures rose, sending hot air aloft to meet the moisture. Called local convective action, this mixture generated drenching afternoon thundershowers.

TEMPERATURE: East of the Mississippi, most Americans steeped in hot, muggy weather as a High over the Atlantic pumped moist, tropical air into the East. Temperatures averaged up to 9 degrees above normal. A section of Dixie stretching from north Florida to middle North Carolina and the coast to mid-Alabama averaged temperatures up to 3 degrees below normal. Cloudiness and thunderstorms, particularly late week storms, kept things cool. West of the Mississippi, winds blowings southeast from the Rockies kept Texas, Oklahoma, and areas in bordering States up to 6 degrees below norm. Coastal areas of the Pacific Northwest averaged up to 3 degrees below normal--otherwise the West was hot. California desert areas averaged 12 degrees above norm for the week. One Montana area averaged 6 degrees above normal as did some places in Iowa and Minnesota. Monday began a warm, sometimes downright hot, week with temperatures reaching the 90's along the gulf coast and southern Plains and exceeding 100 degrees in the southwestern deserts. Tuesday remained seasonally warm across the Nation and uncomfortably humid in the East. Afternoon temperatures hit the 70's and 80's across most of the Nation and ranged from the 50's along the New England coast to 100 degrees or more in the California deserts. Late week temperatures in Texas tended to average less than areas to the north because of cooling winds. Friday East Texas readings ranged from the mid to high 80's while in Nebraska they ran up to 97 degrees. Over the weekend, the same north-south reversal occurred in the East. Sections of Georgia and the Carolinas enjoyed readings in mid-70's to mid-80's, while to the north, Americans sweltered in the high-80's and low 90's.

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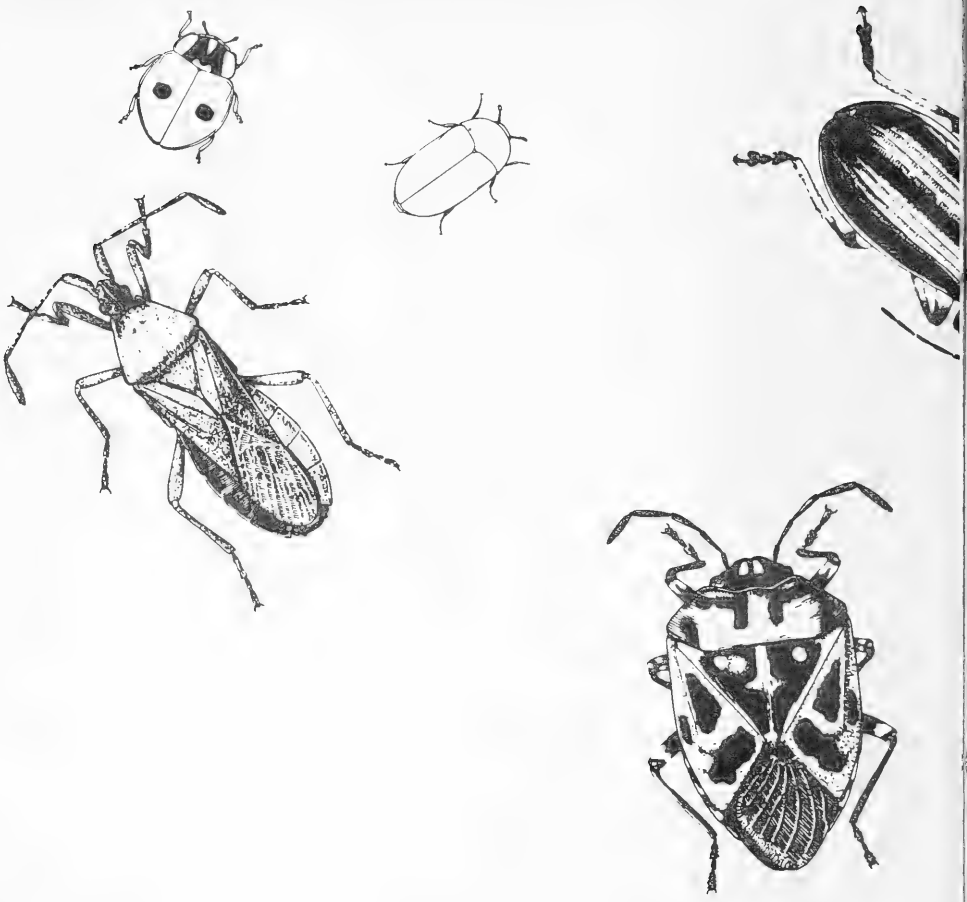

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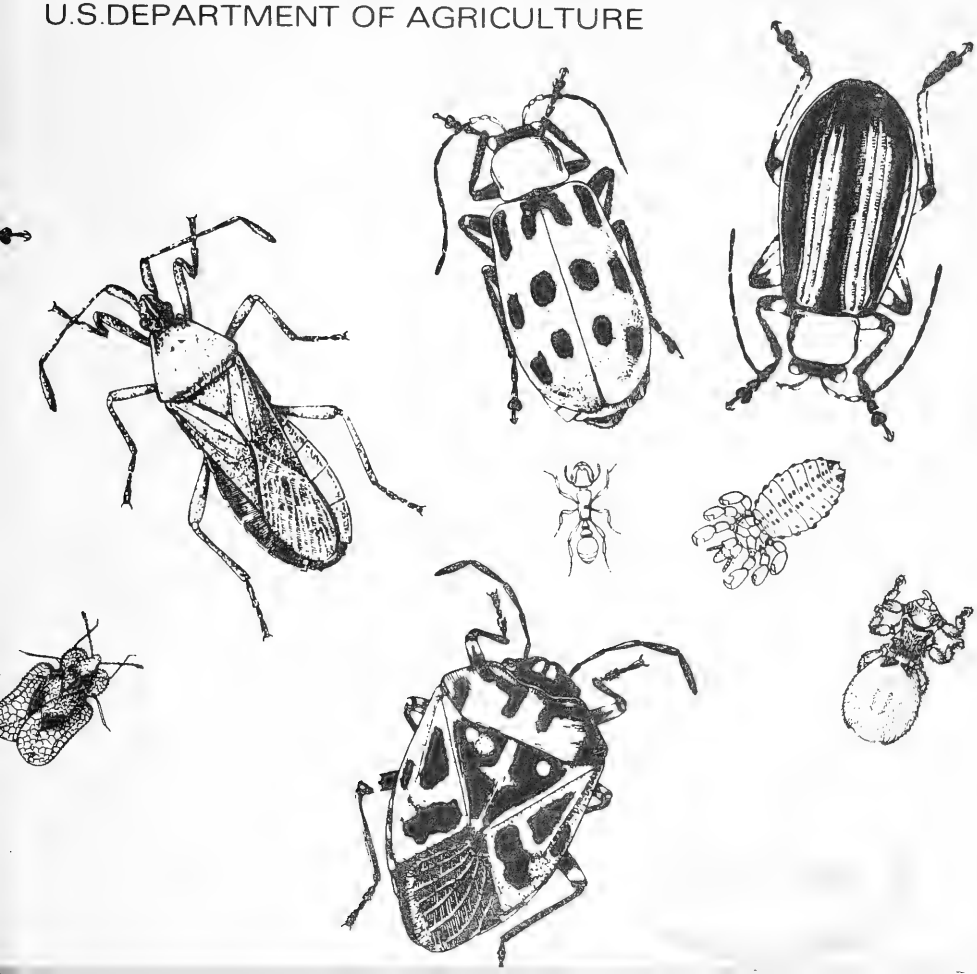

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

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 larval damage to grains and grasses reported in several areas, but no serious infestations reported. Some treatments applied. Light trap catches increased in Michigan (pp. 375, 390-391). GREENBUG populations kept at low levels by parasitism and heavy rains in several Plains States. (p. 376).

EUROPEAN CORN BORER moth emergence continued, egg masses and young larvae reported on corn in some areas; moth flight increased in Michigan. (pp. 377-378).

ALFALFA WEEVIL larvae generally heavy on alfalfa in southeast Colorado. Adults heavily damaged second-growth alfalfa in southern Illinois; infestations heavy in Michigan, above economic threshold in southwest and south-central Pennsylvania. (pp. 379-380).

BOLL WEEVIL adults in cotton terminals in southern Tennessee. First-generation BOLLWORMS on cotton in Mississippi. (p. 381).

SPRUCE BUDWORM again heavy in Michigan, large acreage treated in Maine. PINE BUTTERFLY heavy in Bitter Root Valley of Montana. (p. 384).

FACE FLY infestations on cattle heaviest of past 2 years in northeast Mississippi. Face fly and HORN FLY very heavy in southeast South Dakota. Horn fly heavy in north-central Texas. (pp. 386-387).

GRASSHOPPERS economic in northwest Minnesota and on rangeland in several Western States. First JAPANESE BEETLE adults of season reported in Tennessee and Maryland, emerge reported in North Carolina. (pp. 380, 388-389).

Detection

A GRASSHOPPER reported for first time from Nevada. (p. 389).

For new county records see page 389.

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

CONTENTS

WEATHER OF THE WEEK ENDING JUNE 18

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

PRECIPITATION: Highs pumped moist, damp air into the Eastern United States all week. While relatively large areas in the Corn Belt and the East received from 0.80 to 2.00 inches of rain. Areas as scattered as Iowa, Texas, Illinois, and Georgia received 2 inches or more. Areas in Texas and South Carolina received 6 to inches. The West was dry by comparison. Most of California, part of western Washington, Oregon, and Wyoming remained dry. A large section of the Montana drought area did get 0.80 to 2 inches of rain--not enough to break the drought but enough to benefit crops greatly. The Washington and Oregon drought area had from zero to 0.80 inches of rain. Monday, a Bermuda High dominated the weather picture over the eastern half of the Nation except for a Low which developed over south Georgia. The Low generated drenching thunderstorms over Georgia and the Carolinas. Charleston, South Carolina, received 9.30 inches of rain in the 24 hours ending 9 p.m. Monday. The rain continued into Tuesday causing considerable flooding. By 9 a.m. Tuesday, Charleston had received almost 17 inches of rain over a 5-day period. In the West, moist air from the same High brought heavy showers to the Texas gulf coast. Houston, Texas, received 5.19 inches of rain in the 24 hours ending 9 p.m. Monday. By 9 p.m. Tuesday 2.49 inches had fallen at San Antonio and 2.30 inches at Victoria, Texas, in 24 hours. Between Texas and the Carolinas, thundershowers continued through the Deep South on Tuesday. Lake Charles, Louisiana, for example, measured 2.50 inches. Over the Nations northern half a stationary front stretched from the Great Plains to the Great Lakes across northern New England to New Brunswick. Sioux City, Iowa, received 1.11 inches of rain Monday and thundershowers occurred from Nebraska to New England along the front. The weather was cool and clear behind the front. Wednesday, a High began to build behind the front pushing it slowly southeastward. Thursday, it stretched along the Ohio Valley east to the Atlantic. Weather of the week continued on page 392.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - OKLAHOMA - Heavily damaged small grains in Osage County and scattered fields in Roger Mills County. (Okla. Coop. Sur.). ARKANSAS - Heavy localized infestation found in fescue in Marion County week ending June 8. Complete loss noted in at least one field where good hay crop expected. Infestations reported in Benton County now under control. (Boyer). KANSAS - None found in brome grass examined in northern counties of northeast district; ranged absent to light generally in wheat checked in this area and in west-central, southwest, and east-central districts. Some significant infestations seen in rank, thick stands of wheat in Harvey County (up to 5 per drill row foot); no head feeding noted. Larvae averaged about one per row foot in one field of 80 percent downed wheat in Morris County with some beard feeding but no kernel feeding noted. (Bell).

MISSOURI - P. unipuncta moderate to heavy on fescue and orchard grass in south-central and southwest areas. Larvae on orchard grass in southwest area ranged 0-6 per square foot. Heavy infestations reported on 2,000+ acres of fescue in south-central area. Treatments applied. (Huggans, Thomas). ILLINOIS - Fed in whorls of 10 percent of 18-inch field corn in no-till plots in St. Clair County. (Ill. Ins. Rpt.). MICHIGAN - Adults increased at all blacklight stations June 10-11; ranged 60-70 per night. This increased activity 7-10 days later than normal and small grain problems should be minimal. (Sauer). OHIO - Several no-till cornfields in east-central area showed feeding damage. Peak activity expected week of June 18. Check all no-till corn after sod or rye for damage. (Musick). Damage remained at 20, 28, 65, and 75 percent in 4 Licking County fields where treatment recommended. (Blair).

MARYLAND - P. unipuncta infestations statewide continued well below normal in small grain and no-till corn. About 70 percent of Eastern Shore barley harvested with only 1 percent of acreage requiring sprays before harvest. Heaviest infestation in corn found near Price, Queen Annes County, where fourth instars averaged one per 200 plants on 40 acres. (U. Md., Ent. Dept.). VIRGINIA - Third instars abundant in low spots in many cornfields in Montgomery and Pulaski Counties. Corn up to 12 inches tall badly damaged in some spots; 50+ percent of no-till fields examined needed treatment. Sprays applied to 200 acres of corn. (Allen).

KENTUCKY - P. unipuncta caused minor damage to corn statewide. Damage heavier in no-till fields. Heaviest infestation in Hardin County, almost all plants infested with 3-4 larvae. Averaged one larva per 20 plants at one Nelson County location. Treatments applied at several Warren County locations. Caused light damage to wheat, oats, and barley in central and south-central areas. (Barnett et al.). TENNESSEE - Caused moderate to heavy damage to 25-acre field of corn in Washington County. Controls applied. (Quillin).

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Noticeable increase observed. Grassy fields in northeastern Sawyer County yielded about 2 per sweep; other grassy fields in northwest area yielded moderate populations. Averaged 6 per sweep in Waupaca County oatfield. Averaged 50 per 100 sweeps in Plainfield area and other eastern Waushara County areas. (Wis. Ins. Sur.). MICHIGAN -

Continued to move into State. Percent infectivity not known. (Sauer). MINNESOTA - Increased greatly in some districts, especially central and southwest; averaged 350 per 100 sweeps in these districts. Ranged 2,800-3,000 per 100 sweeps in one Scott County field. Feeding damage minimal, but species is vector of aster yellows. (Minn. Pest Rpt.).

CORN EARWORM (Heliothis zea) - IDAHO - First eggs of season noted June 13. Six eggs found on silks of 62 corn ears of Parma, Canyon County, corn. (Scott). ILLINOIS - Infested one per 25 tassels of sweet corn checked in St. Clair County. (Ill. Ins. Rpt.). NORTH CAROLINA - Damaged less than 5 percent of whorls in 50 corn plants checked in 25 fields along State Highway 50 in Duplin County between Raleigh and Kenansville. Damage in corn whorls usually very common in southern Coastal Plain during early June. (Hunt).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Light infestations, usually involving 50 percent or less of whorls, found in sorghum in northeast and east-central districts. No reports received of significant infestations in sorghum in south-central, southwest, and west-central districts. (Bell). TEXAS - Light on sorghum in most areas. Still detected on grain sorghum in south-central areas; no economic infestations reported. Light in Blacklands in Hill and Navarro Counties. Noted feeding in whorls of sorghum in Hunt, Collins, Kaufman, and Dallas Counties. Moderate to heavy in several Knox County fields. In Trans-Pecos area light populations detected in Reeves, Andrews, and Glasscock Counties. Counties near Lubbock began to report light activity on sorghum. (Cole et al.).

GREENBUG (Schizaphis graminum) - TEXAS - Light in Blacklands area where only some colonies could be found in sorghum fields in Hill and Navarro Counties. Heavy rains and beneficial insects kept populations light in area. Light on grain sorghum in South Plains area near Lubbock. Averaged less than 5 per plant in fields checked in Amarillo area. (Hoelscher, et al.). OKLAHOMA - Heavy in young sorghum in Pawnee County and moderate to heavy in one field in Marshall County. Ranged 3-4 per plant in one field in Texas County but averaged 1 per 10 row feet in second field. (Okla. Coop. Sur.). KANSAS - Beating rains delayed buildups on seedling sorghum over much of State; only reports of damaging infestations involve Harvey and western Marion Counties. Significant parasitism by Lysiphlebus testaceipes (a braconid wasp) noted in one field of 7-inch infested (125 per plant) sorghum in Marion County and traces of parasitism noted in some fields in Washington, Marshall and Nemaha Counties. Trace infestations noted in most green wheat fields checked in northeast, east-central, and southwest districts; heavy populations of lady beetles and sometimes green lacewing larvae noted in most fields will likely destroy most S. graminum before wheat ripens and greenbugs migrate to sorghum. Buildup of predators mostly due to presence of significant populations of Macrosiphum avenae (English grain aphid) infesting wheat heads, and not necessarily to heavy numbers of greenbug. (Bell).

NEBRASKA - S. graminum remained light in most Clay County sorghum ranged 1-2 per 1 to 4-inch plant. Averaged 8.9 per plant in one field; plants not visibly damaged. Soil moisture good, sorghum growth rapid. Flights light in Clay County. Averaged less than one alate per trap at 2 locations. Light, ranged 12-14 per 50 sweeps, in 2 wheat fields in Clay County. (Gary et al.).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Moderate, averaged 12 adults and nymphs per sweep in Clinton County alfalfa. (Ill. Ins. Rpt.). OHIO - Adults ranged 1-3 per plant on 3-inch Clinton County soybeans. Unusually heavy for time of year in comparison to 1972. (Fox). MICHIGAN - First adults of season found June 4 in Ingham County alfalfa; counts very light. (Sauer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Appeared on scattered plants in Dixie Valley, Pershing County, alfalfa seed fields. Alates, alatoid nymphs, and nymphs present. (Munk, Ogawa). WASHINGTON - Specimen collected in yellow pan aphid tray May 6 at Pasco, Franklin County. (Powell).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Blacklight trap collections indicate significant moth flights in Brown and Republic Counties. Moth counts low in Finney County. Surveys, mainly in corn more attractive to moths, indicated the following, by county (height of corn in parentheses): Brown (16 inches) - 1 egg mass per 50 plants; Douglas (36 inches) - 40 percent of plants infested with larvae and 6 percent with egg masses; Johnson (26 inches) - 54 percent of plants infested and 20 percent with egg masses (moths flying in field) and (18 inches) 6 percent of plants infested and 2 percent with egg masses. No infestations noted in 6 to 12-inch corn in Riley and Nemaha Counties. Larval instars primarily first but some second. (Bell).

MISSOURI - O. nubilalis very light in corn in southwest and west-central areas. Percent plants showing leaf damage ranged 0-21 percent. Most corn in these areas planted too late for first-brood infestations. (Munson). IOWA - Adult emergence declined in central area. Percent of corn plants with eggs 1.5 and 2 percent of plants damaged in 20 Polk County fields. (DeWitt). MINNESOTA - Limited surveys indicate 22 percent pupation and 6 percent moth emergence in southwest district, 10-20 percent pupation and no emergence in central district. (Minn. Pest Rpt.).

ILLINOIS - O. nubilalis moth emergence 100 percent in Champaign County, eastern district; pupation 72 percent, moth emergence 28 percent in Ogle County, north-west district. Egg laying by over-wintered females observed in several counties in southern half of State; egg masses averaged 80 and 120 per 100 plants in 30-inch corn in Mason and Pike Counties, respectively. Some hatch noted in Pike County. Egg masses averaged 26 per 100 plants in 2 fields of 50-inch sweet corn in St. Clair County; whorl feeding observed on 16 percent of plants, one fourth-instar larva found. (Ill. Ins. Rpt.). INDIANA - Egg masses ranged 0-16 per 100 stalks of corn 4-28 inches extended leaf height in Kosciusko County, some hatching occurred on taller plants. (Engleberth). Second-instar larvae noted in Tippecanoe County corn. (Huber). MICHIGAN - Moth activity increased drastically. Collections peaked June 10. Egg hatch began June 15. All susceptible crops should be treated. (Sauer).

MARYLAND - O. nubilalis infestations in corn still in 2-20 percent range in Wicomico, Dorchester, Caroline, Talbot, and Queen Annes Counties; first and second instars present. Moth flight declined due to negative effects of full moon and clear skies. Adult trap counts ranged 1-3 per night over State. (U. Md., Ent. Dept.).

DELAWARE - Larvae common in untreated sweet corn in Sussex County. (Burbutis). NEW YORK - Larval populations increased. First moth taken May 25 in Hudson Valley. Egg masses found on early corn in Dutchess County where one spray applied. Most corn in Hudson Valley very small. (N.Y. Wkly. Rpt., June 11).

BLACK CUTWORM (Agrotis ipsilon) - VIRGINIA - Larvae cut off corn seedlings in low spots in 7 no-till fields in Montgomery County. (Allen). Moth collections in blacklight traps increased abruptly on Eastern Shore. (Hofmaster). INDIANA - Larvae reported from cornfields in Sullivan, Montgomery, and Tippecanoe Counties. Damage by first-generation larvae no longer threat; pupation began as far north as Tippecanoe County. (Turpin). ILLINOIS - Percent damage per 100 corn plants increased in Shelby County. Seven larvae found associated with 50 damaged plants. (Ill. Ins. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Damage to corn declined throughout Eastern Shore. Corn outgrowing earlier injury. Adults ranged 2-4 per plant in Talbot, Caroline, Prince Georges, and Dorchester Counties; ranged 2-10 per plant in Frederick, Carroll, and Howard Counties with feeding light to moderate in several of most heavily infested fields. (U. Md., Ent. Dept.). KENTUCKY - Caused light damage to corn in eastern and central areas with heavier damage in western areas. Some wilting reported from Warren County. (Barnett).

MAIZE BILLBUG (Sphenophorus maidis) - MARYLAND - Caused 20 percent reduction of 20-acre stand of sweet corn near Price, Queen Annes County. Controls required. (U. Md., Ent. Dept.).

SMALL GRAINS

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Adults ranged 1-2 per stem in 20 percent of stems in scattered, early headed barley fields in Grand Forks County. Nymphs present in leaf sheaths. (Kaatz).

COULEE CRICKET (Peranabrus scabricollis) - IDAHO - Population migrated from rangeland into Arbon Valley, Power County, winter wheat; ranged 40-50 per square yard. Treatment imminent should feeding change from weeds to wheat. (Schow, June 8).

HESSIAN FLY (Mayetiola destructor) - MISSOURI - Heavy infestation reported on Arthur wheat variety in east-central area. Average of 20 percent of stems in field lodged. (Thomas).

TURF, PASTURES, RANGELAND

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - NEVADA - Larvae up to two-thirds grown defoliated scattered bitterbrush (Purshia tridentata) plants at 5,000-6,000 foot level near Galena Creek, Washoe County. (Barclay, Bechtel).

WHITELINED SPHINX (Hyles lineata) - NEW MEXICO - Larval migration heavy on highways adjacent to rangeland in Harding County. (N.M. Coop. Rpt.).

BANKS GRASS MITE (Oligonychus pratensis) - IDAHO - Populations destructive to 60 acres of orchard grass hay field in vicinity of Potlatch, Latah County. Damage seemed complicated by dry soil conditions and numerous frosts that have damaged some crops in area. (O'Keeffe).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Few larvae, 1 per 20 sweeps, collected on west edge of alfalfa seed field 20 miles north of Pasco, Franklin County, May 6 and 12. This is a new county record. Populations heavier than previously observed in Walla Walla County alfalfa seed fields in area between Touchet and State line; larvae ranged 1-2 per sweep. (Johansen). IDAHO - Larvae ranged up to 200+ per 3 sweeps in upper Blacks Creek area, Ada County, in dryland alfalfa grass field. Larvae numerous (25 per sweep) in some late alfalfa in northern area. Many fields appear to have noneconomic populations; however, fields throughout area should be checked. (O'Keeffe). COLORADO - Larval populations erratic but generally heavy in southeast counties, ranged 30-2,000 per 100 sweeps. In Mesa and Delta Counties, ranged 250-300 per 100 sweeps. (Schweissing, Bulla). NEW MEXICO - Averaged 3 adults and ranged 2-8 larvae per 25 sweeps on alfalfa in Valencia County. (N.M. Coop. Rpt.).

KANSAS - H. postica larval infestations generally decreasing rapidly in alfalfa in northeast and east-central districts; good regrowth noted in nearly all fields, exceptions primarily noted in some fields along Kansas River and in eastern Morris County. Larval populations decreasing in Finney County, little significant damage incurred earlier except in Clark County. Heavy adult populations, thought to delay regrowth in some Reno County fields, caused some concern. (Bell). NEBRASKA - Counts still heavy in Dawson County alfalfa with 75 percent of fields harvested for first cutting. Larvae ranged 2-2,880 (average 591) and adults 0-24 (average 5) per 100 sweeps in 8 fields in Gothenburg and Cozad area June 12-14. In field south of Gothenberg, 625 larvae and 12 adults taken in 5 sweeps. In Lexington and Overton area, larvae ranged 12-740 (average 161) and adults 0-8 (average 1.2) per 100 sweeps same period. These are heaviest recorded populations in Dawson County. Many growers sprayed stubble. In one Lincoln County field, 122 larvae but no adults taken per 20 sweeps. (Manglitz, Stevens).

MISSOURI - H. postica adults damaged regrowth alfalfa in central area; ranged 2-5 per sweep. (Huggans). NORTH DAKOTA - Larvae ranged up to 1,600 (average 350) and adults averaged 12 per 100 sweeps in irrigated alfalfa in Oliver County. Increased in irrigated alfalfa in McKenzie County; larvae ranged up to 5,000 (average 3,350) per 100 sweeps. Up to 100 (average 64) percent of tips damaged. Larvae 5,000 per 100 sweeps in some second-year fields. Adults mating. Alfalfa in late-bud to early bloom stage. First cutting underway. (Brandvik). MINNESOTA - Very light, 1 per 200-300 sweeps of alfalfa in Hennepin, Wright, and Meeker Counties. Determined by J. Lofgren. These are new county records. (Minn. Pest Rpt.).

WISCONSIN - H. postica larvae averaged 3 per 10 sweeps in several fields where significant feeding noted last 14 days of May. In most cases, fields severely lodged making counts difficult. Populations erratic in Portage, Waupaca, Sauk, Marquette, Waushara, and Dane Counties; ranged 3-15 per sweep. Damage minimal, larvae

pupating. Cutting began throughout State; significant first-crop hay damage unlikely. Infestations noted in following counties: Price, 5 larvae (few third instar) per 50 sweeps, 1 adult per 200 sweeps; Ashland, 1 larva (few second instars) per 200 sweeps, 1 adult per 500 sweeps; Sawyer and Bayfield, no larvae, 1 adult per 600 sweeps; Douglas, no larvae, 1 adult per 200 sweeps; Rusk, 1 larva (few second instar) per 100 sweeps, 1 adult per 300 sweeps; Washburn and Burnett, no larvae, 1 adult per 200 sweeps. (Wis. Ins. Sur.).

ILLINOIS - Hypera postica adults heavily damaged second-growth alfalfa in southern half of State. Up to 10 adults per sweep in selected fields in Effingham and Washington Counties. Averaged one per 2 sweeps in random fields in Clinton County. (Ill. Ins. Rpt.). MICHIGAN - Infestations heavy in alfalfa and hay cutting late. Losses heavier in unprotected fields than in past. (Sauer).

MARYLAND - H. postica damage and populations declined rapidly in all sections. Pupation continued statewide. (U. Md., Ent. Dept.). PENNSYLVANIA - Above economic threshold in most alfalfa in southwestern and south-central counties; larvae per sweep averaged 35 in 5 fields and 39 in 4 fields, in these areas, respectively. Numerous fields in some areas of southeast district showed 80-100 percent tip damage. Averaged 27 larvae per sweep in 4 Lancaster County fields. (Hower). NEW YORK - Alfalfa examined June 4-8 in Tompkins, Livingston, Chemung, Steuben, Ontario, and Seneca Counties in good condition, little damage evident. Larvae in third and fourth instars. Parasitism by Microctonus aethiops (a braconid wasp) about at peak. M. aethiops recovered in Seneca, Oswego, Livingston, Yates, Madison, Orange, Schoharie, and Tompkins Counties. Seneca and Oswego are new county records. (N.Y. Wkly. Rpt., June 11).

ALFALFA LOOPER (Autographa californica) - NEVADA - Ranged 1-30 per sweep in alfalfa hay and/or seed fields at Fallon, Churchill County; Denio and Orovada, Humboldt County; Yerington, Lyon County; Dixie Valley and Lovelock, Pershing County; and Hualapai Valley, Washoe County. Diseased larvae appeared in some localities; in Fallon area, sea gulls effective predators in cut fields. In Orovada area, cleanup sprays reduced most insects in alfalfa seed fields except for A. californica which ranged 7-8 per sweep. (Nev. Coop. Rpt.).

GRASSHOPPERS - MINNESOTA - Economic, 20-25 per square yard, in roadsides and field margins in Kittson and Marshall Counties. Melanoplus bivittatus dominant; ranged second to fourth instars, mostly third and fourth instars. Very dry, warm weather will increase hatch and movement into adjacent fields. Little or no movement yet observed. Development in other areas not as advanced, ranged first to third instars; only trace numbers seen. (Minn. Pest Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MINNESOTA - Spittle masses and nymphs reported on most forage crops over southern half of State. Infestations heaviest in southeast district; decrease progressive from east to west. No economic infestations reported. (Minn. Pest Rpt.). ILLINOIS - Adults averaged 2 per sweep in Effingham County alfalfa. (Ill. Ins. Rpt.). KENTUCKY - Adult populations declined on forage crops in central area; ranged 150-200 per 100 sweeps. (Barnett).

SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults caused light injury to newly emerging soybeans in Wicomico and Dorchester Counties. Heaviest counts ranged 2-4 adults per 20 row feet near Hebron, Wicomico County. Egg laying evident. No larvae noted yet but expected next 7 days on lower Eastern Shore. (U. Md., Ent. Dept.).

PAINTED LADY (Cynthia cardui) - IOWA - Larvae damaged soybeans in Harrison, Jasper, Lyon, Pocahontas, Polk, Pottawattomie, and Wright Counties. Damage generally widespread across fields, not necessarily localized near thistles and other weeds. (DeWitt). MINNESOTA - Limited larval feeding reported in field margins in Lyon, Yellow Medicine, and Lac qui Parle Counties. In most cases, adjacent fields containing Canada thistle primary source of infestation. (Minn. Pest Rpt.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Adults ranged 15-20 in 3 Leggett traps in Chickasha area, Grady County, week ending June 9; 14 adults taken night of June 12. Three weevils taken this period in Caddo County. (Okla. Coop. Sur.). ARKANSAS - Counts per 10 Leggett traps by county: Clay 1,065; Mississippi 28; Phillips 157; Chicot 79; Pulaski 46; Lafayette and Miller 58. (Boyer). MISSISSIPPI - Counts per Leggett trap by county (number of traps in parentheses): Holmes 2.1 (10), Tallahatchie 72.5 (6), Grenada 11.2 (13), Yalobusha 22.4 (20), Webster 32.6 (17). (Walton et al.). TENNESSEE - Emergence of overwintered weevils peaked. Adults readily found in cotton terminals in southern counties. (Locke).

PALESTRIPED FLEA BEETLE (Systena blanda) - ARIZONA - Damaged squares in glandless cotton variety test plots at Yuma, Yuma County. (Ariz. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - MISSISSIPPI - First generation found on cotton. Eggs found on up to 75 percent of terminals. Infestations of young larvae ranged 3-5 percent in more heavily infested fields. (Robinson).

SALTMARSH CATERPILLAR (Estigmene acrea) - OKLAHOMA - Damaged young cotton in Warren area, Jackson County. One field replanted. Also heavy on weeds in area. (Okla. Coop. Sur.).

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - MISSISSIPPI - Moderate to heavy in cotton in Delta counties. Some treatments applied. (Robinson).

A FLEAHOPPER (Spanogonicus albofasciatus) - MISSISSIPPI - Moderate to heavy in cotton in Leake, Covington, Jefferson Davis, Lawrence, and Walthall Counties. (Schuster).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults on newly set tobacco ranged 3-10 per plant, averaged 4. These counts show slight increase over last period. About 40 percent of Type 32 tobacco crop planted in Prince Georges, Anne Arundel, and St. Marys Counties. Damage light to date. (U. Md., Ent. Dept.).

KENTUCKY - Epitrix hirtipennis caused minor damage to tobacco in central area. Foliar loss, 5-10 percent, noted at several locations in Simpson, Hart, and Warren Counties. (Barnett).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Adult emergence about complete, flies moved to new beet fields in Walsh and Pembina Counties. Egg laying general in these counties; 10-60 eggs per mass evident. Eggs on up to 80 percent of plants. (Kaatz).

MISCELLANEOUS FIELD CROPS

SUNFLOWER BEETLE (Zygogramma exclamationis) - NORTH DAKOTA - Up to 5 adults per stalk (averaged 7 per 10 stalks) on early 8 to 12-inch sunflowers in Pembina County. Beetles also present in Walsh, Grand Forks, and Traill Counties. (Kaatz).

PAINTED LADY (Cynthia cardui) - MINNESOTA - Limited larval feeding reported in field margins of sunflower in Lynn, Yellow Medicine, and Lac que Parle Counties. Adjacent fields containing Canada thistle primary source of infestation in most cases. (Min Pest Rpt.). WASHINGTON - Larvae fed on thistle then moved onto gardens, beans, potatoes, mint, cherries, alfalfa, and other cro in eastern counties (Whitman, Spokane, Stevens, Yakima, Benton, Grant, Walla Walla, Kittitas). (Telford et al.).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Larvae common on untreated potatoes and tomatoes in Sussex Count (Burbutis). TENNESSEE - Damaged potatoes and tomatoes in Lincoln County. Controls applied. (Winsett).

EGGPLANT FLEA BEETLE (Epitrix fuscula) - OHIO - This species and Epitrix cucumeris (potato flea beetle) very common on Washington County potatoes. Feeding noted on 10-100 percent of leaves with 80 percent damaged. Up to 72 feeding holes noted on plants with heaviest injury. Home gardens more seriously damaged than large commercial plantings. (Fox).

A FLEA BEETLE (Epitrix brevis) - OHIO - Taken from pepper plants at Marietta, Washington County. This is a new county record. Previously recorded from Champaign and Greene Counties. (Fox).

ALFALFA WEEVIL COMPLEX (Hypera spp.) - CALIFORNIA - Adults abundant at bases of potato plantings in Kern County. Condition is general. No damage to potatoes noted to date; numbers of adults present caused concern. (Cal. Coop. Rpt.).

BEANS AND PEAS

PEA APHID (Acyrthosiphon pisum) - IDAHO - Present in many norther area pea fields. Small "hot spots" in many fields. (O'Keeffe).

MEXICAN BEAN BEETLE (Epilachna varivestis) - TENNESSEE - Continue to damage snap beans in central area. Frequent rains made control difficult. (Winsett, Gordon).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - OREGON - Populations appear heavier this season, with larvae already present in some cole crop plantings. Treatment required on 2 broccoli plantings in Marion County. (McGee, Hay). Two adults taken in pheromone trap near Corvallis, Linn County, during period June 6-13. (Crowell).

GENERAL VEGETABLES

BLACK CUTWORM (Agrotis ipsilon) - OREGON - Larvae seriously damaged 30-acre field of seeding table beets near Dayton, Yawhill County. Stand reduction estimated to be 20-25 percent. (McGee, Penrose).

SALTMARSH CATERPILLAR (Estigmene acrea) - TEXAS - Caused damage to foliage of watermelons as well as beans in Wilbarger County. (Boring).

BLACK SWALLOWTAIL (Papilio ajax) - TEXAS - Larvae heavy and fed on dill in Wilbarger County. (Boring).

ONION MAGGOT (Hylema antiqua) - OHIO - Injury to onions by first-generation larvae observed for second consecutive week at Celeryville, Huron County; damage not at peak proportions. Some pupation noted. Home gardens most seriously damaged. Where controls applied, larvae of no economic importance in commercial plantings. (Sleesman).

CABBAGE MAGGOT (Hylema brassicae) - MAINE - Serious this year because of delayed cold, wet weather especially on radishes statewide. Many other root crops damaged. Cabbage and other cole crops also damaged. (Gall).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - COLORADO - Ranged 50-100 in pheromone traps in Mesa County. Emergence delayed in Delta, Garfield, and Montrose Counties. (Bulla).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Light in most areas of Rogers, Washington, Oklahoma, Wagoner, and Marshall Counties. About one-third of eggs hatched in Okfuskee County, white eggs also present June 12. (Okla. Coop. Sur.).

YELLOW PECAN APHIDS (Monellia spp.) - TEXAS - Infestations built up in Wilbarger and Baylor Counties of Rolling Plains; honeydew became problem near pecan trees in area. Light to moderate populations reported from Ward, Winkler, Ector, and El Paso Counties of Trans-Pecos area. (Boring, Neeb).

A STINK BUG (Euschistus conspersus) - CALIFORNIA - Adults entered peach and almond orchards near grasslands. Infestations should be checked carefully to prevent damage. (Cal. Coop. Rpt.).

ORNAMENTALS

AN OLETHREUTID MOTH (Rhyacionia bushnelli) - CALIFORNIA - Reinfested 75-acre Christmas tree farm at Wasco, Kern County. Farm originally infested by planting stock in 1971 and treated; supposedly eradicated. Reinfestation probably due to failure to remove tip prunings. Oligonychus milleri (a spider mite) also serious on this farm. Mites ranged 20-50 per 3-inch tip, eggs heavy. (Cal. Coop. Rpt.).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MICHIGAN - Populations heavy again this year, some tree mortality expected. Development ranged third instar to pupa in Marquette County, most in fourth instar. (Sauer). MAINE - Larval development proceeding rapidly with all larvae in fourth and fifth instars in all areas except eastern section where up to 40-60 percent noted in sixth instar. Treatment began June 10 in Allagash area, now includes most of St. Francis and Long Lake areas; 125,000 to 135,000 acres treated as of June 12. (Gall).

PINE BUTTERFLY (Neophasia menapia) - MONTANA - Large numbers again present in Bitter Root Valley area as in past 2 years. Trees defoliated for 3 successive years now in weakened condition and infested by many other insects. (Pratt).

YELLOWHEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - Larvae began defoliating white spruce along roadsides and in plantations in northern part of State. Other spruces also damaged, but white spruce primary problem, especially in plantations. Eggs and first and second instars present. As controls usually directed at third and fourth instars, good timing for application would be about June 22. (Minn. Pest Rpt.).

PINE SPITTLEBUG (Aphrophora parallela) - OHIO - Heavy on Scotch pine in Stark, Tuscarawas, Carroll, and Jefferson Counties; nymphs about full grown. (Balderston).

A SOFT SCALE (Pseudophilippia quaintancii) - VIRGINIA - Collected from Scotch pine (Pinus sylvestris) in Crewe, Nottoway County, by W.P. Eggbarn June 5, 1973. Determined by M. Kosztarab. This is a new host record in the State and a new county record. (Surles).

FOREST TENT CATERPILLAR (Malacosoma disstria) - SOUTH DAKOTA - Stripped hardwoods in Sisseton area, Roberts County. Very severe south and west of Peever, 100+ acres of government and private land nearly bare of leaves. In many cases, young branches stripped and larvae covered entire branch. Severe infestation of this species and M. americanum (eastern tent caterpillar) also found in Sieche Hollow State Park west and north of Sisseton; trees partially defoliated. Treatment applied in some areas. (Jones, Kantack).

FALL CANKERWORM (Alsophila pometaria) - NORTH CAROLINA - Active for third consecutive year on Coweeta Hydrological Experiment Station in Macon County. Third and fourth instars defoliated 75+ acres of hardwood on watershed, interfered with long-range water runoff experiments. Peak defoliation expected first half of July. (Berry, Angel).

SPRING CANKERWORM (Paleacrita vernata) - WISCONSIN - Damage severe in parts of Waukesha and Sauk Counties. (Wis. Ins. Sur.).

LINDEN LOOPER (Erannis tiliaria) - INDIANA - Larvae heavily damaged area of oaks in Jasper County. In area about 150 yards wide by 0.4 mile long, almost no leaves left intact; most leaves more than half eaten. (Schuder).

MOURNINGCLOAK BUTTERFLY (Nymphalis antiopa) - NEW JERSEY - Larvae fed on elm, willow, oak, and poplar trees in Essex and Atlantic Counties. (Kupcho, Dupras).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - First generation began pupation in Riley County. First-generation larval populations much lighter than normal at Hays, Ellis County. (Bell). OKLAHOMA - Moderately damaged Siberian elms in Muskogee, Wagoner, McIntosh, Okmulgee, and Oklahoma Counties. (Okla. Coop. Sur.). TEXAS - Built up in several areas of State. Light to moderate damage reported to Chinese elms in Baylor, Hardeman, and Wilbarger Counties. Populations and damage heavy on elms in Andrews, Martin, and Reeves Counties. Populations very heavy on elms throughout many of South Plains counties. Larvae heavy in Amarillo, Potter County. (Boring et al.).

MOUNTAIN ASH SAWFLY (Pristiphora geniculata) - MAINE - Larvae feeding on mountain-ash in southern and central areas. Damage relatively minor in most cases. Pest grows fast and can cause severe defoliation. (Gall).

PERIODICAL CICADA (Magicicada septendecim)- WISCONSIN - Emergence of Brood XIII first noted in Walworth County June 7. Emergence and singing reported from portions of Iowa, Sauk, and Richland Counties. Particularly heavy infestation reported at farm in Iowa County. (Wis. Ins. Sur.).

SCREWWORM (Cochliomyia hominivorax) - Total of 222 confirmed cases reported in continental U.S. during period of June 3-9 as follows: Texas 12, New Mexico 29, Arizona 170, California 11. Total of 1,027 cases confirmed from Mexico. Number of sterile flies released in U.S. during this period totaled 115,031,000 as follows: Texas 8,819,500; New Mexico 7,446,000; Arizona 24,265,0(California 1,500,000. Total of 65,770,000 sterile flies released in Mexico. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - TEXAS - Heel fly activ decreased in most Panhandle counties. Producers in area expected to begin grub treatment soon. Producers in Rolling Plains area applied treatment past week. (Clymer, Boring).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Heaviest infestation in past two years occurred in Monroe, Lee, and Chickasaw Counties ranged 25-30 per head. Up to 300 noted on face and body of some weakened cows. Pinkeye prevalent where flies heaviest. (Robinson) TENNESSEE - None found on herd checked in Madison County. (Turper Reached epidemic proportions on livestock in Lincoln County. Controls attempted. This is a new county record. (Winsett). OHIO Adults varied on beef and dairy cattle. Heaviest counts per face by county as follows: Clinton 19, Belmont 17, Guernsey 22. (Fox). INDIANA - Adults averaged 4.8 per face on 9 bulls and 5.8 per face on 5 steers in Tippecanoe County. (Christianson). SOUTH DAKOTA - This species and Haematobia irritans (horn fly) very heavy in southeast area. Populations of 5-35 M. autumnalis per face common in Charles Mix and Moody Counties. (Jones, Kantack).

MOSQUITOES - OHIO - Averaged 511 per night in 9 miniature light traps at Oberlin, Lorraine County. Heaviest count 2,000 per trap per night, lightest 40 per trap per night. Larval collections at marshy temporary pool in Franklin County averaged about 35 per dip; 99 percent Aedes vexans, some Culex restuans and C. territar Bite collections in Franklin County yielded 16 A. vexans in 15 minutes. (Ohio Dept. Health, Encephalitis Unit). WISCONSIN - Severe biting problems in many areas; some upland areas free of heavy infestations. Biting decreased in far northern and northwestern counties. Problems reported from Juneau, Sauk, Winnebago, parts of Iron, Kewaunee, Chippewa, and Marinette Counties. Light to moderate annoyance to dairy cattle noted in several counties. (Wis. Ins. Sur.).

MINNESOTA - Aedes vexans larvae in 80 percent of collections made week ending June 8 in Metropolitan Mosquito Control District. A. cinereus, Culiseta inornata, and Culex restuans other important species in collections. A. vexans adults dominant in evening bite collections with A. cinereus, A. stimulans, and A. abserratus als taken. A. stimulans dominant in daytime bite collections. Coquillettidia perturbans taken in trace numbers. Light trap collections in northern half of district indicate increases durin period June 11-14. (Minn. Pest Rpt.). MISSOURI - Adults heavy in some areas of State. (Craig). OKLAHOMA - Psorophora spp. larvae ranged up to 15 per dip in Stillwater area, Payne County. Adults present but not heavy. (Okla. Coop. Sur.). NEVADA - Aedes spp. adults heavy in Fallon and Stillwater areas, Churchill County. (Adams, Clark).

RN FLY (Haematobia irritans) - MISSISSIPPI - Heavy on untreated ttle herds. Adults averaged 1,500+ per cow in Oktibbeha, Clay, nroe, and Chickasaw Counties. (Robinson). TENNESSEE - Ranged -75 per animal on herd of beef cattle in Madison County. urpen). OKLAHOMA - Averaged 750 per head in Payne County and nged 300-500 per head in Major County. Moderate in Marshall d Pawnee Counties and light in Oklahoma County. (Okla. Coop. r.). TEXAS - Populations built up throughout State during mid- ne. Heavy on cattle in Brazos and Jackson Counties. Heavy on treated herds in Hill and Bell Counties, as well as several rth-central area counties near Dallas. Moderate to heavy in lbarger, Wichita, and Clay Counties. Moderate, 200-1,500 per imal, on cattle in Crockett, Midland, El Paso, and Andrews unties. In South Plains and Panhandle areas, populations ntinued to increase and expected to continue until dry weather uses leveling off. (Cole et al.). NEBRASKA - Increased, ranged 0-250 per head of cattle in Keith, Lincoln, Logan, and Pherson Counties. (Campbell).

ABLE FLY (Stomoxys calcitrans) - NEBRASKA - Ranged 1-2 per head cattle in Keith, Lincoln, Logan, and McPherson Counties. ampbell).

USE FLY (Musca domestica) - OKLAHOMA - Increased in untreated rns in Payne County. Averaged 22 per Scudder grid. (Okla. op. Sur.).

ACK FLIES - KANSAS - Biting adults problem in Washington County; rvae heavy on rocks (up to 40 per square inch) in rapids of ream in eastern Nemaha County along with some pupae. Adults ght in area. (Bell). WISCONSIN - Still heavy in many localities ar streams. Particular problems noted in Trempealeau, Vilas, waunee, Douglas, and Rock Counties. Biting in northern area; other areas, annoyance limited to swarming about individuals. is. Ins. Sur.).

TABANID FLY (Chlorotabanus crepuscularis) - TEXAS - Heavy on ttle in Hardin County near Kountze. Populations heavy enough warrant treatment. (McCelvey).

AD LOUSE (Pediculus humanus capitis) - INDIANA - Infestations re common this year than past years in Marion and surrounding unties. (Clark).

NEFICIAL INSECTS

INTED LADY (Cynthia cardui) - SOUTH DAKOTA - Very heavy, ranged 5 larvae per plant, on Canada thistle in Day, Moody, Brookings, ll River, and Turner Counties. Abundant throughout State. merous reports received of feeding on soybeans and sunflowers. ones, Kantack). IDAHO - Larvae active throughout State. thout usual host (thistles) caused some feeding damage to other ants in area. (Portman et al.).

INEUMON WASPS - PENNSYLVANIA - Diaparsis spp., larval parasitoids Oulema melanopus (cereal leaf beetle), recovered from field sectary in Crawford County. (Burger). INDIANA - Bathyplectes rculionis, parasite of adult Hypera postica (alfalfa weevil), ken from several fields in Daviess (May 3), Owen (May 3), Morgan ay 4), Brown and Washington (May 4) Counties. Collected by M.C. lson. These are new county records. (Wilson). VIRGINIA - B. rculionis collected from alfalfa duff at Charlotte Courthouse,

Charlotte County, April 5, 1973, by R. Pienkowski. Determined by R.W. Carlson. (Surles).

EULOPHID WASPS - PENNSYLVANIA - Tetrastichus julis, larval parasitoid of Oulema melanopus (cereal leaf beetle), recovered from field insectary in Crawford County. (Burger). OREGON - Total of 300 T. incertus, larval parasite of Hypera postica (alfalfa weevil), released in Linn and Benton County alfalfa plantings past 14 days. (Ritcher).

A BRACONID WASP (Microctonus aethiops) - OREGON - Released 134 specimens of this adult parasite of Hypera postica (alfalfa weevil in Linn and Benton County alfalfa plantings past 14 days. (Ritcher).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Live adults collected from oats at Veteran, Chemung County, June 1, 1973, by P.E. Gerder. Determined by R.E. White. This is a new county record (PPQ). PENNSYLVANIA - Eggs, larvae, and adults light on oats in Blair County; damage very light at Taylor and North Woodbury. These stages also light on oats in Crawford County; total leaf loss ranged 1-3 percent at Meadville. Larvae very light, averaged less than one per row foot, in 7 fields in Cumberland County in South Middletown Township. Infestation light on oats, averaged 2 eggs, 2 larvae, and 15 adults per 2 row feet, at 3 locations in Westmoreland County. Caused 0-5 percent leaf damage 35 miles southwest of Pottsburg. (Maxwell et al.). WEST VIRGINIA - Averaged 4 eggs and 8 larvae per square foot in late oats in Mason County. In headed oats in Pleasants County, 11 eggs and 7 larvae noted. (Hacker). KENTUCKY - Survey negative in Warren County. (Greene et al.). MICHIGAN -Infestations in small grains persist in scattered areas in southern part of State; more frequent in northern half of Lower Peninsula than usual. (Sauer).

GRASSHOPPERS - NORTH DAKOTA - Ranged up to 40 (average 8) per square yard in Williams County roadsides and field margins; up to 6 (averaged less than 1) per square yard in some alfalfa. Melanoplus bivittatus dominant; ranged first through fifth instar, mostly second and third instars. Ranged up to 10 (average 4) per square yard on rangeland in sandhills area of Richland and Ransom Counties. M. sanguinipes dominant. Averaged 10 per square yard in Hankinson area, Richland County. Ranged first through fourth instars. Ranged up to 35 per square yard in cropland field margins, with field counts up to 25 per square yard in alfalfa and grass fields. Averaged less than one per square yard in Cass County cropland areas. M. bivittatus dominant. Development ranged first through third instar, mostly second and third instars. (Brandvik, Grasser). MONTANA - Third-instar nymphs of unspecified species ranged 8-10 per square yard on 100+ acres of rangeland west of Polson, Lake County; ranged 6-10 per square yard on 500 acres on Camas Prairie in Sanders County. (Pratt).

IDAHO - Grasshoppers averaged 9 per square yard in dryland alfalfa grass field in Upper Blacks Creek area, Ada County. (Peterson). Populations (70 percent first instars) of Melanoplus sanguinipes and some M. femurrubrum averaged less than one per square yard throughout Farragut State Park, Kootenai County. (Stranahan). WASHINGTON - First adult noted in Franklin County. About 189,000 acres successfully treated in Franklin, Benton, and Walla Walla

Counties on cooperative basis. Cool, windy weather stopped operations May 14. About 30,000 acres remain to be treated. Infestations continued to develop with problems noted in Okanogan, Douglas, and Asotin Counties. Oedaleonotus enigma, Aulocara elliotti, and Melanoplus sanquinipes species involved. (PPQ). OREGON - Survey indicates grasshoppers, mainly Melanoplus spp., light throughout most eastern rangeland areas. Some counts heavy, 20 per square yard, along hay field margins in Malheur County, but anticipated treatment for Hypera postica (alfalfa weevil) will probably provide control. Areas where grasshopper counts heavy and treatment may be required, now being surveyed in Baker, Grant, Klamath, and Douglas Counties. (Goeden et al.). NEVADA - Third and fourth instar nymphs, mostly Malanoplus sanguinipes, ranged 25-30 per square yard on 500+ acres of alfalfa in Montello area, Elko County. Treatment will begin next 7 days on 12,000 acres of rangeland near Upper Clover Ranch, Elko County, reported in CEIR 23(24):368. (Wilson). M. splendidus collected in light trap at Oak Springs Summit, Lincoln County, at 6,231 feet August 10, 1971, by G.M. Nishida and D.F. Zoller. Determined by A.B. Gurney. This is a new State record. (Bechtel).

NEW MEXICO - Economic in following counties (acreage in parentheses): Chaves (1,270,000); Curry (50,000); De Baca (225,000); Eddy (271,000); Lea (1,046,000); Quay (20,000); Roosevelt (100,000); San Miguel, (25,000). (N.M. Coop. Rpt.). OKLAHOMA - Up to 40 nymphs per square yard in rangeland in Washita and Roger Mills Counties. (Okla. Coop. Sur.).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - First adults of season reported from St. Marys and Montgomery Counties. Peak emergence expected next 21 days. (Md. Dept. Agr.; U. Md., Ent. Dept.). NORTH CAROLINA - Adult emergence occurred in Coastal Plain, continued westward across State. Adults should be on grapevines in mountain areas by June 22. (Hunt). TENNESSEE - First adult of season observed in Jefferson County. (Van Landingham).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Infested 34,000 acres of rangeland in Chaves County and 160,000 acres in Harding County. (N.M. Coop. Rpt.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Heavy concentration of mounds of this species and Solenopsis xyloni (southern fire ant) noted in area north of highway bypass at South College Station, Brazos County. (Williamson).

DETECTION

New State Record - A GRASSHOPPER (Melanoplus splendidus) NEVADA - Lincoln County. (p. 389).

New County Records - ALFALFA WEEVIL (Hypera postica) WASHINGTON - Franklin. MINNESOTA - Hennepin, Wright, Meeker (p. 379). NEW YORK - Seneca, Oswego (p. 380). CEREAL LEAF BEETLE (Oulema melanopus) NEW YORK - Chemung (p. 388). FACE FLY (Musca autumnalis) TENNESSEE - Lincoln (p. 386). A FLEA BEETLE (Epitrix brevis) OHIO - Washington (p. 382). AN ICHNEUMON WASP (Bathyplectes curculionis) INDIANA - Daviess, Owen, Morgan, Brown, Washington (p. 387). A SOFT SCALE (Pseudophilippia quaintancii) VIRGINIA - Nottoway (p. 385).

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other vapor)	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheet head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS (Counties)																								
Lonoke 5/31, 6/4			BL						1	6														
Mississippi 6/7			BL						7															
FLORIDA																								
Gainesville 6/8-14			BL		1			9		1										5		1		
ILLINOIS (County)																								
Ogle 6/5-6			2BL													230	56	1706						
INDIANA (Counties)																								
Randolph 5/31-6/6			BL		77											30		49						
Tippecanoe 5/31-6/6			2BL		58											24	1	102				1		
IOWA																								
Beaconsfield 6/1-7			BL	9			33									31		44						
Gilbert 6/1-7			BL	3			29									176	2	100						
KANSAS																								
Garden City 6/5,7,12			BL			13										8	58	24						
Tribune 5/30-31, 6/8			BL				15										2	2						
MINNESOTA																								
Shakopee 6/7-13			BL													13								
Worthington 6/7-13			BL													4								
MISSISSIPPI																								
Stoneville 6/8-14	67-93	0.42	2BL	34	14			1	16	20							96	67			34	2		
NORTH DAKOTA																								
Bismarck 6/11			BL											14				3						
Bottineau 6/8, 11			BL											1		2								
OHIO																								
Wooster 6/8-14			BL	26			21									232	11	235						
OREGON (Counties)																								
Linn 6/7-13			2BL	3													92							
Marion 6/7-13			2BL	2													53							

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I = incandescent, MV = mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Lasperesia pomonella (codling moth)	Loxostege comstockiis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
PENNSYLVANIA (District)																								
Central 5/30-6/11			BL	18	1												20	3	111					
Northeast 5/30-6/11			BL	1													2		2					
SOUTH DAKOTA																								
Brookings 6/8-14			BL	1													56	9	80				1	
TENNESSEE (Counties)																								
Henry 6/11-15			BL	10				1								2	2	11	19			5	7	
Weakley 6/11-15			BL	23			1											3	93			7	1	
TEXAS																								
Waco 5/31-6/7			BL	11	2		19		37									211	488	55		277	49	
WEST VIRGINIA																								
Harrison 6/10			BL	1	5														3					
Randolph 6/11			BL	19	16												2		20				4	
WISCONSIN																								
Darien 6/4-10			BL														79		31					
Jamesville 6/4-10			BL														122		277					

Turf and Pastures - GRASS WEBWORM (Herpetogramma licarsisalis) generally trace in pastures at Kaupakulua, Maui; light in spots with 6+ larvae per square foot. Four percent of larvae parasitized by Casinaria infesta (an ichneumonid wasp). (Miyahira).

Forest and Shade Trees - Nymphs of a CONIFER APHID (Cinara carolin light and spotty on terminals of about 20 percent of trees on 25+ acres of Pinus taeda (loblolly pine) at Olinda, Maui. (Miyahira).

Beneficial Insects - Adults of a SCYOMYZID FLY (Sepedon sauteri) moderate in swampy pasture areas at Waihee, Maui, and at Kalaupapa Molokai. Last release of this liver fluke snail predator made in April 1970. Larval activity of a TORTRICID MOTH (Apotoforma sp.) moderate on 100+ acres of wild blackberry at Waikamoi, Maui; 75 percent of terminals infested. Larvae of a HELIODINID MOTH (Schreckensteinia festaliella) light in this host situation. (Miyahira).

Miscellaneous Pests - On Kauai, no GIANT AFRICAN SNAIL (Achatina fulica) activity noted during May in previous areas of infestation at Poipu and Wahiawa. Baiting and surveillance continued at Wahiaw but curtailed temporalily at Poipu due to extreme drought during most of spring. On Hawaii, 8 specimens up to 2 inches in length collected in subdivision at Kona. (Sugawa, Yoshioka). Larvae of a GEOMETRID MOTH (Semiothisa santaremaria) light to moderate and fed on foliage of wayside monkey pod trees at Ka'u, Hawaii. (Matayoshi).

Weather of the week continued from page 374.
Later Thursday, it reached as far south as the Carolinas dumping 1.26 inches of rain on Charleston. Friday, the Low deepened over Saskatchewan. Saturday, its front extended across the Great Lakes into New England. Saturday and Sunday, the front moved east and south scattering rain over the eastern half of the Nation. Tornadoes appeared along the Ohio Valley and in many eastern cities, such as Baltimore and Richmond where tornadoes are uncommon.

TEMPERATURE: The West, plus most of Texas and bordering States enjoyed temperatures from 1 degree to 9 degrees subnormal. The northern Plains, western Corn Belt, and the East stayed 1 degree to 6 degrees above normal. The East began with a heat wave; around midweek things became decidedly pleasant; and weekend temperatures in the Northeast turned cool--with highs from the mid-60's to mid-70's on Sunday. Monday, numerous record highs were set. Hartford, Connecticut, 98 degrees; Boston, Massachusetts, 95 degrees; Concord, New Hampshire, 91 degrees. Most of the heat was brought by the Bermuda High which pumped warm, moist air into the Nation's eastern half. A stationary front stretched from the northern Plains into the Great Lakes then through New England. Temperatures to the northwest of the front remained cool. Tuesday brought record lows to Bismark (34 degrees) and Fargo (39 degrees North Dakota. The front drifted slowly southeastward. Midday Wednesday, it sat along the Appalachians in the Northeast then through Kentucky. Early Thursday it swung over the Atlantic bringing pleasant temperatures as far south as the Carolinas. Over the weekend, a Newfoundland Low deepened, extending a cold front as far south as North Carolina, sending shivering weekenders home from Atlantic beaches with temperatures from the low 50's to the low 70's.

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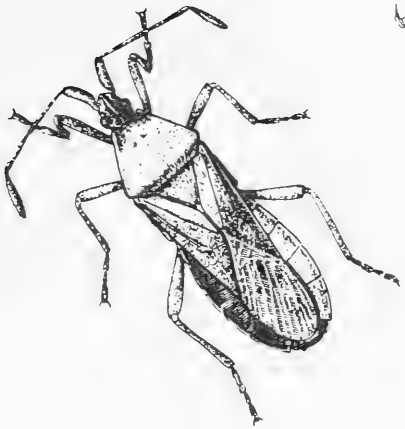

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Cooperative Economic Insect Report

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PLANT PROTECTION AND QUARANTINE PROGRAMS
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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 larvae damaged fescue for seed in Missouri; moth collections increased in blacklight traps in Kansas, Minnesota, and Michigan. (pp. 395, 411-412). GREENBUG heavy on sorghum in southwest Texas, increased generally in southeast, central, and southern Nebraska but mostly below economic levels. (pp. 396-397).

VARIEGATED CUTWORM unusually heavy and damaging on several thousand acres of alfalfa in western Nevada. (p. 399). VARIEGATED CUTWORM and ALFALFA LOOPER may require controls on mint in Oregon and Washington. (pp. 401-402).

HORN FLY heavy on untreated cattle in Mississippi and throughout most areas of Texas. FACE FLY increased on cattle in Illinois, continued heavy in Mississippi. (pp. 405-406).

PAINTED LADY larvae damaged soybeans in Minnesota, Iowa, and Illinois, sunflowers in Minnesota and North Dakota, several crops in Washington, and light damage to ornamentals and gardens in Willamette Valley of Oregon. (pp. 400, 402, 407).

Detection

For new county records see page 410.

Special Reports

Insects Not Known to Occur in the United States
Gray Corn Weevil (Tanymecus dilaticollis Gyllenhal) (pp. 413-414).

Pink Bollworm Quarantines. Map. Centerfold.

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

CONTENTS

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - KANSAS - Infestations in maturing wheat in many central and north-central counties generally very light, mostly confined to downed wheat. Heaviest infestation found in Rice County, averaged about 2.5 per drill row foot in downed wheat with upright wheat in same field with only trace numbers. Parasitism by braconid wasps heavy; pupation of P. unipuncta larvae well underway. Recent increases in blacklight trap moth catches in Brown and Riley Counties indicate some first-generation emergence. (Bell). MISSOURI - Severely damaged total of 1,600 acres of fescue for seed in Douglas County. Pupae averaged 13 per square foot with moths emerging (Huggans).

MINNESOTA - P. unipuncta moth collections increased in all light traps; more moths observed in fields. Heavy stands of grain, particularly lodged areas over damp ground, will be particularly attractive for egg laying and should be checked for larvae next few weeks. Hatch and larval survival very much dependent on optimum weather conditions. (Minn. Pest Rpt.). WISCONSIN - Damaged corn in Sheboygan County. (Wis. Ins. Sur.). ILLINOIS - Larvae appeared on no-till corn, particularly corn on sod. (Sur. Bull). MICHIGAN - Blacklight collections increased considerably with abundant moisture and warmer temperatures. Rate of infestation in small grains far below normal for time of growing season. (Sauer). MARYLAND - Infestations still below normal in wheat and corn. Larvae in most infested fields ranged 1-2 per 300-400 plants. Heaviest damage reported from 10-acre field near Bel Air, Harford County, where 20 percent of plants damaged. (U. Md., Ent. Dept.). VIRGINIA - Larvae light on corn in most Piedmont counties; damage light due to lateness of season. In mountains and mountain valleys damage still spotty. (Allen). KENTUCKY - Infested no-till corn planting in Johnson County; 3 plants out of 10 damaged. Larvae averaged 1.5 per plant. (Gregory).

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Absent in all but youngest oat fields in southwest; about 1 per 100 sweeps noted in one Green County field. Samples taken in line across State from Hudson, St. Croix County, to Oshkosh, Winnebago County, show heavier infestations. Lowest count 8 per 100 sweeps near River Falls, Pierce County; heaviest counts 25-30 per 100 sweeps between Mondovi, Buffalo County, and Marshfield, Wood County. In Waushara and Winnebago Counties, near lettuce-growing areas, 11-20 per 100 sweeps noted. (Wis. Ins. Sur.). MINNESOTA - Decreased markedly from high counts reported in central district last period (CEIR 23(25):376). May be due in part to strong, cool winds. Counts usually higher in sheltered areas than in open fields; generally ranged 20-200 per 100 sweeps with most counts ranging 90-140 per 100 sweeps in southwest, south-central, and central districts. Only trace numbers found in southeast district. (Minn. Pest Rpt.).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment of roadside weed hosts and abandoned cultivated fields completed in Merced and western Fresno Counties. Preliminary checks indicate very low incidence of curly-top infection. Curly top ranged zero to 2 percent in tomato fields in western Fresno County; curly top damage averaged less than one percent in tomatoes and sugar beets in Merced County. Leafhopper counts ranged 5-10 adults per 10 sweeps of mustard along roadsides and creek bottoms in Newman, Gustine, and San Luis Forebay areas. Curly-top infection as high

as 3 percent in tomato fields near Blackwells Corner, southern San Joaquin County. Infection relatively high in field of table beets in same area. Curly top found in tomatoes in Famosa, Wasco, and Shafter areas of Kern County; heaviest infection (6 percent) found in field of sugar beets in county. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Reported from all grain sorghum-producing areas of State. Generally light in south-central, Blacklands, north-central, Rolling Plains, and High Plains areas. (Boring et al.). OKLAHOMA - Present in most sorghum in Major, Alfalfa, and Ellis Counties; ranged up to 100 per plant in some older fields. (Okla. Coop. Sur.). NEBRASKA - Light on small sorghum; should increase rapidly next few weeks. No significant damage anticipated. Averaged 0.8 per plant in 173 Clay County fields surveyed June 18-21. (Keith et al.). INDIANA - Few alate and apterous specimens observed on corn in Tippecanoe County. (Sillings). In Kosciusko County, infestations ranged 0-28 percent in corn grown for grain. (Engelberth).

GREENBUG (Schizaphis graminum) - TEXAS - Heavy on grain sorghum in Uvalde area. Heavy in several sorghum fields of Uvalde, Medina, and Frio Counties. Treatments recommended in all but 2 fields and also on forage sorghum where S. graminum had severely damaged portion of field. Generally light in south-central and Blacklands areas. Increased in San Angelo area, Blanco County. Light on seedling grain sorghum in Moore, Hale, Floyd, Lamb, Hutchinson, Hansford, and Sherman Counties. Populations generally well below economic threshold levels. Beneficial insects heavy in fields. S. graminum common in all Hale County fields. Ranged less than one to 8 per plant. (Stuart et al.). ARKANSAS - Survey negative in Conway, Franklin, and Johnson Counties. Absence may be due to heavy rainfall and high humidity. (Boyer).

OKLAHOMA - S. graminum moderate in young sorghum in Pawnee County, light in Texas County. Surveys in Ellis County showed one field of 8-inch sorghum with 1-20 per plant on scattered plants, one field (3 inches) with 1-10 per plant on scattered plants, and one field (5 inches) with 1-20 per plant on most plants and up to 80 per plant on occasional plants. Survey negative in 4 fields in Major and Alfalfa Counties, but two showed damage from earlier infestations. (Okla. Coop. Sur.). KANSAS - Generally light on sorghum over most of State. Threatening infestations reported in 3 fields in Stevens County where counts averaged about 47 per plant on 6 to 7-inch plants June 18; increased to average of 117 per plant by June 21; parasitism by Lysiphlebus testaceipes (a braconid wasp) less than 1 percent. Parasitism by this wasp ranged up to 35 percent in greenbug infested (light to moderate) sorghum in Marion County and 10 percent in field in Ottawa County. Lady beetle adults generally abundant in sorghum checked in central and north-central counties and exerting some control. (Bell).

NEBRASKA - S. graminum increased generally on sorghum in south-east, central, and southern crop districts. Most field populations well below economic levels and sorghum growing rapidly, reducing possibility of seedling damage. Late-planted fields must be watched closely. Flights very light--only 5 caught in 4 yellow pan traps in Clay County, June 15-21 (Roselle, Gary). Very light in Clay County wheat, ranged 5-6 per 50 sweeps June 15. Wheat beginning to ripen. (Danielson, Meyer). In 3 Jefferson County grain sorghum

fields, greenbug ranged 0-144 (average 91) per 10 plants. Light damage noted in small sorghum. In Saline County, ranged 0-48 (average 24) per 10 plants. No economic infestations observed June 18-21 in Clay County; 173 fields surveyed. S. graminum averaged 0.9 per plant over county. (Keith et al.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Nymphs appeared in alfalfa; up to 10 per sweep in one Green County field. Adults still dominant and increased. Up to 26 per 100 sweeps noted in Bayfield County; counts rarely over 5 per 10 sweeps in southern part of State. (Wis. Ins. Sur.). INDIANA - Adults ranged 2-3 per sweep in southern district alfalfa; generally less than one per sweep in northern districts. Nymphs still rare. Adults occasionally common on soybeans. (Meyer).

TOBACCO BUDWORM (Heliothis virescens) - VIRGINIA - Damage noted on newly set tobacco. Economic in several fields in which tobacco well advanced for season in Pittsylvania County. (Dominick, June 15).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Very light in field of 30-inch corn in Republic County, no eggs found and 4 percent of plants "shotholed" (largest corn in area). Field of 26-inch corn in Riley County showed 24 percent "shotholed" whorls, no eggs. Although some larval mortality indicated, few first and second instars found. Recent blacklight trap catches indicate moth flights decreased in northeast and north-central districts. (Bell). MISSOURI - Larvae, first through third instar, ranged 3.3-7 per plant in 38 to 41-inch-tall northeast area corn. Leaf feeding on 94-98 percent of plants. Corn 26-32 inches tall in same area showed 20-40 percent of plants with leaf feeding and larvae, first and second instar, 2 per plant. In east-central area, 38 to 45-inch corn showed leaf feeding on 53-91 percent of plants. Larvae, first to fourth instar, ranged 2-5 per plant in these fields. (Thomas).

NEBRASKA - Few problems observed or expected with first-generation borers of O. nubilalis. Most corn much smaller than normal for late June; should be well protected by resistance factor. Light trap catches decreased sharply at all locations. (Roselle et al.). NORTH DAKOTA - Borer development in continuous irrigated corn in Dickey County 20 percent larvae, 80 percent pupation. Thirty percent of pupae emerged. In La Moure County, 40 percent larvae, 60 percent pupae, and 10 percent of pupae emerged. Irrigated corn in these counties 12 inches tall. (Brandvik). MINNESOTA - Pupation about complete; adult emergence ranged from 20 percent in southwest and west-central districts to 90 percent in southeast district. Eggs and larvae trace in southeast district; 2 egg masses and 7 first and second instars found on 16 to 22-inch corn. No egg masses or larvae reported from other districts. (Minn. Pest Rpt.).

INDIANA - O. nubilalis larvae heavy in isolated fields of corn. One field in Jackson County with corn 50 inches tall, 100 percent infested, and several fields of 27 to 32-inch corn in southeast district 80 percent infested. However, corn generally too short for large populations. Larvae ranged first to third instar (third instars uncommon) in southern and central districts in corn grown for grain. (Sillings, Meyer). Egg masses ranged 0-7 per 100 plants

in Kosciusko County. (Engelberth). TENNESSEE - Ostrinia nubilalis larvae damaged corn in about 1 percent of fields surveyed in central area. Damage in infested fields in many areas localized, but heavy. Light trap catches indicate no large general population. (Gordon).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ARIZONA - Larvae infested some sorghum fields at Avra Valley, Pima County. (Ariz. Coop. Sur.). TEXAS - This species and Heliothis zea (corn earworm) caused some light ragging of leaves on older corn in Panhandle area. Damage confined to foliage and noneconomic. (Clymer). ALABAMA - Scattered first-generation D. grandiosella larval infestations (second to third instar) occurred in 30-acre cornfield in Cullman County. (McQueen).

BLACK CUTWORM (Agrotis ipsilon) - NEVADA - Caused medium to heavy damage to silage corn in Fallon area, Churchill County. (Roze). NEBRASKA - Scattered, mostly light damage observed in Clay County corn (238 fields surveyed); economic in 3 fields; 13-43 percent of plants damaged. Most larvae fourth instar to full grown. (Helzer et al.).

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - KANSAS - Some heavy infestations in sorghum in Harvey County, treatments made. Small larvae infested about 10 percent of seedling sorghum plants along border of field in Saline County. Very light along borders of second field in Saline County and in cornfield in Mitchell County. (Bell).

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - First D. virgifera and D. longicornis larval activity observed at Mead, Saunders County, June 15. First larvae detected in Clay County June 20. (Tiedje, Gary). One Adams County cornfield examined June 21 had 50 percent of plants (24 inches extended leaf) infested with 1-5 small larvae. (Peters).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Built up in grain sorghum in much of south-central area. Adults noted in Temple area, Bell County, Hillsboro area, Hill County in Blacklands area. Late sorghum in south-central, Blacklands, and north-central areas should be checked for damaging infestations as fields head out. (Cole et al.).

SMALL GRAINS

YELLOWSTRIPED ARMYWORM (Spodoptera ornithogalli) - ARKANSAS - Infested rice field in Ashley County. Infestations of lepidopterous caterpillars in rice very rare in State. S. ornithogalli common pest in State, more so than usual. (Boyer).

TURF, PASTURES, RANGELAND

CICADAS - NEVADA - Okanagana spp. and Platypedia sp. adults unusually heavy on rangeland and adjacent land in areas of Carson City and Douglas, Esmeralda, Lyon, Storey, and southern Washoe Counties. (Nev. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WYOMING - Counts per 5 sweeps of alfalfa week ending June 15 by county: Goshen, 34-97 at Torrington; Sheridan, 8-80 at Sheridan; Park, 16-319 at Powell. (Pike, Burkhardt). UTAH - Damaged scattered alfalfa forage fields in Delta, Sutherland, Desert, and Fillmore areas of Millard County. Seed fields and many stubble fields treated when first crop removed. Most alfalfa treated in Sevier County, or stubble to be treated. (Knowlton). Much stubble treated in northern and central counties after severely damaged first-crop alfalfa removed. (Davis, Roberts). NEW MEXICO - Heavy on alfalfa at Waterflow, Farmington, and Bloomfield in San Juan County. Uncut alfalfa heavily damaged. (Heninger, Patterson). TEXAS - Activity generally decreased with no major problems evident in Panhandle area. (Clymer).

WISCONSIN - Most H. postica larvae pupated; adult emergence occurred in some areas. Larvae will continue feeding through summer. Larvae, 25 per 10 sweeps, caused noticeable damage to regrowth of early cut alfalfa in Iowa County; no serious loss expected. Counts unchanged with some decrease due to pupation. Some Door County fields show 30-35 percent leaf feeding; some noticeable damage reported from Wood County. Treatments applied in southern Sauk County. (Wis. Ins. Sur.). IOWA - Collected by N.D. Miller as follows: Woodbury June 11, Plymouth June 13, Ida June 11, Cherokee June 12, Sac June 12, O'Brien June 13, Clay June 14, Monona June 11, Buena Vista June 12, Lyon June 14, Sioux June 14. These are new county records. (Iowa Ins. Sur.). MICHIGAN - Severe damage noted in unprotected alfalfa test plots in Ingham County. Migrating into plots that had been protected by sprays. Populations and damage extremely heavy this year. (Ruppel).

ILLINOIS - H. postica damage decreased rapidly. Larvae pupated, adults emerged. Adult feeding decreased. (Sur. Bull.). INDIANA - Larvae generally uncommon in southern district alfalfa; averaged 4 per sweep in 2 southeast district fields. (Meyer). KENTUCKY - Larval populations very light statewide. About 90 percent of adults in diapause in central area. (Parr, Gregory).

ALFALFA LOOPER (Autographa californica) - IDAHO - Larvae averaged one per 2 sweeps in alfalfa field in Ada County. (Peterson). UTAH - A. californica and related species ranged 5-12 per sweep and damaged alfalfa in many parts of Sevier County and few scattered fields in Millard County. (Knowlton).

VARIEGATED CUTWORM (Peridroma saucia) - NEVADA - Unusually heavy, damaging larval population of all instars ranged up to 10 per crown on several thousand acres of alfalfa in Douglas, Esmeralda, Lincoln, and Lyon Counties. Plant regrowth completely stopped, all green tissue stripped from stubble in many fields. Seedling fields completely destroyed. In some instances controls ineffective, possibly due to improper dosage and cold weather. Treatments being started or continued. (Arnett et al.).

GRASSHOPPERS - MINNESOTA - Hatch of Melanoplus bivittatus and M. differentialis about complete in all districts. Less than anticipated populations appeared in Kittson and Marshall Counties in roadsides and field margins. Drier than normal weather and heavy deposits of windblown silt on roadside ditchbanks probable

factor in depressing hatch. Some roadside and field margin spraying reported in Wilkin and Clay Counties. Trace numbers in most districts. Averaged 70 per 100 sweeps in one west-central district alfalfa field, ranged 2-8 per square yard in another field. Ranged 175-200 per 100 sweeps in one Sibley County roadside. M. bivittatus and M. differentialis dominant. M. femurrubrum and M. sanguinipes first and second instars appeared in trace numbers. (Minn. Pest Rpt.). INDIANA - Early instars of several short-horned species ranged 0-8 per 5 sweeps in southern district alfalfa. (Meyer).

PLANT BUGS - WYOMING - Counts per 5 sweeps on alfalfa ranged 18-119 at Torrington, Goshen County, and 16-185 at Sheridan, Sheridan County, week ending June 15. (Pike, Burkhardt). OKLAHOMA - Lygus lineolaris (tarnished plant bug) adults ranged 2-11 per 10 sweeps in Major, Harper, Alfalfa, Ellis, and Woodward County alfalfa. Reproduction occurring, nymphs about twice as common as adults in most fields. Moderate in west-central counties. (Okla. Coop. Sur.).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Heavy on first-cut alfalfa in Addison County, adults declining rapidly. (MacCollom).

SOYBEANS

PAINTED LADY (Cynthia cardui) - MINNESOTA - Significant damage reported in scattered fields in Traverse, Big Stone, Stevens, Grant, Lac qui Parle, and Yellow Medicine Counties. (Minn. Pest Rpt.). ILLINOIS - Larvae moved from thistle and weeds to soybeans in western and northwestern areas; feeding evident. (Sur. Bull.). IOWA - Larvae fed on soybeans. Infestations appear to be statewide, but only few fields show severe defoliation. Some spraying on portions of fields reported. (Iowa Ins. Sur.). KANSAS - Very light numbers fed on foliage of soybeans in Wabaunsee County field. Larvae nearing full growth, some pupated. (Bell).

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Based on reports, adults present on seedling soybeans in some Lancaster County fields and controls applied. (McSwain). Adults 2-3 per row foot on 2,000 acres in King George County. Hot, dry weather may cause problem if reproduction starts soon. No problem yet. (Hall, June 12).

ALFALFA WEEVIL (Hypera postica) - KANSAS - Heavy numbers of first-generation adults caused significant girdling and defoliation of seedling soybeans in small Morris County field following cutting of adjacent alfalfa. (Bell).

GRASSHOPPERS - OHIO - Cool, wet weather retarded nymphal development in central area. Specimens up to one-fourth inch long common. Populations in soybeans generally light, no heavy feeding observed to date. (Fox).

COTTON

BOLL WEEVIL (Anthonomus grandis) - ARKANSAS - Leggett trap catches declined, but still relatively high at some locations. Following counts for 5 weeks per 10 traps by county: Clay 476, Craighead 41, St. Francis 4, Phillips 110, Chicot 27, Pulaski 12, Lafayette and Miller 8, Mississippi (10 traps first 2 weeks, 7 last 3 weeks) 43. Significant that heavier counts taken in north delta than in south delta. (Boyer). OKLAHOMA - Adults continued to emerge from

hibernation in Grady County; 1-4 weevils of Anthonomus grandis taken per night in one Leggett trap at Chickasha. (Okla. Coop. Sur.).

BOLLWORM (Heliothis zea) - MISSISSIPPI - Light trap catches indicate reduction of moth activity. Some terminal damage occurred in older Delta area cotton. Some treatments applied. (Robinson). TENNESSEE - Few eggs found in some fields, but beneficial insects sufficient to contain them at this time. (Patrick).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - This species and Pseudatomoscelis seriatus (cotton fleahopper) increased in many cotton fields in State. Samples from Bolivar County show 2,600 L. lineolaris and 1,700 P. seriatus per acre. L. lineolaris averaged 4 per 100 terminals in Rankin County. (Schuster, Barker).

FALSE CHINCH BUG (Nysius ericae) - NEW MEXICO - Damaged edges of cotton fields in many areas of Dona Ana County. (N.M. Coop. Rpt.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Damage to newly set tobacco by overwintered adults light to moderate. Damage generally subeconomic in Pittsylvania County. (Dominick, June 15).

SUGAR BEETS

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Peak fly emergence occurred June 13 in Walsh and Pembina Counties. Eggs and flies now in all beet fields in these counties. (Kaatz). WYOMING - Adult counts decreased slightly at Powell, Park County, week ending June 15; counts heavy at Heart Mountain, up to 2,000 per 3-day trap catch. Mating and oviposition continued in these areas. Many eggs hatched 7 days or more before June 15; larvae damaged sugar beets. (Burkhardt).

SPINACH LEAFMINER (Pegomya hyoscyami) - MICHIGAN - Severely damaged sugarbeet field in Bay County. Larvae mined leaf petioles and damaged new growth. Amount of damage unusual as pest considered minor and usually found near home gardens. (Ruppel et al.).

MISCELLANEOUS FIELD CROPS

ALFALFA LOOPER (Autographa californica) - OREGON - Larvae ranged 1-2 per sweep in Dever area peppermint, Linn County, June 21. Damage evident in many fields but not excessive. Estimated 50 percent of larvae in first instar; controls may be necessary as larvae increase in size. (Penrose). About 45 percent of larvae taken from mint at various locations in Willamette Valley and Grants Pass area of Douglas County parasitized; next generation may be much reduced. (Berry). WASHINGTON - Larvae of all sizes ranged 1-6 per sweep in mint at Prosser, Benton County; up to one-third of leaves destroyed. (Klostermeyer). Moth catches totaled 1,797 from several pheromone traps in Snohomish, Skagit, and Whatcom Counties. Since June 11, large numbers of small larvae found on several crops, mostly spinach and corn. Damage extensive, especially on corn. Larvae not yet found on crops in immediate vicinity of traps, except one larva on alfalfa. Few half-grown larvae collected from peas. (Eide, Byrn).

VARIEGATED CUTWORM (Peridroma saucia) - OREGON - Larvae ranged 3-5 per sweep in peppermint planting near Marion, Marion County. (Berry). Larvae ranged 0-1.5 per sweep in peppermint fields in Dever area, Linn County. Population levels generally increased in Willamette Valley plantings; fields with higher counts will require controls to prevent economic loss. (Penrose).

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - First adults of season taken in blacklight traps near Metolius (5) and Culver (2), Jefferson County, during period June 13-19. (Berry).

PAINTED LADY (Cynthia cardui) - MINNESOTA - Larvae caused significant damage to scattered fields of sunflower in Traverse, Big Stone, Stevens, Grant, Lac qui Parle, and Yellow Medicine Counties. In heavily infested fields, sunflower plants completely stripped of leaves. Outbreak believed to be declining; most larvae will complete feeding within next 7 days. In fields with small larvae, damage will continue. (Minn. Pest Rpt.). NORTH DAKOTA - Larvae and feeding evident on up to 70 percent of sunflower plants in Walsh and Pembina County fields. (Kaatz). WASHINGTON - Larval infestations in Okanogan, Stevens, Yakima, and Spokane Counties damaged blue grass, clover, thistle, cocklebur, weeds, beans, alfalfa, and other crops. Larvae of all sizes present, but full grown more prevalent. (Woodrow et al.).

SUNFLOWER BEETLE (Zygogramma exclamationis) - NORTH DAKOTA - Up to 7 (average 3) adults per plant in several sunflower fields in Pembina County. (Kaatz).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - OREGON - Built up in peppermint plantings at Grants Pass, Douglas County; controls applied. Also heavy in mint fields in central part of State. (Berry).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Many adults emerged, fed heavily on potato vines in Accomack and Northampton Counties. Crops harvested early and left overnight in fields subject to adult feeding damage. Those harvested later not as likely to be injured, many adults will have died or entered summer aestivation. (Hofmaster). MICHIGAN - All stages found at experiment station and in 3 commercial fields in Montcalm County. Treatments should be applied now while vines still fairly small as population beginning to build. (Sauer).

POTATO FLEA BEETLE (Epitrix cucumeris) - WISCONSIN - Caused heavy damage to potatoes in Wood County. Complex of flea beetles other than this species damaged cabbage plants in same county. (Wis. Ins. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - VIRGINIA - Three adults taken, many larvae entered pupal stage. Damage to untreated potato vines heavier than for several years in Accomack and Northampton Counties. (Hofmaster).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - VIRGINIA - Adults (123) collected in light trap; excellent condition indicates local emergence. Development much ahead of 1971 and 1972 when 3 and 4, respectively, collected for same period. Recent heavy rains may have curtailed development by killing newly emerged individuals. All growers in Accomack and Northampton Counties should keep close check. (Hofmaster). OKLAHOMA - Heavy on cabbage in Cleveland County and leaf lettuce in Payne County. (Okla. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - OHIO - Most seriously damaged cabbage in central and southeastern areas observed in home gardens. Heavy feeding often occurred on 100 percent of plants. Commercial plantings frequently showed only minor damage; in three southeastern cabbage fields, less than 40 percent of plants ready for harvest showed noneconomic injury. (Fox).

STRIPED FLEA BEETLE (Phyllotreta striolata) - OHIO - Adults observed on cabbage in Ross, Pickaway, Delaware, and Vinton Counties. Populations up to one beetle per plant found in localized areas of commercial plantings, but one adult per 4-8 plants more common. Damage noneconomic. (Fox).

CUCURBITS

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Heavy on watermelons in Comanche County, moderate on cucumbers in Tulsa County. (Okla. Coop. Sur.).

GENERAL VEGETABLES

ONION THRIPS (Thrips tabaci) - COLORADO - Built up on onions in Delta and Montrose Counties; ranged 15-20 per plant. (Bulla).

ALFALFA LOOPER (Autographa californica) - OREGON - Larvae averaged 16 per row foot in 45-acre carrot planting at Milton-Freewater, Umatilla County, June 14. (Burkhart). Larvae very light June 20 in single carrot planting in southern Marion County. (Penrose).

BLACK CUTWORM (Agrotis ipsilon) - OREGON - Larvae prevalent in table beet plantings in Willamette Valley; treatments necessary. (Penrose).

CABBAGE LOOPER (Trichoplusia ni) - MICHIGAN - Adults taken in blacklight trap in Oceana County, about 3 weeks earlier than usual. Fields should be checked carefully. Early control critical. Larvae over one-half grown hard to control. (Sauer).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - MICHIGAN - Peak emergence occurred Statewide. Pheromone trap catches decreased since June 15 by average of 6-8 adults per trap. Fresh larval stings and entries noted on fruit. (Sauer). COLORADO - Pheromone trap catches indicate reduction in moth population since end of May and first cover spray in Mesa County. Ranged 2-10 moths per trap per 7 days. (Bulla).

APPLE MAGGOT (Rhagoletis pomonella) - MASSACHUSETTS - First adults of season taken in Northboro area of Worcester County; averaged 28 per trap. This is 7 days earlier than in 1972 and exceeds heaviest catch of that year by three. (Costante). NEW JERSEY - First adult emergence expected in central area apple orchards during last week of June. (Ins.-Dis. Newsltr.).

EUROPEAN RED MITE (Panonychus ulmi) - NEW JERSEY - Light to moderate in scattered apple orchard blocks in southern counties. This situation expected for time of year. (Ins.-Dis. Newsltr.). OHIO - Populations long suppressed by cool, wet weather, now exhibit significant increases in Wayne County; not yet economic. (Hall).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Larvae entered pecan nuts throughout State. Infestations moderate in Pontotoc and Bryan Counties but light in most other areas. (Okla. Coop. Sur.). TEXAS - Heavy damage to small pecan nutlets by first generation noted in Wilbarger County where no treatment applied. Second treatment applied in several counties in Rolling Plains area. Light damage to young pecan nutlets noted in Ward and Midland Counties. Damage in Midland County commercial orchards averaged less than one percent. (Boring, Neeb).

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Moderate on pecan trees in Pontotoc County, larvae appeared in Payne and Latimer Counties. (Okla. Coop. Sur.).

YELLOW PECAN APHIDS (Monellia spp.) - TEXAS - Light on foliage of pecan trees in most counties of Trans-Pecos area. Heavy infestations reported from Baylor, Hardeman, and Wilbarger Counties of the Rolling Plains. Honeydew collecting on cars, lawn furniture, and sidewalks in area. (Neeb, Boring).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Extremely heavy populations noted on evergreens in Brazos County. Populations up to 10 per branch. Heavy populations also noted on live oaks and pecan trees in same area. (Cole, Green).

SPRUCE BUDWORM (Choristoneura fumiferana) - NEW HAMPSHIRE - Severe infestation noted in one localized ornamental spruce planting at Concord, Merrimack County. Pupation began and some adult emergence noted. (Mason, Keating).

HOLLYHOCK WEEVIL (Apion longirostre) - VIRGINIA - Adults taken from hollyhock in Botetourt and Hanover Counties and in Independent City of Richmond June 20, 1973. These are new county records. (Allen). NEVADA - Collected on hollyhock at Hawthorne, Mineral County. This is a new county record. (Barclay, Bechtel).

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.

PINK BOLL

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COOP

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;
COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED.

GENERALLY INFESTED AREA - STATE AND FEDERAL REGULATIONS.

SUPPRESSIVE AREA - STATE AND FEDERAL REGULATIONS.

STATE REGULATIONS ONLY - SUPPRESSIVE 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. °°

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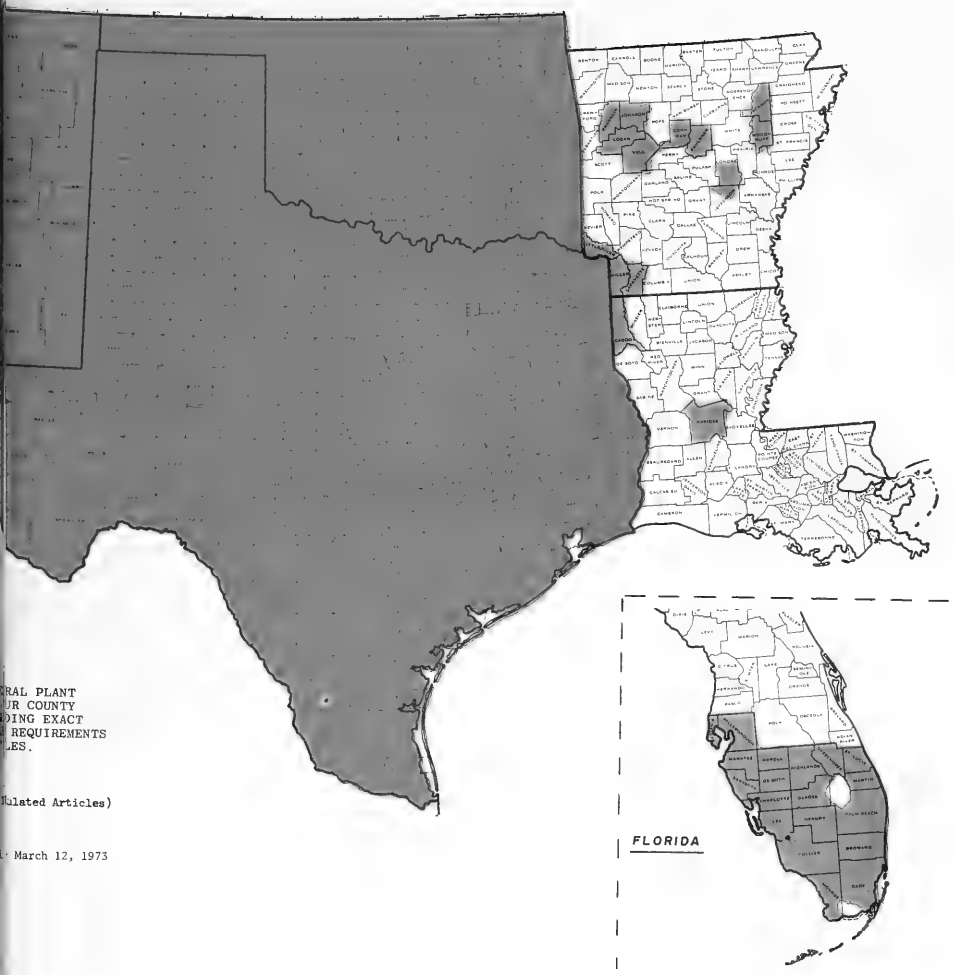
° IF IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

°° IF REQUIRED BY STATE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

I QUARANTINES

AGRICULTURE
INSPECTION SERVICE
ARANTINE PROGRAMS
FECTED STATES



RAL PLANT
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March 12, 1973

THE FOLLOWING REGULATED ARTICLES REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:

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.

FOREST AND SHADE TREES

WHITE PINE WEEVIL (Pissodes strobi) - NEW HAMPSHIRE - Wilting of pines observed in northern portions of State due to larval activity during third week in June. (Hutchins).

PINE COLASPIS (Colaspis pini) - ARKANSAS - Found on 4 and 5-year-old pine plantations in Calhoun and Ouachita Counties. Frequently heavy on clumps or spots of several trees. Feeding damage evident and some loss of foliage expected. (Boyer).

A CONIFER SAWFLY (Neodiprion excitans) - ARKANSAS - Caused concern on pine in Pulaski County. This species, a multi-generation pest, caused more concern than some other species of sawflies. (Boyer).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Moderate to heavy numbers and heavy damage to foliage of elm trees reported from Andrews, Winkler, and Ward Counties. Damage increased on Chinese elm trees in Baylor, Foard, Hardeman, Wilbarger, and Wichita Counties. (Neeb, Boring).

FALL CANKERWORM (Alsophila pometaria) - WEST VIRGINIA - All trees except black locust on about 100 acres of forest in Dolly Sods area of Grant County 100 percent defoliated. (Miller).

PERIODICAL CICADA (Magicicada septendecim) - WISCONSIN - Heavy in southwestern Grant, Iowa, Green, Rock, Walworth, Richland, and Sauk Counties. Predation by birds heavy; fungus disease noted on some specimens. Heavy populations expected to diminish in next few weeks. (Wis. Ins. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 320 confirmed cases reported in continental U.S. during period June 10-16 as follows: Texas 37, Arizona 226, New Mexico 54, California 3. Total of 1,475 cases confirmed from Mexico. Number of sterile flies released in U.S. during this period totaled 113,437,000 as follows: Texas 79,718,500; New Mexico 5,395,500; Arizona 27,048,000; California 1,275,000. Total of 71,900,500 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - WISCONSIN - Light to moderate annoyance to dairy cattle in Chippewa, Rock, Columbia, and Polk Counties. (Wis. Ins. Sur.). ILLINOIS - Populations on cattle increased two-fold past 14 days. (Sur. Bull.). INDIANA - Ranged 0-21 (average 7) per face on 5 bulls and 0-30 (average 6.8) per face on 9 steers in Tippecanoe County. Counts made on 4 days. (Christiansen). KENTUCKY - Averaged 20 per face on horses and 30 per face on cattle in Pulaski County. (Knapp, Scheibner). TENNESSEE - Surveys negative to date in Henderson and Dyer Counties. Population on cattle herd checked weekly in Washington County light to date. (Turpen et al.). MISSISSIPPI - Still heavy (see CEIR 23(25):386), up to 500 per head noted on face and body of some cows. Observed in Clay County for first time since 1969 (15 per face noted). Averaged 6 per face in one Calhoun County herd. This is a new county record. (Robinson).

HORN FLY (Haematobia irritans) - FLORIDA - Populations on treated cattle at 4 locations near Gainesville, Alachua County, per half body count averaged 11.4, 6.9, 127.6, and 106.6. Determined by

E. Head. (Fla. Coop. Sur.). MISSISSIPPI - Heavy on untreated cattle in State. Counts per head averaged 1,500 in Lincoln County, 600 in Tallahatchie County, and 1,000 on untreated herds in Chickawaw, Lee, Monroe, Clay, and Oktibbeha Counties. (Robinson). TENNESSEE - Averaged 25+ per head on untreated cattle herd in Dyer County; ranged 1-5 per head on treated herd with back rubber available. Ranged 30-50 per head on cattle herd in Henderson County. (Stafford, Turpen). INDIANA - Ranged 12-40 (average 30) per head on 5 Angus cows in early morning in Tippecanoe County. (Christiansen). TEXAS - Heavy throughout most areas of State. Extremely heavy on untreated cattle in Coryell, Bell, and Falls Counties. Heavy on herds where no treatment applied in Archer, Knox, Wichita, and Wilbarger Counties. Treatments applied in several counties. Caused concern to livestock producers in San Angelo area where heavy infestations treated. Light to moderate populations reported on cattle in Glasscock, Midland, Ward, and Winkler Counties. Populations near feedlots increased sharply with warmer weather. (Hoelscher et al.). UTAH - Annoyed livestock in meadow and farm areas of Washington County along Virgin River and at Shivwits Indian Reservation. (Hubner, Knowlton). OKLAHOMA - Ranged 300-500 per head on cattle in Noble County. Heavy in Comanche, Marshall, and Coal Counties. Moderate to heavy in Adair County, moderate in Pawnee County. Light to moderate in Cleveland and Kingfisher Counties. (Okla. Coop. Sur.).

MOSQUITOES - OHIO - Larval collections in Lorain County June 1 yielded primarily Culex restuans and Aedes trivittatus. Similar collections in Huron County, June 18-19, showed Aedes vexans most common species, followed by Culex restuans, C. pipiens pipiens, and Aedes trivittatus. Larval development in these counties mostly third to fourth instar. Pupae and earlier instar larvae uncommon. Heavy breeding of A. trivittatus and A. sticticus predicated in regions experiencing recent heavy rains. Emergence of A. trivittatus just beginning in some localities. (Ohio Dept. Health, Encephalitis Unit). WISCONSIN - Mosquitoes still heavy in wooded lowlands. Bite problem scattered throughout State but not real problem in many well drained areas. Problems varied on dairy cattle. (Wis. Ins. Sur.).

MINNESOTA - Light trap catches peaked June 11-15 throughout Metropolitan Mosquito Control District. Present Aedes vexans population now about 14 days old, catches should decline substantially. Light trap and bite collections of Coquillettidia perturbans increased substantially week ending June 22. Populations expected to be heavier than normal this season as heavy rains during July and August 1972 made conditions very favorable for C. perturbans during egg-laying and overwintering periods. (Minn. Pest Rpt.). ARKANSAS - Psorophora confinnis adults becoming pestiferous in Arkansas and Lonoke Counties with landing rates of 10-20 per minute recorded on outskirts of town. (Boyer).

TEXAS - Mosquito adults appeared in large numbers in Panhandle area near Amarillo, Potter County. Caused irritation and nuisance, especially to golfers forced from golf courses. (Clymer). UTAH - Very annoying at Boulder, Garfield County; in Deseret, Delta, and Topaz area, Millard County; Bloomington, St. George, and Washington areas, Washington County; very annoying in area west of Moab, Grand County. (Matthews et al.). NEVADA - Aedes spp. adults heavy in Battle Mountain area, Lander County. (Hilbig).

BLACKFLIES (Simulium spp.) - NEVADA - Adults heavy at Winnemucca and along Humboldt River, Humboldt County; controls ineffective. (Gallaway).

A COMBFOOTED SPIDER (Latrodectus variolus) - MICHIGAN - Native female taken from home in wooded area, 5 miles west of Mt. Pleasant, Isabella County, June 11, 1973, by P. Marshall. Identified by R.G. Bland. This is a new county record. (Sauer). Species also taken June 15, 1973, by S. Poppy near residence at Kalkaska, Kalkaska County. Identified by R.J. Sauer. Bite can be serious medical problem. (Sauer).

BENEFICIAL INSECTS

PAINTED LADY (Cynthia cardui) - OREGON - Larval movement increased in northwestern area as thistle hosts depleted and larvae seek pupation sites. Several heavy movements in central Willamette Valley caused much concern to rural residents. Damage to ornamentals and gardens minimal in such areas; light damage to bush beans reported. (Penrose, Westcott). IDAHO - Peak larval activity occurred in northern part of State; population general in southwestern area. (Portman et al.). UTAH - Damaged thistles (Carduus spp.) in Cache County and musk thistle in Henefer, Summit County. (Daniels et al.).

DRIEDFRUIT MOTH (Vitula edmandsae serratilineella) - IDAHO - Severe in nesting site of Megachile rotundata (alfalfa leafcutter bee) near Blackfoot, Bingham County. (Portman).

A BRACONID WASP (Microctonus aethiops) - WEST VIRGINIA - Released 130 adults of this parasite of Hypera postica (alfalfa weevil) at Reedsville, Preston County, June 14, 1973. (Weaver).

A EULOPHID WASP (Tetrastichus incertus) - OHIO - This larval parasitoid of Hypera postica (alfalfa weevil) collected in Fairfield County May 19, 1973. (Horn).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - PENNSYLVANIA - Larvae light, one per row foot of oats in 4 fields in Cumberland County. Very light on oats in Lycoming County, less than one per row foot. Light on oats at Summerhill and Spring Townships, Crawford County. Averaged 4 eggs, less than 1 larva, 4 adults per 2 row feet for 3 locations. Averaged less than one larva and one adult per 2 row feet for 3 locations on 2 to 10-inch oats in Springfield Township, Bradford County. (Kline et al.). WEST VIRGINIA - Average counts per square foot in oats by county: Pleasants - 2 eggs, 7 larvae (oats headed); Wetzel - 1 egg, 4 larvae; Ohio - 24 larvae. (Hacker).

GRASS BUGS (Labops spp.) - NEBRASKA - Heavy populations of L. hesperius reported in late May in Dawes County, declined; adults (all females) ranged 7-8 per 10 sweeps in crested wheatgrass pastures June 20 and 21. (Hagen). NEW MEXICO - Labops sp. caused extensive damage to crested wheatgrass in Rio Arriba and Sandoval Counties. (Trujillo, Marcus).

GRASSHOPPERS - NORTH DAKOTA - Melanoplus bivittatus nymphs, third through fifth instars, up to 40 per square yard in field margin near Grand Rapids, La Moure County. Other fields in area with less than one per square yard. (Brandvik). NEBRASKA - Melanoplus spp. ranged 4-5 per square yard on rangeland in Sioux and Dawes Counties. (Hagen). NEW MEXICO - Unspecified species ranged 12-20 per yard on rangeland in Lincoln and Chaves Counties. Ranchers have 290,000-acre block ready for spraying, will treat 600,000 acres next period. (N.M. Coop. Rpt.). UTAH - Hatch of rangeland species light in scattered areas of Cache, Box Elder, Utah, and Millard Counties. Some nymphs half grown, no winged forms noted. (Knowlton). WASHINGTON - Treatment completed June 21 on 55,296 acres of rangeland in Wilson Creek area, Grant County, and June 19 on 216,000 acres of rangeland in Franklin, Benton, and Walla Walla Counties. Species in latter area 40 percent Oedaleonotus enigma, 30 percent Melanoplus sanguinipes, and 30 percent miscellaneous species. (PPQ).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Treatments completed on 41,000 acres in 9 eastern counties. Some first instars noted on egg masses on black walnut 9 miles south of Reading in Brecknock Township, Berks County. Other larvae up to 2.5 inches long. Total defoliation of Blue Mountain in Lebanon, Berks, and Schuylkill Counties along about 20-mile stretch between U.S. Interstate 81 and State Route 183. About 60 percent of larvae in early to mid-fifth instar and remainder still in fourth. Massive biological decrease in population expected in area. Moderate to total defoliation experienced on parallel ridges north and south of mountain in these counties, especially at 750+ foot elevations. Total defoliation of Blue Mountain east of State Route 183 as far as State Route 61 expected within next 10 days, with regard to all Quercus spp. (Quinter).

NEW JERSEY - Larvae pupating; many still feeding and will continue defoliation for another 7 days in central and northern counties. (Ins.-Dis. Newsltr.). MARYLAND - First confirmed larvae (fourth instar) of season collected near North East, Cecil County. (U. Md., Ent. Dept,). CONNECTICUT - Many larvae full grown, with some pupation at Storrs, Tolland County. Defoliation moderate in Storrs area but severe (near 100 percent) along State Route 15 from State Route 195 westward to Vernon Circle. Many larvae killed by virus-wilt disease observed on sides of houses and plant foliage. (Kersting).

JAPANESE BEETLE (Popillia japonica) - SOUTH CAROLINA - Ranged 3-4 adults per rose plant and other ornamentals near Lexington and Columbia Metropolitan Airport in Lexington County. (Boozer). WEST VIRGINIA - First adults of season observed June 18 in Kanawha County. (Moore). OHIO - Adult found beneath ground surface in Akron vicinity June 19. (Lawrence). Two adults observed on surface of turf in one localized area of Jackson County June 20, no others found. (Fox). VIRGINIA - Adults damaged 0.1 acre of grapes in Fluvanna County week ending June 15. Also present in Prince Edward and Appomattox Counties and the Independent City of Richmond. (Allen). TENNESSEE - Adults observed June 20 in Holston Valley of Sullivan County. Populations very light in Loudon County. Adults moderate to heavy in Cocke County. (Walker et al.).

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) - CALIFORNIA - Larvae infested cherry fruit in Hoopa, Humboldt County. This species occurs in northern border counties periodically; infestations under eradication status. This is not commercial cherry-growing area, but many dooryard trees present in area. (Cal. Coop. Rpt.).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Survey indicated eggs and larvae at one location at Klamath River, Siskiyou County. Survey 50 percent complete in quarantine zone at Clovis, negative at Biola in Fresno County; treatment began June 11 in these areas. At San Jose, Santa Clara County, survey 65 percent complete with treatment underway in quarantine area; populations heavy. First survey in Sacramento County began June 5. Several moths and egg masses found on backyard grapes at El Modena, Orange County. This is a new county record. (Cal. Coop. Rpt.).

Corn - TUMID SPIDER MITE (Tetranychus tumidus) extremely heavy on recently harvested sweet corn planting at Waianae, Oahu. Also heavy on adjacent planting. Ranged 50-250 nymphs and adults per square inch on heavily infested leaves. (Kawamura).

Fruits and Nuts - COCONUT LEAFROLLER (Hedylepta blackburni) larvae heavily damaged 1,000 coconut trees in resort area at Kahuku, Oahu; 100 percent of fronds on most trees on golf course proper affected. Damage moderate on trees surrounding resort residential area. Except for brief period of larval inactivity, these palm trees under sustained attack since opening of resort about 12 months ago. Larval parasitism very light during this period. On Hawaii Island, larvae collected from 100 moderately to heavily infested coconut trees at Kawaihae during February parasitized; 32 percent by tachina flies, 20 percent by Trathala flavo-orbitalis (an ichneumon wasp). (Kawamura).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) and MONKEYPOD MOTH (Polydesma umbricola) light under carpet bands on trunks of monkeypod trees at Ka'u, Hawaii; P. umbricola dominant. On Maui, both species heavy on 30 monkeypod trees in residential areas at Kuau and Sprecklesville; foliar damage heavy, treatment recommended. Light trap collections on Oahu indicate decrease in M. indomita moths during late March through April; 228 and 70 collected respectively in 4 traps. Collections during May (502) showed pronounced increase; collections first 2 weeks of June (448) indicate further increase may occur. Hundreds of adults taken during May in trap at Mt. Kaala, Oahu. (Yoshioka et al.).

Beneficial Insects - Larvae of an ARCTIID MOTH (Selca brunella) infested average of 37 percent of fruits and 26 percent of terminals of field collected Melastoma malabathricum at Hilo, Hawaii. (Kawamura).

DETECTION

New County Records - ALFALFA WEEVIL (Hypera postica) IOWA - Woodbury, Plymouth, Ida, Cherokee, Sac, O'Brien, Clay, Monona, Buena Vista, Lyon, Sioux (p. 399). A COMBFOOTED SPIDER (Latrodectus variolus) MICHIGAN - Isabella (p. 407). FACE FLY (Musca autumnalis) MISSISSIPPI - Calhoun (p. 405). HOLLYHOCK WEEVIL (Apion longirostre) VIRGINIA - Botetourt, Hanover, Independent City of Richmond. NEVADA - Mineral (p. 404). WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) CALIFORNIA - Orange (p. 409).

CORRECTIONS

CEIR 23(24):363 - EUROPEAN RED MITE (Panonychus ulmi) - NEW HAMPSHIRE - Delete " Alates active in apple orchards. (Rochette)." "Alates" referred to apple aphid (Aphis pomi)

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap	Agrotis ipsilon (black cutworm)	Heliothis armigera (cotton bollworm)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
ARKANSAS																								
Kelso 6/14-20			BL	1					1	2								3	1					
Pickens 6/14-20			BL	13					1	4														
FLORIDA																								
Gainesville 6/15-21			BL				6			1											1			
INDIANA (Counties)																								
Lawrence 6/7-13			BL	2	31											3	1	47						
Randolph 6/7-13			BL	1	31											8		89						
IOWA																								
Beaconsfield 6/15			BL	19			54									52	10	71		3				
Gilbert 6/15			BL	9			31									161	26	126		6				
KANSAS																								
Hiawatha 6/14, 20			BL	16			18			12						74	24	54			20	4		
Manhattan 6/20			BL	2			24									2	24	80			18			
KENTUCKY																								
Lexington 6/15-22			BL	4																				
MINNESOTA																								
Crookston 6/14-20			BL													1		56						
Rochester 6/14-20			BL													3		107						
MISSISSIPPI																								
Stoneville 6/15-21	68-95	0.17	2BL	16	2		6	9	26								19	13	3	1	56	4		
MISSOURI																								
Portageville 6/15-21			BL	3												2	11	22			13			
NEBRASKA																								
Concord 5/31, 6/7			BL	3			14			4				2		82	1	22						
Plymouth 6/7, 14			BL	42			1			9				1		75	65	20		8				
NEW HAMPSHIRE																								
Dover 6/15			BL	2														2						
NORTH DAKOTA																								
Bottineau 6/15, 17			BL															2						
Fargo 6/18, 21			BL															14						

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap (BL = blacklight, I, MV = incandescent mercury vapor, O = other)	Agrotis ipsilon (black cutworm)	Estigmene acrea (salt marsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia nonmonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
OHIO																							
Wooster 6/15-21			BL	34			26									73		185					
OREGON (Counties)																							
Linn 6/14-20			BL	1													80						
Marion 6/14-20			BL	2													59						
PENNSYLVANIA (Districts)																							
Northwest 6/8-19			BL	1												5		53					
Southeast 6/8-19			BL	3												9	1	15					
TENNESSEE (Counties)																							
Franklin 6/18-22			BL	3														7			4		
Madison 6/18-22			BL	7					1							3	2	2			4	4	
VIRGINIA																							
Painter 6/13-19			BL													1		42				72	
Warsaw 6/13-19			BL																			13	
WEST VIRGINIA (Counties)																							
Monroe 6/18			BL	1	19											1		9				2	
Randolph 6/19			BL	4	5											3		10				2	
WISCONSIN																							
Lancaster 6/13-19			BL	1												3							
Mazomanie 6/13-18			BL	1												57							

GRAY CORN WEEVIL (Tanymecus dilaticollis Gyllenhal)

Economic Importance - This weevil is a serious pest of corn, sugar beets, cereal crops, and fruit trees. It is the principal pest of corn in Romania and annually threatens from 30 to 50 thousand acres in Bulgaria. Losses in sprouting grain have ranged from 50 to 100 percent in northern Turkey. It has caused extensive damage to corn and sunflowers in the U.S.S.R. and is one of the major pests of sugar beets in Romania and Hungary. The adults have severely defoliated fruit trees in Turkey and Hungary.

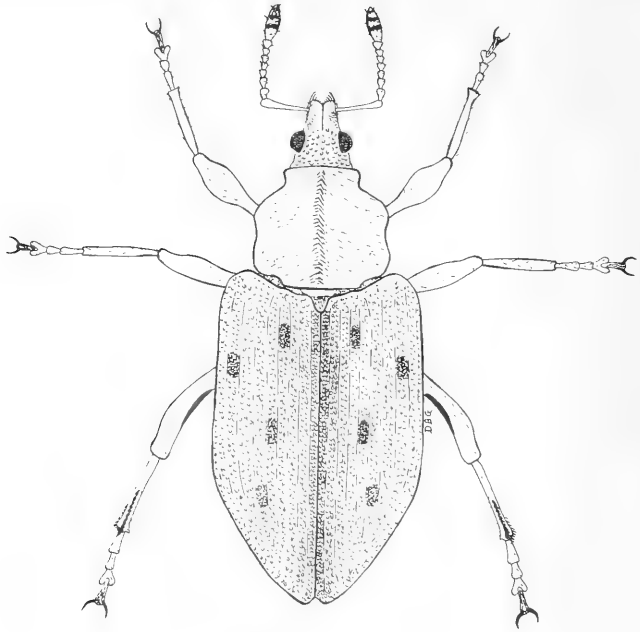
Hosts - The preferred hosts are corn and sorghum but it has been recorded as feeding on 70 species of plants including sugar beets, wheat, potatoes, melons, sunflowers, peach, almond, and apple.

Distribution - Southern U.S.S.R., southern Europe, Turkey, and Cyprus.

General Distribution of Gray Corn Weevil

Life History and Habits - This species overwinters as adults, buried in the ground at depths of up to 1 meter. They emerge in early spring and feed intensively for 1-2 weeks before mating and egg deposition begins. During this period they may strip the foliage from fruit trees and completely destroy fields of sprouting grain. The eggs are placed just beneath the surface of the soil, singly or in groups, and require from 10 to 12 days to hatch. Each female deposits about 60 eggs. The larvae feed on the roots of the host and often kill young plants. They require about 45 days to complete development and then pupate in the soil. The pupal stage lasts for about 3 weeks but the new adults do not emerge from the soil until the following spring.

Description - The adults measure from 5 to 8 mm in length and 2 to 3 mm in width. The general body color is gray. The rostrum is slightly broader than long with a sharp carina down the center. The head, thorax, and elytra are covered with moderately dense, oval, white or gray scales intermixed with sparser, suberect, elongate, brown setae. The scales are slightly more dense on the elytra, especially down the midline, while the long setae are more concentrated down the middle of the pronotum. There are several partially denuded spots on the elytra which give them a somewhat mottled appearance. Elytral striae are narrow and distinct with small punctures. This species may be easily distinguished from all other members of the genus by the very distinctive shape of the prothorax which is strongly constricted at the base and apex. The several domestic species all have a much more parallel-sided or evenly rounded prothorax. (Prepared in Pest Survey and Technical Support in cooperation with other agencies). CEIR 23(22):413-414, 1973.



Adult of Tanymecus dilaticollis

Major references: Camprag, Dusan. 1963. Another contribution to the knowledge of Tanymecus dilaticollis Gyll. Zast. Bilja. 14(76):615. Stoichev, O.A. et al. 1963. The southern gray weevil. Zashch. Rast. 8(3):16. Yurten, O. 1957. Tanymecus dilaticollis. Tomurcuk. 6(64):4.

WEATHER OF THE WEEK ENDING JUNE 25

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

HIGHLIGHTS: Rains of 2 inches or more last week hurt crops in Georgia and South Carolina while a welcome 2 inches fell in northern North Dakota. The West remained hot and dry. The eastern half of the Nation had a cooler, wetter week than normal.

PRECIPITATION: Cold front which took most of the week to cross the Nation's eastern half brought considerable rain, with 4 inches in scattered areas. Southern Texas and parts of the Carolinas got 4 inches while areas neighboring them had 2 inches or more. Florida, southern Georgia, and sections of the Corn Belt got 2 inches of rain. In contrast, much of the Plains and most of the Nation from the Rockies west received little or no rain. The exception was parts of Washington and areas bordering Canada. Early Monday a cold front moved into the central United States spreading thunderstorms from eastern Oklahoma to Illinois and Wisconsin. Springfield, Illinois, received 1.65 inches early Monday, while Minot AFB, North Dakota, reported 2.10 inches. The front met warm, moist air pumped by a High over the gulf and violent weather erupted. Baseball-size hail pounded Iowa Park, Texas, while 2-inch hail hit Abilene. Springfield, Illinois had 80 m.p.h. winds and 1.5-inch hail. By 9:00 a.m. Tuesday, Quincy, Illinois, received 5.26 inches of rain in 24 hours. Tuesday, thunderstorms continued over the south-central and southeastern sections. Charleston, South Carolina, got 4.50 inches of rain bringing the June total there to 24.70 inches which is more than 8 inches over the previous record set in June 1893. Carollton, Texas, got almost 2 inches of rain in a 30-minute downpour. New Orleans, Louisiana, got 1.90 inches over 6 hours. Wednesday, thunderstorm activity continued but the main storm, an intense Low that had been situated over North Dakota, waned as it drifted over Manitoba. A slow moving cold front extended from Lake Huron and the Ohio Valley into Texas. Thursday, the first day of summer, began warm and clear in the West, and warm and humid in the East which suffered from fog and haze. Thunderstorms rampaged through Texas and over the east coast. Hebronville, Texas, got 8 inches of rain which left a highway under 4 feet of water. More than 1 inch of rain fell at Syracuse, New York, Washington, D.C., and Tallahassee, Florida. Friday was mostly sunny throughout the Nation. Much of the rain was confined to the east coast. Hampton, Virginia, was drenched with 3.50 inches. La Guardia Airport, New York, recorded 3.66 inches from 9:00 p.m. Thursday to 9:00 p.m. Friday as Atlantic City and Colombia, New Jersey, received 2.66 inches over the same time. A cold front ruined Saturday along many Atlantic beaches as fog from the ocean drifted inland and 2 inches of rain hit Miami, Florida. However, most of the Nation enjoyed a pleasant summer weekend. Sunday another cold front entered the north-central section and local thunderstorms erupted in the Dakotas and Iowa.

TEMPERATURE: Southern California broiled in a heat wave. In the Los Angeles area where temperatures averaged 9 degrees above normal last week, temperatures broke 100 degrees several days. Tuesday the mercury hit 106 degrees at the civic center, a record for June. States bordering California, the Pacific Northwest and Canadian border areas stretching east to Minnesota also stayed above average. Cascade areas and part of Idaho were 6 degrees above norm. New England, Upstate New York, western Pennsylvania, and some Great Lake

areas remained slightly to 6 degrees above normal. Successive cold fronts kept most of the Nation east of the Rockies cooler than average. Large areas of Texas and neighboring States averaged 6 degrees to 9 degrees subnormal. Also, an area mostly in the Dakotas and Nebraska averaged 6 degrees subnormal. A rapidly moving cold front engulfed the Plains and parts of the Midwest on Monday causing snow in higher Rocky Mountain elevations. Record lows were recorded at Reno, Nevada, and Casper, Wyoming, 33 degrees and Boise, Idaho, 36 degrees. Tuesday, a cold front stretched from Texas to Wisconsin with a Low centered in North Dakota. This, together with a High over Idaho, pulled cold Canadian air into the Nations midsection. After that, a cold front moved slowly and by Friday it stretched along the Appalachians to Georgia into the gulf. As it moved it caused record lows from Texas to Wyoming on Wednesday and record lows in Texas Thursday. Lubbock, Texas, had 49 degrees Wednesday morning while Midland had 53 degrees on Thursday. While this front chilled and fogged the east coast on Saturday, another cold front moved out of the Rockies and stretched over Colorado and the Dakotas on Sunday.

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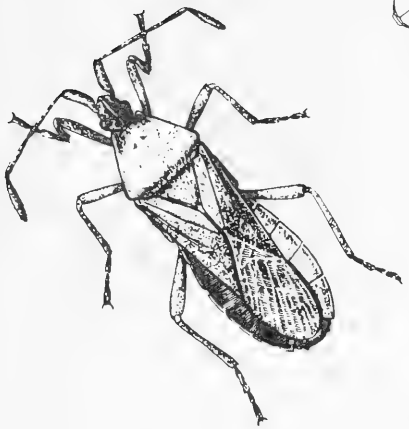

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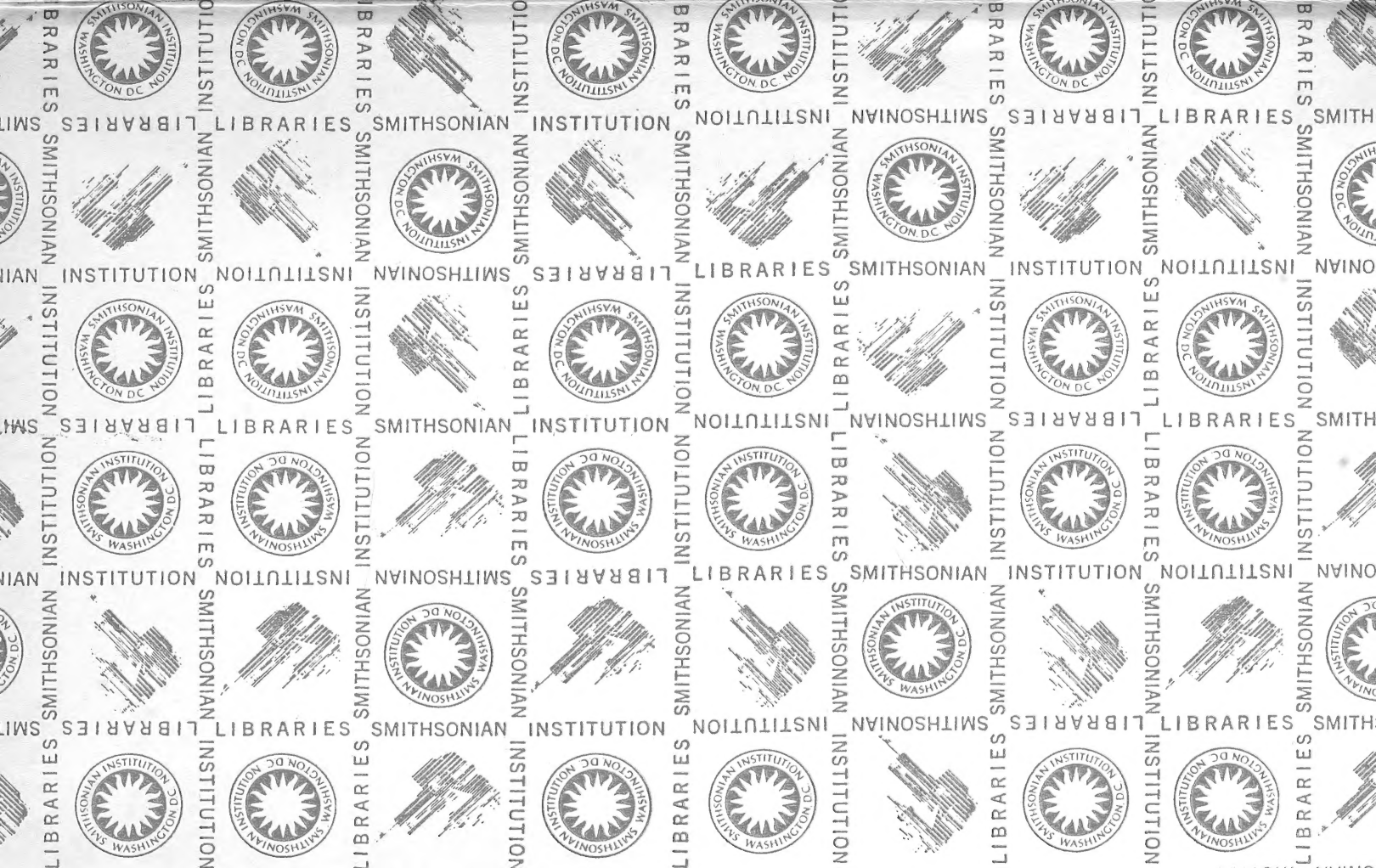
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