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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

CORN LEAF APHID heavy on barley in Pecos County, Texas. (p. 3).

SOUTHWESTERN CORN BORER fall survey in corn indicates slow spread in southeastern Missouri. (p. 3).

PECAN WEEVIL damage significant in pecan orchards in Monroe County, Alabama. (p. 4).

#### Detection

New State records include a BILLBUG in Rhode Island (p. 3) and a GRASSHOPPER in Oregon (p. 7).

For new county records see page 7.

#### Special Report

Insect Detection in the United States in 1968. Eight new Western Hemisphere records reported. (pp. 8-16).

Reports in this issue are for week ending December 27 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING DECEMBER 30

HIGHLIGHTS: Winter gripped the Nation with snow, wind, and cold dominating the weather. The northern half of the Country saw a "White Christmas."

PRECIPITATION: An intense storm whipped across the Great Lakes early in the week. Heavy snow squalls occurred in the lee of the Great Lakes and northwesterly gales carried the snow to the Appalachians from Virginia to New England. Meanwhile a large Pacific storm lashed the Northwest with gales and heavy rain along the coast and heavy snow in the inland valleys, the Cascades and Sierras, and eastward across the Rockies to the western Great Plains. Christmas Day arrived with a snow cover over the northern half of the Nation. On Thursday, moist Pacific air fed the Pacific storm and heavy rain continued along the coast with snow eastward to the Rockies. Moist air from the south produced widespread precipitation east of the Rockies. Snow fell in the Northern States, freezing rain or freezing drizzle occurred from the central Great Plains to Pennsylvania and New York, and showers and thunderstorms from Oklahoma and Texas to the Appalachians. A few tornadoes occurred Friday afternoon and evening from Texas to Alabama, killing at least one person and injuring several in Mississippi. The western storm supplied snow to the northern Rockies.

TEMPERATURE: Cold air penetrated far southward on Monday and Tuesday. Subzero temperatures occurred in the southern Rockies on Monday with hard freezes from the southwestern deserts to northern Florida. Christmas morning arrived with subzero readings over much of the snow-covered Great Plains and the upper Midwest. Bemidji, Minnesota, registered 33° below zero on Christmas morning. Montpelier, Vermont, warmed to 9° below zero Thursday afternoon. Mild temperatures prevailed on Christmas Day in the southern Great Plains and by Thursday, the central Great Plains had warmed to the 60's which is a few degrees above normal for this time of year. The warm weather moved eastward on Saturday with maximums reaching the high 60's as far north as Maryland. The week ended with an arctic blast pushing into the northern Rockies. The temperature at Great Falls, Montana, plunged to 40° below zero Sunday morning and warmed only to 33° below zero in the afternoon. Most of Montana averaged 15° to 35° colder than normal. (Summary supplied by Environmental Data Service, ESSA.)

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Heavy, 200-300 per row foot, on 3 to 5-inch-high barley near Coyanosa, Pecos County. (Neeb, Dec. 20).  
NEW MEXICO - Ranged 10-50+ per row foot in barley checked in Roswell area, Chaves County. (Mathews).

GREENBUG (Schizaphis graminum) - TEXAS - Generally light in small grain in pan-handle area past week. Light to medium in Foard and Archer Counties. Damage noted in some fields in Knox, Childress, Motley, and Stonewall Counties. (Boring, Dec. 20). OKLAHOMA - Counts per row foot in wheat ranged 5-25 in Mayes County and averaged 3 in Cimarron County. (Okla. Coop. Sur.). NEW MEXICO - Averaged 2-12 per row foot in barley in Chaves County. (Mathews). CALIFORNIA - Light on 20 acres of barley at Kerman, Fresno County. (Cal. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Averaged 800 per 100 sweeps in alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light in seedling alfalfa near Roswell, Chaves County. (Mathews). MISSISSIPPI - Adults and nymphs light, 5-6 per square foot, in alfalfa field in Lee County. (Dinkins, Dec. 20).

## CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI - Populations during fall survey on corn about same as in 1967 in crop reporting districts 7 and 9. Percent girdled stalks ranged 5.2-17.8 (average 11.04) in district 7 (southwest) and 8-30.4 (average 22.54) in district 9 (southeast) of State. Surveys indicate slow spread in southeast area. (Munson). OKLAHOMA - Counts in cornstalks showed 20 percent live larvae and 10 percent dead in Mayes County. (Okla. Coop. Sur.).

## SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Ranged 0-5 per row foot in 3 wheatfields in Mayes County. (Okla. Coop. Sur.).

## TURF, PASTURES, RANGELAND

A BILLBUG (Sphenophorus minimus) - RHODE ISLAND - Found on orchard grass at Gainer Dam in Scituate, Providence County, October 17, 1968. Collected by J.E. Sheehan, determined by R.E. Warner. This is a new State record. (Field).

CHINCH BUG (Blissus leucopterus) - ILLINOIS - Infestations noneconomic during fall survey in State. Ranged up to 187 per square foot (Douglas County) in 23 counties surveyed. State average 18.5. (Sturgeon, Dec. 20).

A MEALYBUG (Chorizococcus rostellum) - CALIFORNIA - Light on Panicum repens at Los Angeles, Los Angeles County. (Cal. Coop. Rpt.).

BERMUDAGRASS MITE (Aceria neocynodonis) - CALIFORNIA - Medium on Bermuda grass at Anderson, Shasta County. This is a new county record. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - MISSISSIPPI - Adults and nymphs heavy, 40-50 per square foot, in 10 acres of vetch in Oktibbeha County. (Dinkins, Dec. 20). OKLAHOMA - Averaged 4 per square foot in alfalfa checked in Mayes County. (Okla. Coop. Sur.). ARIZONA - Averaged 40 per 100 sweeps in alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). CALIFORNIA - Adults of this species and A. solani (foxglove aphid) light on 2 acres of alfalfa at Fresno, Fresno County. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Larvae and one adult collected on alfalfa near Lowell, Dodge County, October 21. Determined by R.E. Warner. This is a new county record. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Averaged 35 per 100 sweeps in alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

FALSE CELERY LEAF TIER (Udea profundalis) - CALIFORNIA - Larvae light in 10-acre alfalfa field near Kerman, Fresno County; some leaf feeding. (Cal. Coop. Rpt.).

## COLE CROPS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - ALABAMA - Larvae very heavy, 5-8 per row foot, in garden turnips in Lee County; about 20 percent of garden affected. Some adults feeding. (McQueen).

TURNIP APHID (Hyadaphis pseudobrassicae) - MISSISSIPPI - Light in several small turnip patches in Oktibbeha and Winston Counties. (Dinkins, Dec. 20).

## DECIDUOUS FRUITS AND NUTS

PECAN WEEVIL (Curculio caryae) - ALABAMA - Most larval damage ever in 55-acre pecan orchard at Uriah, Monroe County, this season. Up to 4 tons of nuts destroyed this year. Damage similar in several other orchards in area. Continued to move further south in recent years. (Lemons, Dec. 20).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Overwintering larvae very numerous, 2-3 per nut, in old pecan and hickory shucks under most trees, especially untreated trees, in central and southern areas. Lighter in northern area. (McQueen, Dec. 20).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Egg masses 1-15 (several hundred eggs per mass) per tree on several apple and black cherry trees in Lee County; egg masses mostly 1-3 per tree. (McQueen).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Overwintering populations heavy on roots of all apple trees examined in Lee County. (McQueen).

## CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - All stages few to severe on 800 sweet and sour orange nursery plants at Scottsmoor, Brevard County. (Levan, Dec. 17).

## ORNAMENTALS

EUONYMUS SCALE (Unaspis euonymi) - NEW MEXICO - Moderate to extremely heavy, damaging euonymus in Albuquerque area, Bernalillo County; control difficult. (Heninger).

A CONIFER APHID (Cinara tujafilina) - OKLAHOMA - Occasional small colonies (10-12 per colony) on arborvitae at Pryor, Mayes County. (Okla. Coop. Sur.).

## FOREST AND SHADE TREES

A PIT SCALE (Mycetococcus ehrhorni) - CALIFORNIA - Heavy on live oak at Lafayette, Contra Costa County. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 13 cases reported in U.S. December 22-28 as follows: TEXAS - Duval 1, Hidalgo 1, La Salle 1, Starr 3, Webb 5, Zapata 1, Unknown 1. Total of 139 cases reported in portion of Barrier Zone in Republic of Mexico December 15-21 as follows: Territorio sur de Baja California 30, Sonora 53, Chihuahua 10, Coahuila 15, Nuevo Leon 13, Tamaulipas 18. Total of 7 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 27,168,000; Arizona 300,000; California 1,100,000; Mexico 26,000,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 0-6 (average 4) per head on 10 dairy cows in Mayes County. (Okla. Coop. Sur.). ARKANSAS - Negative in cattle checked in northwest area. (Simco). ALABAMA - Larvae appearing under skin along backline on a few cattle in central and southern areas. No exit holes observed yet. (McQueen).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - MISSISSIPPI - Moderate to heavy on about 50 cattle at cattle auction in Clay County. (Dinkins, Dec. 20).

A MOSQUITO (Culiseta inornata) - TEXAS - Very numerous around lights at night in Jefferson County during November. (Thompson).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Remains stable with no significant buildup in flocks checked in State. (Simco).

## STORED PRODUCTS

POTATO TUBERWORM (Phthorimaea operculella) - MARYLAND - Heavy in stored potatoes on farm near Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

GRANARY WEEVIL (Sitophilus granarius) - MARYLAND - Heavy in large crop of stored barley on farm near Lisbon, Howard County. (U. Md., Ent. Dept.).

## BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OREGON - Adults very numerous, especially on tree trunks and fern foliage, near Lyons, Linn County. (Larson, Dec. 20). ALABAMA - Small clump of 75-150 H. convergens hibernating in dead grass and mulch in Lee County garden; some Coccinella novemnotata observed. (McQueen).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

**CITRUS BLACKFLY (Aleurocanthus woglumi)** - MEXICO - Biological Control Zone - Inspected 25,680 trees on 404 acres at Victoria, Padilla, Guemez, and Hidalgo, Tamaulipas. Captured 22,500 Prospaltella opulenta (a eulophid wasp) at Llera; parasitism averaged 39 percent in 3 groves at Ocampo and 76 percent on 12 properties at Llera. Chemical Control Zone - Results negative on 28,373 trees inspected on 440 acres in Matamoros district. Infested 340 trees on 1,133 acres at Linares and Montemorelos, Nuevo Leon. First treatment applied to 136 trees, the second to 586 trees, and third to 6,673 trees at Linares. Survey negative in 1,874 trees inspected on 277 properties (367 acres) at Hermosillo and in 58 trees on 5 properties at Ensenada. (PPC Mex. Reg., Nov. Rpt.).

**MEXICAN FRUIT FLY (Anastrepha ludens)** - MEXICO - Sterile adult collections totaled 3,727 females and 2,371 males in 350 traps at Tijuana, 4 in 60 traps at Tecate, 904 in 150 traps at Ensenada, and 2,657 in 248 traps at La Paz. Made 3 pupal releases totaling 2,136,836 at Tijuana, 493,164 at Ensenada, and 2,160,000 at La Paz. Percent emergence averaged 83.1 at Tijuana and 85.6 at Ensenada. (PPC Mex. Reg., Nov. Rpt.).

**PINK BOLLWORM (Pectinophora gossypiella)** - MEXICO - Collected 37 larvae from 5,350 bolls inspected on 376 acres (10 fields) at Pitiquito and 544 larvae from 4,057 bushels of gin trash and 1,435 lint cleaners at Hermosillo, Sonora. Collected 48 moths in 20 sex lure traps at Mexicali, Baja California. Infestations averaged 13 percent on 2,925 acres (69 fields) at Mexicali and 4 percent on 1,790 acres (31 fields) at San Luis R.C., Sonora. Plowed up about 90 percent of stalks in Matamoros district, 20 percent of fields at Caborca, and 7 percent of fields at Hermosillo. (PPC Mex. Reg., Nov. Rpt.). NEW MEXICO - About half of larvae dead in green bolls examined December 20 in southern Eddy County. (Mathews). Larval counts on lint cleaners in Dona Ana County December 16-20 by area: La Union 5, Chamberino 32, Berino 1, Santo Tomas 2, Del Cerro 11. (Hare).

**WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus)** - FLORIDA - Larvae and adults light on commercial citrus in Apopka and Plymouth area, Orange County. (Fla. Coop. Sur., Dec. 13).

## CORRECTIONS

CEIR 18(49):1099 - WASHINGTON - VETCH BRUCHID (Bruchus brachialis) - ... near Bellingham, Skagit County, should read ... near Bellingham, Whatcom County. (Harwood).

CEIR 18(50):1114 - SOFT SCALES - ARIZONA - Change Saissetia oleae to Saissetia sp. (Ariz. Coop. Sur.).

CEIR 18(51):1143 - FLAT RED MITE - Add England to general distribution.

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 12/20-26, BL - Black cutworm (Agrotis ipsilon) 12, granulate cutworm (Feltia subterranea) 11, yellow-striped armyworm (Prodenia ornithogalli) 1.

HAWAII INSECT REPORT

Turf, Pasture - Larvae of a GRASS WEBWORM (Herpetogramma licarsisalis) up to 17 per square foot in 60 acres of Kikuyu grass pasture at Wailua Homestead and up to 21 per square foot in 40 acres of Kikuyu grass pasture at Kalaheo, Kauai. Adults light in pastures and adjoining vegetation. Trichogramma semifumatum (a minute egg parasite) parasitized 96 percent of eggs collected. (Sugawa). Larvae of a NOCTUID MOTH (Meliana sp. near scottii) generally light, heavy in some areas, in Bermuda grass on Sand Island, Oahu. (Olson, Shiroma).

General Vegetables - BEAN FLY (Melanagromyza phaseoli) heavy in young snap beans in backyards at Waianae, Oahu, and Kahului, Maui; damage extremely heavy to leaf petioles and stems. Generally light in larger commercial snap bean plantings at Waianae and Waimanalo. (Yamamoto, Miyahira). TOBACCO FLEA BEETLE (Epitrix hirtipennis) damage heavy to tomato foliage in field at Waianae, Oahu. (Yamamoto).

Fruits, Shade Trees - RED-BANDED THRIPS (Selenothrips rubrocinctus) nymphs and adults heavy on mango foliage at Kahului, Maui; defoliation extremely heavy to young leaves on many backyard trees. Also heavy on mango at Lahaina and Wailuku and on Java-plum and false kamanii in several areas. Larvae of a NOCTUID MOTH (Phlegetonia delatrix) light and causing moderate damage on rose-apple (Eugenia jambos) at Haiku, Maui, for a new host record. Damage also moderate on mountain-apple and Java-plum. (Miyahira).

Beneficial Insects - Adults of a FIG WASP (Pleistodontes imperialis) heavy on Port Jackson fig trees (Ficus rubiginosa) at Wahiawa, Oahu. Species introduced from Australia in 1922 as a caprifig of Port Jackson fig. (Funasaki). SOURBUSH SEED FLY (Acinia picturata) larvae infested 88 percent of sourbush (Pluchea odorata) flower heads at Kahului, Kihei, and Waihee, Maui. (Ah Sam).

Miscellaneous Insects - Nymphs and adults of a RHOPALID BUG (Jadera haematoloma) increasing on balloonvine along roadsides at Koloa, Kauai. (Sugawa).

INSECT DETECTION

New State Records

A GRASSHOPPER (Trimerotropis helferi) - OREGON - Collected on sand dunes near Tahkenitch Lake, Douglas County, October 1 and five miles northwest of North Bend, Coos County, October 2 by R.L. Westcott. Earlier collections include Sand Lake, Tillamook County, and one mile north of Waldport, Lincoln County. Determined by A.B. Gurney. Described from coastal dunes of northern California. (Westcott).

A BILLBUG (Sphenophorus minimus) - RHODE ISLAND - On orchard grass at Gainer Dam in Scituate, Providence County. Collected by J.E. Sheehan October 17, 1968. Determined by R.E. Warner. (p. 3).

New County Records

BERMUDAGRASS MITE (Aceria necynodonis) - CALIFORNIA - Shasta County. (p. 3).

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Dodge County. (p. 4).

INSECT DETECTION IN THE UNITED STATES - 1968

Fifteen new United States records and one new continental U.S. record have been reported in the Cooperative Economic Insect Report during the year. These included 8 species new to the Western Hemisphere - 7 from Hawaii and one from New York. In addition, there were 127 new State records and one new District of Columbia record. Those States having 8 or more included Maryland 13, Nevada 11, Delaware 8, and Oregon 8. Records include gastropods and related arthropods as well as insects.

NEW UNITED STATES RECORDS

Species	State	County	Probable Origin	Collected on	CEIR Page	Economic Importance
<u>Bombotelia jocosatrix</u> (Guenée) 1/	Hawaii	Oahu Island	Southeast Asia	Adults at light	366	Serious pest of mango
<u>Carabunia myersi</u> Waterston an encyrtid wasp	Florida	Dade	West Indies	Female swept from grass	397	Parasitizes nymphs of Cercopidae
<u>Caradrina morpheus</u> (Hufnagel) mottled rustic	Washington	Whatcom	Canada	Light traps	800	Little known
<u>Ensina sonchi</u> (Linnaeus) 1/	Hawaii	Oahu Island	Japan or Europe	<u>Sonchus</u> sp.	455	Could be of some importance on lettuce seed
<u>Euconocephalus nasutus</u> (Thunberg) 1/	Hawaii	Oahu Island	Indo-Australian or Ethiopian Regions	Vacant lot	130	Minor importance
a longhorn grasshopper						
<u>Macropsis fuscula</u> (Zetterstedt)	Washington	Pierce	British Columbia, Canada	<u>Rubus</u> sp.	795	Could be serious if <u>Rubus</u> stunt virus introduced.
brambleberry leafhopper						
<u>Melanagromyza phaseoli</u> (Tryon) 1/	Hawaii	Oahu and Kauai Islands	Oahu and Asia, Australia or Africa	Snap beans	715	Serious
bean fly						
<u>Minthea rugicollis</u> (Walker) 3/	Florida	Dade	Antilles (?)	Oak flooring	772	Could be important
a powder-post beetle						



<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Myrmelachista ramulorum</u> Wheeler an ant	Florida	Polk	West Indies	Sweet orange	393	Damages coffee plants and some trees in Puerto Rico
<u>Neoblattella detersa</u> (Walker) a cockroach	Florida	Dade	Probably Jamaica	Begonia plants	525	Probably non-economic
<u>Neoloxotaenia gracilis</u> (Meijere) <u>1/</u> a chloropid fly	Hawaii	Oahu Island	Java or Orient	Light traps	17	Not important
<u>Oedaleus abruptus</u> (Thunberg) <u>1/</u> a grasshopper	Hawaii	Oahu Island	Southeast Asia	Dry grass	776	Minor
<u>Plautia stali</u> Scott <u>1/</u> a stink bug	Hawaii	Oahu Island	Japan, Formosa, or South China	At lights	261	Could be damaging
<u>Pseudeucoila hookeri</u> (Crawford) a cynipid wasp	Florida	Dade	Puerto Rico	<u>Anastrepha suspensa</u>	54	Beneficial
<u>Psylliodes affinis</u> (Paykull) <u>2/</u> European potato flea beetle	New York	Albany Greene	Europe	Bitter night-shade	960	Sporadically damaging
<u>Veroniceella moreleti</u> (Crosse and Fischer) a slug	Texas	Cameron	Mexico	Collected in nursery	285	Has damaged nursery plants

1/ New Western Hemisphere record but not known to occur in continental United States.

2/ New Western Hemisphere record.

3/ New continental U.S. record.

ADDITIONAL NEW STATE AND DISTRICT OF COLUMBIA RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Acantholyda circumcincta</u> a pamphiliid sawfly	Florida	Okaloosa	<u>Pinus clausa</u>	890
<u>Aceria negundi</u> an eriophyid mite	Arizona	Yavapai	boxelder	744
<u>Aculodes teucrii</u> an eriophyid mite	California	Sacramento	germander	472
<u>Aculops rhoicecis</u> an eriophyid mite	Arizona	Yavapai	<u>Rhus trilobata</u>	744
<u>Aeoloplides tenuipennis</u> a grasshopper	Oregon	Malheur	-	1142
<u>Agriopodes fallax</u> a noctuid moth	Delaware	Sussex	blacklight trap	908
<u>Allygus mixtus</u> a leafhopper	Oregon	Clackamas	blacklight trap	713
<u>Amphicerus bicaudatus</u> apple twig borer	Oregon	Multnomah	blacklight trap	533
<u>Anicla infecta</u> a noctuid moth	Arizona	Maricopa	laundry on clothesline	953
<u>Aphis caliginosa</u> an aphid	Missouri	Cole	dogwood	68
<u>Apion longirostre</u> hollyhock weevil	Montana	Yellowstone	hollyhock	211
	Nevada	Washoe	hollyhock	744
	Wyoming	Laramie	hollyhock	1142
<u>Apocephalus antennatus</u> a humpbacked fly	Florida	Alachua	lampyrid beetles	7
<u>Aspidiotus destructor</u> coconut scale	Hawaii	Oahu 1/	coconut	953
<u>Asterolecanium bambusicola</u> a pit scale	Florida	Volusia	bamboo	533
<u>Bathyplectes curculionis</u> an ichneumon wasp	Arkansas	Sharp	<u>Hypera postica</u>	647
<u>Bibio townesi</u> a March fly	West Virginia	Pocahontas Kanawha	-	890
<u>Bipersona ochrocentri</u> an aphid	Utah	Millard	thistle	1053
<u>Bombus appositus</u> a bumble bee	Nevada	Douglas	-	472

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Bombus centralis</u> a bumble bee	Nevada	Lander	-	472
<u>Bombus occidentalis</u> <u>occidentalis</u> a bumble bee	Nevada	Elko	-	472
<u>Calomycterus setarius</u> a Japanese weevil	Nebraska	Lancaster	bindweed	1010
<u>Camponotus pylartes</u> <u>fraxinicola</u> an ant	Florida	Palm Beach	bullhorn acacia	7
<u>Cepaea nemoralis</u> banded wood snail	Texas	Galveston	railroad right-of-way	953
<u>Cerococcus kalmiae</u> a pit scale	Ohio	Lake	azalea	317
<u>Chaitophorus abditus</u> an aphid	Utah	Washington	willow	1053
<u>Chortinaspis subchortina</u> an armored scale	Arizona	Maricopa	St. Augustine grass	803
<u>Chrysops bishoppi</u> a deer fly	Nevada	Esmeralda	-	890
<u>Chrysops niger taylori</u> a deer fly	South Carolina	Georgetown	-	586
<u>Chrysops shermani</u> a deer fly	Minnesota	Cook	-	55
<u>Chrysops wileyae</u> a deer fly	Nevada	Lincoln	-	890
<u>Cinara carolina</u> a conifer aphid	Maryland	Anne Arundel	Virginia pine	317
<u>Cinara pinea</u> a conifer aphid	Maryland	Carroll	Scotch pine	1041
<u>Coleotechnites thujaella</u> a gelechiid moth	Maryland	Talbot	arborvitae	1091
<u>Collyria calcitrator</u> an ichneumon wasp	New York	Chautauqua	<u>Janus integer</u>	713
<u>Corythucha bellula</u> a lace bug	Pennsylvania	Butler	hawthorn	953
<u>Cyrtopistomus castaneus</u> Asiatic oak weevil	Alabama	Cleburne	homes	497
	Arkansas	Garland	trees and shrubs	851
	Wisconsin	Sauk	house	890

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Dendrothrips ornatus</u> privet thrips	California	Sonoma	privet	454
<u>Diabrotica virgifera</u> western corn rootworm	Indiana	Newton	corn	871
<u>Diaspidiotus osborni</u> an armored scale	Maryland	Calvert	birch	1078
<u>Dictyla echii</u> a lace bug	Maryland	Frederick Montgomery	<u>Echium vulgare</u>	647
	Virginia	Loudoun	<u>Echium vulgare</u>	647
	West Virginia	Jefferson	<u>Echium vulgare</u>	647
<u>Draeculacephala inscripta</u> a leafhopper	New Jersey	Mercer	-	497
<u>Epitrix tuberis</u> tuber flea beetle	California	Siskiyou	beans	1102
<u>Esperanza texana</u> a coreid bug	South Carolina	Hampton	Coastal Bermuda grass	399
<u>Euceraphis mucida</u> an aphid	Maryland	Baltimore	-	1091
<u>Euidella gerhardi</u> a delphacid planthopper	New Jersey	Cumberland	-	497
<u>Eumarozia malachitana</u> an olethreutid moth	Delaware	Kent	blacklight trap	211
<u>Eurycoccus blanchardii</u> a mealybug	Maryland	Montgomery	hickory	871
<u>Eutetranychus banksi</u> Texas citrus mite	California	Imperial	citrus	472
<u>Fiorinia externa</u> an armored scale	Rhode Island	Newport	hemlock	243
<u>Gonatocerus mexicanus</u> a mymarid wasp	Indiana	St. Joseph	farm	983
<u>Graphognathus leucoloma</u> <u>striatus</u> a white-fringed beetle	Missouri	Dunklin	-	682
<u>Graphognathus peregrinus</u> a white-fringed beetle	Texas	Newton	weeds	953
<u>Hemerocampa pseudotsugata</u> Douglas-fir tussock moth	Arizona	Gila	Douglas-fir white fir	744
<u>Hoplocampa brevis</u> pear sawfly	Maryland	Baltimore	pear	340
<u>Hormops abducens</u> a weevil	North Carolina	Wake	squirrel nest box	586

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Hybomitra opaca</u> a horse fly	North Dakota	Bowman	-	129
<u>Hydroptila sp.</u> a caddisfly	Hawaii	Oahu 1/	light trap	826
<u>Hypera postica</u> alfalfa weevil	Oklahoma	Delaware	alfalfa	558
	Texas	Bowie	alfalfa	427
<u>Idiocerus decimusquartus</u> a leafhopper	Oregon	Benton	<u>Populus alba</u> <u>bolleana</u>	211
<u>Ips woodi</u> an engraver beetle	Nevada	Elko	<u>Pinus flexilis</u>	285
<u>Iziphya flabella</u> an aphid	Missouri	-	sedge	586
<u>Jadera haematoloma</u> a rhopalid bug	Hawaii	Oahu 1/	<u>Cardiospermum</u> <u>halicacabum</u>	803
<u>Lecanium cerasorum</u> calico scale	District of Columbia	-	<u>Carpinus betulus</u>	871
<u>Lecanium prunastri</u> globose scale	Maryland	Montgomery	plum	96
<u>Limnophila laricicola</u> a crane fly	Maryland	Worcester	pond	262
<u>Longistigma caryae</u> giant bark aphid	Arizona	Coconino	sycamore	647
<u>Lopidea davisi</u> phlox plant bug	Nebraska	Lancaster	phlox	211
<u>Loxosceles reclusa</u> brown recluse spider	North Carolina	Forsyth	museum	533
<u>Melanagromyza splendida</u> a leaf miner fly	Arizona	Yuma	safflower	713
<u>Melanoplus siskiyou</u> a grasshopper	Oregon	Jackson	-	1142
<u>Melanotrichus virescens</u> a plant bug	Oregon	Tillamook Hood River	-	851
<u>Mesoleius tenthredinis</u> an ichneumon wasp	West Virginia	Pocahontas	<u>Pristiphora</u> <u>erichsonii</u>	16
<u>Monelliopsis tuberculata</u> an aphid	Idaho	Franklin	black walnut	243
	New Mexico	Taos	black walnut	16
	Utah	Washington	black walnut	360
<u>Musca autumnalis</u> face fly	California	Modoc	cattle	427
	Nevada	Elko	ranger station	80

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Myzocallis castaneae</u> an aphid	Maryland	Anne Arundel	chestnut	317
<u>Myzocallis melanocera</u> an aphid	Arkansas	Pulaski	oak	1078
<u>Neodiprion pratti pratti</u> a conifer sawfly	West Virginia	Boone	Virginia pine	625
<u>Neophyllaphis podocarpi</u> an aphid	Florida	Dade	podocarpus	427
	Mississippi	Harrison	podocarpus	1142
<u>Neotoxoptera formosana</u> an aphid	Utah	Cache	dry onions	826
<u>Nuculaspis pini</u> black pine-leaf scale	Illinois	Du Page	jack pine	285
<u>Ochyromera ligustri</u> a weevil	Virginia	Isle of Wight	lilac	533
<u>Onychobaris millepora</u> a weevil	Wisconsin	Dane	<u>Mirabilis</u> <u>nyctaginca</u>	472
<u>Orthotomicus caelatus</u> a bark beetle	Delaware	Kent	blacklight trap	243
<u>Orthotylus chlorionis</u> a plant bug	Delaware	New Castle	honeylocust	586
<u>Oulema melanopus</u> cereal leaf beetle	Kentucky	Boone	oats	533
	West Virginia	Wood	wheat	454
<u>Oxycopsis suturalis</u> an oedemerid beetle	Delaware	Kent	blacklight trap	340
<u>Paroxyna albiceps</u> a tephritid fly	Wisconsin	Door	cherry	1151
<u>Patasson luna</u> a mymarid wasp	Illinois	Crawford	<u>Hypera</u> <u>postica</u>	129
<u>Pemphigus bursarius</u> lettuce root aphid	North Carolina	Wake	Lombardy poplar	682
<u>Pentamerismus taxi</u> a false spider mite	Oregon	Multnomah	Irish yew	1053
<u>Periplaneta brunnea</u> brown cockroach	North Carolina	Wake	house	285
<u>Platytetranychus thujae</u> a spider mite	Missouri	Macon	arborvitae	497
<u>Polydrusus sericeus</u> a weevil	Wisconsin	Dane	elm	1078
<u>Potamyia flava</u> a caddisfly	Maryland	Prince Georges	blacklight trap	967

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Pselactus spadix</u> a weevil	Georgia	De Kalb	pine furnishing	472
<u>Pseudocneorhinus</u> <u>bifasciatus</u> a Japanese weevil	Indiana	Knox	mockorange, privet, rose, spirea, weigela	908
<u>Psylla negundinis</u> boxelder psyllid	Maryland	Montgomery	boxelder	908
<u>Pyrrhalta luteola</u> elm leaf beetle	Florida	Duval	elm	890
<u>Reduvius sonoraensis</u> an assassin bug	Nevada	Clark	light trap	155
<u>Reduvius vanduzeei</u> an assassin bug	Nevada	Clark	light trap	155
<u>Rhopalosiphoninus</u> <u>latysiphon</u> an aphid	Missouri	Pike	rodent nest	68
<u>Rhydinofoenus floridanus</u> <u>bradleyi</u> a gasteruptionid wasp	Wisconsin	Dane	-	26
<u>Scymnus intrusoides</u> a lady beetle	Washington	Grant	trap	983
<u>Scyphophorus</u> <u>acupunctatus</u> a weevil	Arkansas	Crawford	yucca	1151
<u>Silvius notatus</u> a deer fly	Nevada	Churchill	-	890
<u>Silvius quadrivittatus</u> a deer fly	North Dakota	Slope	-	129
<u>Sphenophorus venatus</u> <u>vestitus</u> a billbug	California	San Bernardino	golf course	967
<u>Sphragisticus nebulosus</u> a lygaeid bug	Delaware	Sussex	lima beans	285
<u>Stethophyma lineatum</u> a grasshopper	Oregon	Klamath	sphagnum bogs	1142
<u>Tabanus sackeni</u> a horse fly	Delaware	New Castle	blacklight trap	187
<u>Tachypterellus</u> <u>quadrigibbus</u> <u>magna</u> a weevil	Delaware	New Castle	-	262

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Trachyphloeus</u> <u>bifoveolatus</u> a weevil	Pennsylvania	Erie	home	454
<u>Trogoderma parabile</u> a dermestid beetle	North Dakota	Cass	barley seed	285
<u>Trogoxylon aequale</u> a powder-post beetle	New Mexico	Socorro	salt cedar	1151
<u>Xyleborus affinis</u> an ambrosia beetle	Oklahoma	McCurtain	dead pine	26
<u>Xylosandrus germanus</u> a bark beetle	Missouri	Cape Girardeau	dogwood	826

1/ Island records





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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

NEOTROPICAL CORN BORER widespread on corn in lower Rio Grande Valley of Texas. (p. 19).

GREEN PEACH APHID heavy on sugarbeets in Salt River Valley of Arizona. (p. 20).

CABBAGE LOOPER medium and widespread on cole crops and lettuce in Rio Grande Valley of Texas. (p. 20).

A MICROSPORIDIAN found infecting LARCH SAWFLY in Pennsylvania for first record in U.S. (p. 20).

SOUTHERN PINE BEETLE heavy in southeastern Tennessee. (p. 21).

Only one SCREW-WORM case reported in southwestern U.S. (p. 21).

Detection

New State records include GREENBUG, a MEALYBUG, and a NOCTUID MOTH in Nevada (p. 19); a FLEA in Virginia (p. 21); and a STINK BUG in Missouri (p. 23).

For new county records see page 23.

Special Reports

The 1969 outlook for GRASSHOPPERS based on the 1968 adult survey. See center-fold map.

State Survey Coordinators. (p. 24).

Cooperative Survey Entomologists. (p. 27).

Reports in this issue are for week ending January 3 unless otherwise indicated.

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Grasshopper Adult Survey - Fall 1968 (map) centerfold.

WEATHER BUREAU'S 30-DAY OUTLOOK

JANUARY 1969

The Weather Bureau's 30-day outlook calls for temperatures to average below seasonal normals over most of the Nation with greatest departures over the north-west quadrant. Near normal temperatures are expected to prevail over the South-west except for below normal in Pacific coastal areas. Precipitation is predicted to exceed normal over most of the Nation, except for near to below normal over the Pacific Northwest, southern Plains, and the extreme Southeast. Owing to the cold temperatures predicted, more frequent than normal snows are indicated in the northern two-thirds of the country and at higher elevations in the West.

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

WEATHER OF THE WEEK ENDING JANUARY 6

HIGHLIGHTS: Bitter cold covered most of the Nation from the Pacific Northwest to the southern Appalachians. Gales and heavy snow combined with the frigid weather in some areas.

PRECIPITATION: Four areas received notable precipitation during the week. Heavy rains fell along the middle gulf coast on December 30 and 31 with New Orleans, Louisiana, receiving 2.55 inches and Mobile, Alabama, 4.99 in the 24 hours ending at 7 a.m., e.s.t., December 31. Heavy snow fell in the Pacific Northwest early in the week with 8 to 15-inch accumulations in the lowlands. Rains late in the week combined with melting snow due to warmer temperatures caused the rivers to rise to near or above flood stage. Gales blowing across the eastern Great Lakes caused heavy snow in western New York. Some areas received 6 to 15 inches. On Wednesday, 14 inches fell at Boonville, New York, in 10 hours. Some through-ways and many side roads from Indiana to New York became clogged with snow and highway travel, where possible, became hazardous. A storm along the New England coast produced rain along the coast and 1 to 6 inches of snow inland except 6 to 12 inches in northern Maine. No precipitation or only light sprinkles fell from central and southern California to Oklahoma and western Texas. The northern Great Plains received light snow early in the week and some snow, sleet, and rain over the weekend. The amounts were generally of little importance except that they slowed highway travel. Weather of the week continued on page 23.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG (Schizaphis graminum (In broad sense))\* - CALIFORNIA -** Light on barley plantings at Kerman, Fresno County. (Cal. Coop. Rpt.). **NEVADA -** One alate collected from corn at Pahrump, Nye County. Collected by R. Yamashita and D.F. Zoller June 14, 1968. Identified by R.C. Bechtel; confirmed by T. Kono. This is a new State record. Found in October on barley in Nye County and in Clark County for a new county record. One specimen collected on sorghum in Nye County in November. (Nev. Coop. Rpt.). **TEXAS -** Light in panhandle area. Light on wheat near Levelland, Hockley County. Heavy and widespread at Whiteflat, Motley County, in late December. Many farmers applied controls before cold weather retarded activity. Heavily infested 25 percent of fields inspected. (Green, Pallmeyer). **OKLAHOMA -** Very light to absent in fields checked in several northwestern and panhandle counties due to below zero temperatures the last of December. (Okla. Coop. Sur.). **KANSAS -** None on wheat examined in Riley, Pottawatomie, and Shawnee Counties. (Simpson). **ARKANSAS -** Survey negative in northwest area January 2. (Boyer).

**SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA -** Ranged 60-1,320 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

**NEOTROPICAL CORN BORER (Diatraea lineolata) - TEXAS -** Widespread on corn in lower Rio Grande Valley. Infested average of 94.7 percent of stalks examined. Ten percent of overwintering Diatraea determined this species. (Schuster).

**SOUTHWESTERN CORN BORER (Diatraea grandiosella) - KANSAS -** Percent infested stalks by county: Coffey 12-52, Anderson 16-24. (Redding).

## SMALL GRAINS

**AN APHID (Rhopalosiphum padi) - CALIFORNIA -** Light on barley plantings at Kerman, Fresno County. (Cal. Coop. Rpt.).

## TURF, PASTURES, RANGELAND

**A MEALYBUG (Heterococcus pulverarius) - NEVADA -** Specimens collected from timothy at Smith, Lyon County, by F.C. Batchelder June 20, 1968. Determined by R.F. Wilkey. This is a new State record. (Nev. Coop. Rpt.).

**A NOCTUID MOTH (Heliothis paradoxa) - NEVADA -** Larvae on Bermuda grass at Overton, Clark County. Collected by R.P. Johnson May 27, 1968. Determined by G.T. Okumura. This is a new State record. (Nev. Coop. Rpt.).

## FORAGE LEGUMES

**LYGUS BUGS (Lygus spp.) - ARIZONA -** Swept 40 per 100 sweeps at Yuma, Yuma County. (Ariz. Coop. Sur.).

**BEEF ARMYWORM (Spodoptera exigua) - ARIZONA -** Averaged 10 per 100 sweeps on alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

\* According to recent taxonomic studies by L.M. Russell. This aphid on sorghum appears to be this species.

## SUGARBEETS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy in many fields in Salt River Valley, Maricopa County. Many damaging inside crowns. (Ariz. Coop. Sur.).

## COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Medium and widespread on cole crops in Rio Grande Valley. Averaged 3.0 eggs and 0.6 larva per cabbage plant. (Schuster).

## GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Medium and widespread on lettuce in Rio Grande Valley. Averaged 0.3 eggs and 0.04 larva per lettuce plant. (Schuster).

## DECIDUOUS FRUITS AND NUTS

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Overwintering forms light to heavy on peach and apple trees examined in home orchards and on lawns in Lee County. (McQueen).

## OTHER TROP. & SUBTROP. FRUITS

A WEEVIL (Caulophilus latinasus) - CALIFORNIA - Larvae taken from avocado nursery stock seeds at Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

## ORNAMENTALS

FULLER ROSE WEEVIL (Pantomorus cervinus) - CALIFORNIA - Damaging azalea nursery stock at Fallbrook, San Diego County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Vesiculaphis caricis light on azalea nursery stock at Red Bluff, Tehama County. Not widespread as yet. (Cal. Coop. Rpt.). ALABAMA - Many adults and nymphs of Aphis spiraeicola (spirea aphid) still on established spirea plants in much of Lee County. Most alatae have deposited egg masses and died; eggs 10-50 along many stems in top 2-6 inches of each branch. (McQueen).

CITRUS MEALYBUG (Planococcus citri) - CALIFORNIA - Heavy on Ruellia makoyana nursery stock in Spring Valley, San Diego County. (Cal. Coop. Rpt.).

A FALSE SPIDER MITE (Brevipalpus lilium) - ALABAMA - Heavy buildup again on older azaleas at Auburn and Opelika area, Lee County. Many plants rusty brown and partly defoliated in mass plantings at older homes and some commercial buildings. (McQueen).

## FOREST AND SHADE TREES

LARCH SAWFLY (Pristiphora erichsonii) - PENNSYLVANIA - The microsporidian Thelohania pristiphorae Smirnov detected in cocooned larvae of P. erichsonii collected near Renovo, Clinton County, in July 1968. T. pristiphorae determined by W.A. Smirnov. This is first published record of this microsporidian in the United States. (Drooz). NEW YORK - Typical P. erichsonii oviposition injury and feeding by first instars observed on Larix gmelini (Dahurian larch) at Cooxrox Forest, Stephentown Center, Rensselaer County, August 11, 1963. Tree species determined by D.B. Cook. This is a new host record. (Drooz).



SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TENNESSEE - Overwintering adults and larvae heavy in forest area low on mountain of Cades Cove in Great Smoky Mountains National Park. This beetle and Ips sp. heavy on Atomic Energy Commission lands at Oak Ridge; salvage operations underway. D. frontalis caused some heavy losses in isolated spots of Roane County near Rockwood and Kingston area. (Applegate, Dec. 23).

A SOFT SCALE (Ceroplastes sp.) - VIRGINIA - Light on sugar and silver maple street trees in city of Alexandria. This is a new host record for State. Heavy infestations on nearby plantings of various shrubs support earlier reports of rapid spread and increase in northern area. (Weidhaas, Dec. 20).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Heavy on Lombardy poplar tree nursery stock at Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

LONG-TAILED MEALYBUG (Pseudococcus longispinus) - CALIFORNIA - Heavy on Indialaurel fig (Ficus retusa) in several blocks of street plantings at San Francisco, San Francisco County. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. December 29, 1968 - January 4, 1969, as follows: TEXAS - Starr 1. Total of 175 cases reported in portion of Barrier Zone in Republic of Mexico December 23-28 as follows: Territorio sur de Baja California 81, Sonora 59, Chihuahua 3, Coahuila 9, Nuevo Leon 10, Tamaulipas 13. Total of 7 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 26,568,000; Mexico 25,596,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - KANSAS - Infestations in slaughtered cattle ranged 4-20 percent in southwest area during September, October, and November. Loss estimated from \$2,000 to \$6,000 per month at 2 packing plants. (Simpson). OKLAHOMA - H. lineatum (common cattle grub) moderate on Craig County cattle. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - MISSISSIPPI - Active in stalls of penned Hereford bulls in Oktibbeha County; average of 6-10 flies per stall. (Dinkins, Dec. 27).

A FLEA (Chaetopsylla lotoris) - VIRGINIA - Female collected on gray fox in Amherst County November 28, 1968. Determined by J.G. Humphreys. This is a new State record. (Amos).

#### MISCELLANEOUS WILD PLANTS

A WEEVIL (Hypera compta) - MISSOURI - Collected at Amazonia, Andrew County, by R.E. Munson May 9, 1968. Collected at Carrollton, Carroll County, by B. Puttler May 9; determined by R.E. Warner. Later collected at Clifton Hill, Randolph County, by B. Puttler and S. Thewke. Polygonum sp., host at all collection sites. These are new county records. (Munson).

A WEEVIL (Hypera eximius) - MISSOURI - Collected on Rumex sp. at Amazonia, Andrew County, by R.E. Munson and at Salisbury, Chariton County, by B. Puttler and S. Thewke. These are new county records. (Munson).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - FLORIDA - Collected larvae from fruits of calamondin at Georgiana December 19 and adults at Melbourne and Eau Gallie December 18 in Brevard County, (Levan). Adults collected at Nokomis, Sarasota County (Hiatt, Dec. 16), and at Tampa, Hillsborough County (Krouse, Dec. 13).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - TEXAS - Adults light at Groveton, Trinity County. Collected by H.J. Henderson and W.T. Williamson December 11. Adults light at Wells, Cherokee County. Collected by W.E. Jackson and C.M.E. Lovett December 16. Determined by D.R. Smith. These are new county records. (PPC).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Twenty-seven larvae from 177 bales of cotton on lint cleaners from 6 gins in southwest area. (Hare). Cocoons on cotton roots in Dona Ana County much lighter than at same period in 1967. Heaviest infestation in southern Dona Ana County averaged 3 cocoons per 10 feet of row on December 30. Of 29 cocoons examined, 15 larvae were alive and 14 dead. (Campbell, Nielsen).

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## HAWAII INSECT REPORT

Turf, Pasture - A GRASS WEBWORM (*Herpetogramma licarsisalis*) damage moderate to Kikuyu grass pasture at Kaupakulua, Maui; larvae and damage light in Kikuyu grass pasture at Ulupalakua. On Oahu, larvae per square foot ranged 2-5 in infested lawns and parks at Honolulu, 2-7 in lawns and pastures in windward area, and 1-4 in lawns at Wahiawa. (Ah Sam, Nakao).

General Vegetables - CARMINE SPIDER MITE (*Tetranychus cinnabarinus*) trace to light on tomatoes, eggplants, snap beans, and cucumbers in most fields throughout Oahu. Will remain low until spring. (Yamamoto). GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) adults heavy on 9 acres of tomatoes at Kona, Hawaii Island, at 1,000 to 1,500 feet elevation. Continues moderate to heavy on snap beans in several lowland fields on Oahu. (Nakao, Sato).

Fruits - Heavy infestations of BARNACLE SCALE (*Ceroplastes cirripediformis*) spread from 10 to 30 acres on passionfruit farm at Kahului, Maui. Parasitic EULOPHID WASPS (*Aneristus ceroplastae* and *Tetrastichus* sp.) very active in rest of lightly infested 120 acres. (Miyahira). A MEALYBUG (*Pseudococcus obscurus*) remains light, moderate in few areas, on 150 acres of passionfruit at Kahului, Maui. Larvae and pupae of a LADY BEETLE (*Cryptolaemus montrouzieri*) numerous where mealybug infestation moderate. (Miyahira).

Beneficial Insects - Adults of a WATER SCAVENGER BEETLE (*Sphaeridium scarabaeoides*) heavy in pastures at Kalaheo, Kauai; as many as 12 per dung heap. Introduced from Germany in 1909 to help control horn fly (*Haematobia irritans*) and other dipterous maggots. (Sugawa).

Miscellaneous Insects - CLUSTER FLY (*Pollenia rudis*) adults heavy in pastures, swarming in Kona and North and South Kohala districts on Hawaii Island; causing annoyance by entering homes. (Yoshioka, Kobayashi).

UNITED STATES DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL RESEARCH SERVICE  
 PLANT PEST CONTROL

TO COOPERATORS:

This map is based upon the results of cooperative grasshopper adult surveys made during the summer of 1969, and indicates the potential severity of infestations for 1969. Nymphal surveys, made in the same areas, were necessary in 1969.

Control on grasshopper infested croplands will be handled by the farmers with technical assistance in 15 Western and Midwestern States. Areas on the map are diagrammatic. Within these areas, infestations are indicated by the following symbols:

RANGELAND GRASSHOPPER INFESTATION

(AREAS SHOWN)

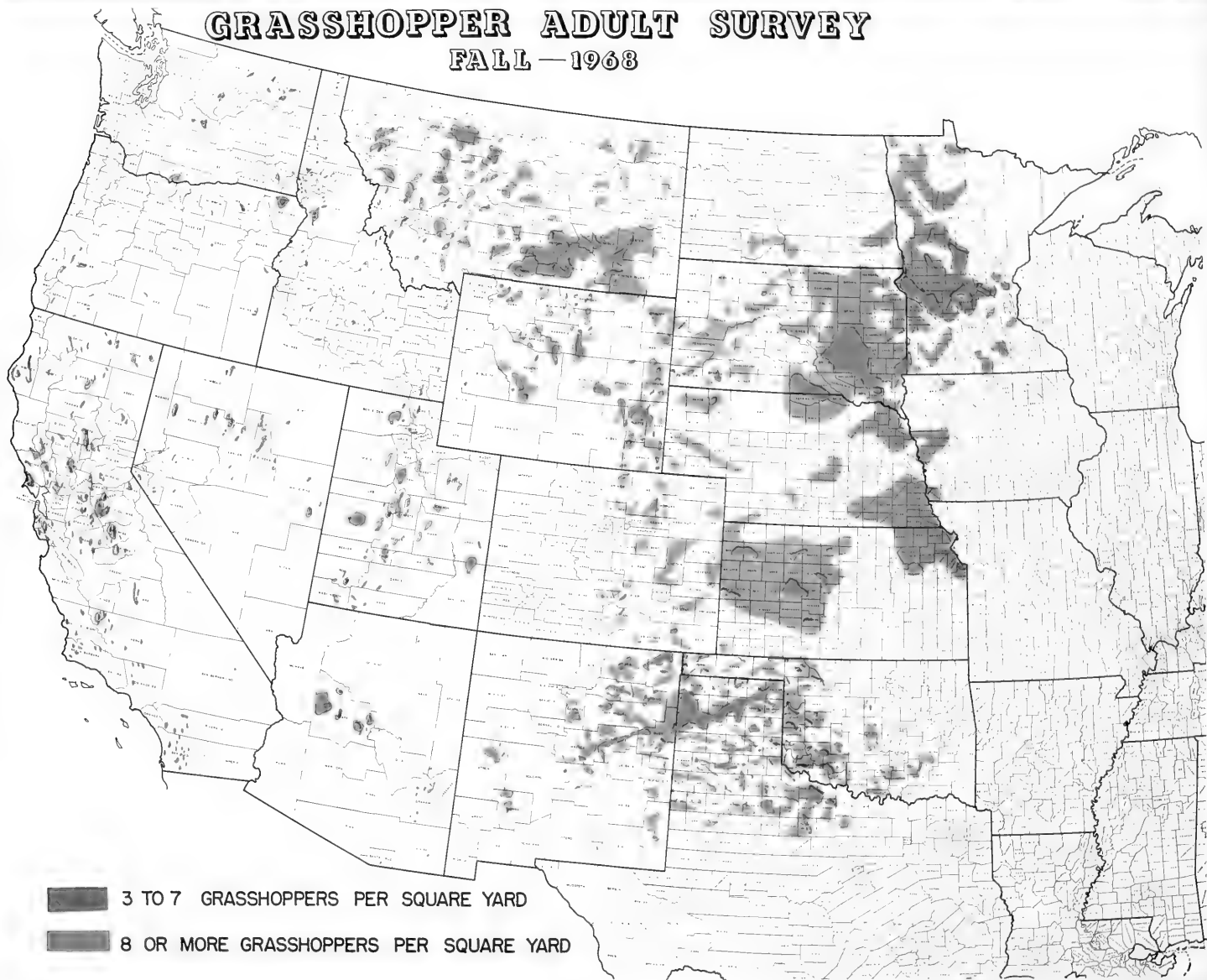
REGION AND STATE	LANDOWNERSHIP - ACRES		TOTAL ACRES
	Private and State	Public Domain	
CENTRAL			
Kansas	10,000	---	10,000
Nebraska	10,000	---	10,000
WESTERN			
Arizona	5,000	17,500	22,500
California	216,070	16,367	232,437
Colorado	162,000	20,000	182,000
Idaho	34,500	88,000	122,500
Montana	563,400	465,300	1,028,700
Nevada	62,225	69,110	131,335

The survey was planned and performed by the Plant Pest Control Division, Agricultural Research Service, United States Department of Agriculture.



# GRASSHOPPER ADULT SURVEY

FALL — 1968



**MENT OF AGRICULTURE**

**SEARCH SERVICE  
CONTROL DIVISION**

late summer and fall of 1968. The survey reveals where and how many grasshoppers infest the spring, determine population densities, and indicate those areas where control may be

stance from Division and State personnel. The infested rangeland areas total 9,362,562 acres. Stations may be solid or spotted.

**NS – ACREAGE BY REGIONS, FALL 1968**

(FIGURES IN RED)

REGION AND STATE	LANDOWNERSHIP – ACRES		TOTAL
	Private and State	Public Domain	
New Mexico	1,431,180	78,000	1,509,180
Oregon	23,400	1,200	24,600
Utah	107,050	17,100	124,150
Washington	16,000	4,000	20,000
Wyoming	927,720	236,580	1,164,300
SOUTHERN			
Oklahoma	687,000	---	687,000
Texas	4,093,860	---	4,093,860

Service, in cooperation with various State agencies concerned.

## INSECT DETECTION

### New State Records

A STINK BUG (Banasa euchlora) - MISSOURI - Moving into a Camden County residence for overwintering. Collected by W.S. Craig and R.E. Munson December 31, 1968. Determined by W.S. Craig. (Munson).

GREENBUG (Schizaphis graminum) - NEVADA - One alate on corn at Pahrump, Nye County. Collected by R. Yamashita and D.F. Zoller June 14, 1968. Identified by R.C. Bechtel; confirmed by T. Kono. (p. 19).

A MEALYBUG (Heterococcus pulverarius) - NEVADA - On timothy at Smith, Lyon County. Collected by F.C. Batchelder June 20, 1968. Determined by R.F. Wilkey. (p. 19).

A NOCTUID MOTH (Heliothis paradoxa) - NEVADA - Larvae on Bermuda grass at Overton, Clark County. Collected by R.P. Johnson May 27, 1968. Determined by G.T. Okumura. (p. 19).

A FLEA (Chaetopsylla lotoris) - VIRGINIA - Female collected on gray fox in Amherst County November 28, 1968. Determined by J.G. Humphreys. (p. 21).

### New County Records

GREENBUG (Schizaphis graminum) - NEVADA - Clark County. (p. 19).

A WEEVIL (Hypera compta) - MISSOURI - Andrew, Carroll, and Randolph Counties. (p. 21).

A WEEVIL (Hypera eximius) - MISSOURI - Andrew and Chariton Counties. (p. 21).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Cherokee and Trinity Counties. (p. 22).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 12/27-1/2, BL - Armyworm (Pseudaletia unipuncta) 3, black cutworm (Agrotis ipsilon) 7, granulate cutworm (Feltia subterranea) 8, yellow-striped armyworm (Prodenia ornithogalli) 3.

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Weather of the week continued from page 18.

TEMPERATURE: Frigid arctic air gripped much of the Nation during the past week. Subzero cold invaded the Cascades in Oregon and Washington on Wednesday, across the northern Rockies and northern Great Plains to the Great Lakes on several days, as far south as the Ozark Mountains in Missouri on the 4th and in the southern Appalachians on the 5th. Moscow, Idaho, airport registered 50° below zero on December 30, this being the coldest temperature ever recorded in Idaho in December. Oregon reported the coldest weather in 40 years on December 30 and 31. Subzero temperatures were recorded in more than 30 States and most of those States averaged 12° to 21° below normal. Two warmer-than-normal areas were noted. A warming trend in Nevada produced above-normal average temperatures and Chinooks on the eastern slope of the central Rockies on January 1 warmed the nearby plains to the high 50's and low 60's. (Summary supplied by Environmental Data Service, ESSA.)

UNITED STATES DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL RESEARCH SERVICE  
 PLANT PEST CONTROL DIVISION

**TO COOPERATORS:**

This map is based upon the results of cooperative grasshopper adult surveys made during the late summer and fall of 1968. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1969. Nymphal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1969.

Control on grasshopper infested croplands will be handled by the farmers with technical assistance from Division and State personnel. The infested rangeland areas total 9,362,562 acres in 15 Western and Midwestern States. Areas on the map are diagrammatic. Within these areas, infestations may be solid or spotted.

**RANGELAND GRASSHOPPER INFESTATIONS — ACREAGE BY REGIONS, FALL 1968**

(AREAS SHOWN IN RED)

REGION AND STATE	LANDOWNERSHIP — ACRES		TOTAL ACRES	REGION AND STATE	LANDOWNERSHIP — ACRES		TOTAL
	Private and State	Public Domain			Private and State	Public Domain	
CENTRAL							
Kansas	10,000	---	10,000	New Mexico	1,431,180	78,000	1,509,180
Nebraska	10,000	---	10,000	Oregon	23,400	1,200	24,600
				Utah	107,050	17,100	124,150
				Washington	16,000	4,000	20,000
				Wyoming	927,720	236,580	1,164,300
WESTERN				SOUTHERN			
Arizona	5,000	17,500	22,500	Oklahoma	687,000	---	687,000
California	216,070	16,367	232,437	Texas	4,093,860	---	4,093,860
Colorado	162,000	20,000	182,000				
Idaho	34,500	88,000	122,500				
Montana	563,400	465,300	1,028,700				
Nevada	62,225	69,110	131,335				

The survey was planned and performed by the Plant Pest Control Division, Agricultural Research Service, in cooperation with various State agencies concerned.





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Revised January 10, 1969

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VOL. 19 No. 3

January 17, 1969

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
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Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

GREENBUG threatening in several areas of New Mexico and Texas. (p. 31).

An ARMORED SCALE at highest level in 18 years on Florida citrus; increase expected. (p. 32).

Damage of a PHYCITID MOTH heavy on magnolias in Conecuh County, Alabama. (p. 32).

CATTLE GRUBS problem at packing plants in southwestern Kansas and in cattle in southwestern Oklahoma. (p. 33).

#### Detection

New State records include RED-CLOVER SEED WEEVIL in Missouri (p. 31) and a PLATYPEZID FLY in South Carolina (p. 33).

For new county record see page 34.

#### Special Reports

Techniques to Determine Losses. Selected References 1967-1968. Part III. (pp. 35-37).

Distribution of Clover Seed Weevil (map). (p. 38).

Reports in this issue are for week ending January 10 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JANUARY 13

**HIGHLIGHTS:** Last week was snowy and blustery over the North, warm in the West, cold in the East, and dry in the Southwest and south-central areas.

**PRECIPITATION:** Daily rains continued along the Washington and Oregon coasts with heavy snow in the Cascades, northern Sierras, and eastward to the northern Rocky Mountains. Precipitation totals ranged from 6 to 10 inches along the coast and on the western slope of the Cascades. Ten to 25 inches of snow fell in the Cascades on some days and by the end of the week had accumulated to 130 inches at 3,000 feet and to 200 inches at 5,500 feet. These depths are near, and in some instances exceed, the greatest depths of record for this time of year. Heavy snow fell in the Great Lakes region and in the Northeast. The snow drifted badly during the blizzard on Wednesday and Thursday closing most rural roads and schools in about 200 localities in Minnesota. Snow depths in Wisconsin ranged from about 10 inches in the south to 50 inches in the north. Upper Michigan also lay under about 50 inches of snow. Snow also clogged rural roads in Indiana. Many schools closed because of glazed roads. Snow fell almost daily in New York totaling 7 to 15 inches in the lee of Lake Erie on the 7th and 8th and parts of northern New England received a foot or more of snow during the week. Sleet, freezing rain or freezing drizzle iced roads, highways, airport runways, and sidewalks. Even walking became dangerous. Light rains fell about midweek in the Southeast. Wide areas from southern California to the Mississippi River received no rain or only light sprinkles during the week.

**TEMPERATURE:** Most of the area from the Cascades and Sierras to the Continental Divide in the north and the western Great Plains in the central and south averaged above normal. The Missouri and Mississippi Valleys and eastward to the Atlantic Ocean averaged much colder than normal due to blustery northerly winds most of the week. Southerly winds brought warm air to Texas on Wednesday but a norther on Thursday dropped the temperature abruptly -- in some places more than 50 degrees from Wednesday afternoon to Thursday morning. In parts of the East, this was the third very cold week. (Summary supplied by Environmental Data Service ESSA.)

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Alates light in most barley in the Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - As high as 100+ per foot on barley near Roswell, Chaves County. (Mathews). TEXAS - Very light on wheat in panhandle area near Hereford, Deaf Smith County. Damage light in Archer, Cottle, King, Foard, and Wilbarger Counties; moderate in Stonewall, Hall, and Knox Counties; and heavy in Dickens and Motley Counties. (Holt, Boring). Survey conducted on wheat January 7-9 in 15 panhandle counties. Maximum counts per row foot: 1,000-1,500 in Briscoe, Hall, and Motley; 100-200 in Floyd, Hale, Deaf Smith, Swisher, and Castro; 10-40 in Potter, Hutchinson, Hansford, Moore, Oldham, Randall, and Parmer. Wheat generally good. Above counts in nongrazed fields. Counts, 10 or less per row foot in grazed fields. Under control in Briscoe, Hall, and Motley Counties. (Daniels). OKLAHOMA - Continues very light to absent in Texas County. (Okla. Coop. Sur.). KANSAS - None on wheat in Finney, Gray, Ford, Edwards, and Stafford Counties. (Simpson). ARKANSAS - Survey negative on farm at Fayetteville, Washington County. (Boyer).

### FORAGE LEGUMES

RED-CLOVER SEED WEEVIL (Tychius stephensi) - MISSOURI - Adults swept from red clover at Weldon Springs, St. Charles County. Collected by R.E. Munson and L.R. Hanning August 8, 1967. Determined by R.E. Warner. This is a new State record. (Munson).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Averaged 900 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). ARKANSAS - Very low in northwest area. Up to 2 per square foot on vetch in farm at Fayetteville, Washington County. (Boyer).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Up to 50 per 100 sweeps on alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - As many as 80 adults per 100 sweeps on alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Continues moderate on alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

### GENERAL VEGETABLES

APHIDS - ARIZONA - Acyrtosiphon scariolae light near lettuce stems under wrapper leaves at Yuma, Yuma County; lettuce fields there being treated for Myzus persicae (green peach aphid). M. persicae heavy on mature carrots north of Glendale, Maricopa County. (Ariz. Coop. Sur.).

### DECIDUOUS FRUITS AND NUTS

ARMORED SCALES - ALABAMA - Three commercial peach orchards of about 35 acres inspected in Geneva County. No Aspidiotus perniciosus (San Jose scale) found; intensive care and protection effective. Many signs of Pseudaulacaspis pentagona (white peach scale) damage in one orchard; infestation light but constantly threatening in this 11-acre orchard. P. pentagona infestation and damage increased in poorly kept and poorly protected trees and orchards in this area. (Bagby et al.).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Overwintering larvae of this and Synanthedon pictipes (lesser peach tree borer) light in 3 commercial peach orchards in Geneva County. Constant control efforts kept infestation manageable. More serious infestation of S. exitiosa observed at and below ground line in orchard of one and 2-year-old trees. (Bagby et al.).

## CITRUS

Citrus Insect Situation in Florida - End of December - CITRUS RUST MITE (Phyllocoptura oleivora) infested 56 (norm 62) percent of groves; 43 (norm 44) percent economic. Population dropped to moderate range and is slightly below average for yearend. Further decrease expected. Infestation on leaves similar to that on fruit. Highest districts south, west, and east. Will be heavy in 20 percent of groves if not treated promptly. TEXAS CITRUS MITE (Eutetranychus banksi) infested 26 (norm 40) percent of groves; 8 (norm 14) percent economic. Below normal and in low range. Slight increase expected but very few groves will have important infestations. Highest districts central and east. CITRUS RED MITE (Panonychus citri) infested 25 (norm 36) percent of groves; 3 (norm 14) percent economic. In low range and at lowest December level in 18 years of record. Slight increase expected. Highest districts west and east. GLOVER SCALE (Lepidosaphes gloverii) infested 51 (norm 73) percent of groves; 2 (norm 14) percent economic. Below normal and in low range with little change expected. Highest district west. PURPLE SCALE (L. beckii) infested 49 (norm 72) percent of groves; less than 1 (norm 7) percent economic. At lowest December level in 18 years of record. CHAFF SCALE (Parlatoria pergandii) infested 42 (norm 54) percent of groves; less than 1 (norm 7) percent economic. Will remain much below normal. YELLOW SCALE (Aonidiella citrina) infested 53 (norm 64) percent of groves; 2 (norm 13) percent economic. Lowest for December since 1964; most infestations very light. Slight increase expected. Districts uniformly infested, the highest being west. BLACK SCALE (Saissetia oleae) infested 36 (norm 36) percent of groves; 11 (norm 16) percent economic. Population near average, low and spotty with little change expected. Highest districts east and central. An ARMORED SCALE (Unaspis citri) infested 15 percent of groves; moderate or heavy in 7 percent. At highest level in 18 years of record. Increase expected. Infestations very spotty. WHITEFLIES infested 51 percent of groves; 12 percent moderate to heavy. In low range and slightly below normal. Little change expected. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

## FOREST AND SHADE TREES

A CONIFER APHID (Cinara occidentalis) - OREGON - Found December 18 infesting block of grand fir in Christmas tree planting at West Salem, Polk County. Identified by T. Kono. (Larson, Westcott).

PHYCITID MOTHS (Euzophera spp.) - ALABAMA - E. magnolialis larval damage heavy on southern magnolia trees in 40-acre magnolia tree farm at Evergreen, Conecuh County. Determined by D.M. Weisman. (Huggins et al.). MARYLAND - E. ostri-colorella lightly infested yellow-poplar near Wheaton, Montgomery County. Found by C.W. McComb May 12, 1967. Determined by D.M. Weisman. (U. Md., Ent. Dept.).

AN ERIOPHYID MITE (Aceria nyssae) - MARYLAND - Light populations rolled leaf edges on sweetgum planting near Lexington Park, St. Marys County, September 2. (U. Md., Ent. Dept.).

#### MAN AND ANIMALS

CATTLE GRUBS (*Hypoderma* spp.) - KANSAS - Problem continues at packing plants in southwest area. Infested up to 50 percent of animals slaughtered. (Simpson). OKLAHOMA - *H. lineatum* (common cattle grub) heavy in Cotton County cattle. Seven grubs in milk cow checked in Payne County. (Okla. Coop. Sur.).

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 2 cases reported in U.S. January 5-11 as follows: TEXAS - Medina 2. Total of 127 cases reported in portion of Barrier Zone in Republic of Mexico December 30, 1968, to January 3, 1969, as follows: Baja California 2, Territorio sur de Baja California 34, Sonora 51, Chihuahua 2, Coahuila 9, Nuevo Leon 13, Tamaulipas 16. Total of 13 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 26,368,000; Mexico 40,400,000. (Anim. Health Div.).

A PLATYPEZID FLY (*Microsania imperfecta*) - SOUTH CAROLINA - In smoke from sawmill at West Union, Oconee County. Collected by T.R. Adkins October 4, 1968. Determined by W.W. Wirth. Annoyance similar to gnats. Mostly males in smoke. This is a new State record. (Nettles).

HARD-BACKED TICKS - TEXAS - *Dermacentor* sp. widespread and heavy on cattle and horses in Mason County; most ranchers spraying or dusting. (Garrett). OKLAHOMA - *D. albipictus* (winter tick) and *Ixodes scapularis* (black-legged tick) light on cattle and deer checked in Cherokee County. (Okla. Coop. Sur.).

CATTLE LICE - MISSISSIPPI - Light on herd of about 50 dairy cows in Oktibbeha County. (Dinkins, Jan. 3). OKLAHOMA - Mostly *Haematopinus eurysternus* (short-nosed cattle louse) ranged moderate to heavy on dairy and beef cattle in Texas County and on Washita County beef cattle. Moderate on Cherokee County beef cattle. (Okla. Coop. Sur.). IOWA - *H. eurysternus* occasionally on 34 head of cattle checked for external parasites in Polk County. (Iowa Ins. Sur.).

#### STORED PRODUCTS

POTATO TUBERWORM (*Phthorimaea operculella*) - MICHIGAN - Winter problem in stored potatoes in Monroe and Bay Counties. Much of infested table stock sold. Presents problem of possible field infestation from seed stock in Bay County. (Janes).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - TEXAS - Light in pasture at Center, Shelby County. Collected by H.J. Henderson December 30, 1968. Determined by D.R. Smith. This is a new county record. (PPC).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Thirteen larvae from 101 cotton bales on lint cleaners of 7 southwest area gins. (Hare). Viability of larvae in cotton trash and stalks in soil ranged 35-50 percent in southern Eddy County. (Campbell, Mathews).

HAWAII INSECT REPORT

Turf - A BILLBUG (*Sphenophorus venatus vestitus*) heavy, averaged 16 adults per square foot; damage moderate to heavy on Tifgreen lawns at Hilo, Hawaii Island. (Yoshioka).

Fruits and Nuts - COCONUT SCALE (*Aspidiotus destructor*) increasing on coconut at Koko Head, Oahu. Infested more trees; yellowed leaves conspicuous. (Nakao). CLOUDY-WINGED WHITEFLY (*Dialeurodes citrifolii*) and GREEN SCALE (*Coccus viridis*) heavy on citrus trees, unsightly buildup of sooty mold at Hilo and Puna areas on Hawaii Island. Over 100 whiteflies per leaf at Hilo. (Yoshioka). RED-BANDED THRIPS (*Selenothrips rubrocinctus*) heavy, damage moderate to young foliage of many backyard mango trees at Paia, Maui. (Miyahira).

Ornamentals - WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) light to medium on commercial rose and chrysanthemum blossoms at Koko Head, Oahu. Petal injury evident on chrysanthemum. Nymphs and adults of a LEAFHOPPER (*Protalebrella brasiliensis*) moderate to heavy on wedelia in scattered areas of Oahu. Counts per 10 sweeps: 350 at Waianae, 400 at Kaneohe, 100 at Koko Head, 250 in airport area of Honolulu. (Funasaki).

Shade Trees - BARNACLE SCALE (*Ceroplastes cirripediformis*) reappearing on fiddlewood trees along Lunalilo Home Road at Koko Head, Oahu; infestations light and confined to young branches. (Nakao).

Man and Animals - MOSQUITOES - Collected 2,037 *Aedes vexans nocturnus* and 13,649 *Culex pipiens quinquefasciatus* in 52 light traps on Oahu in December. *Aedes* catches highest at Kailua. *Culex* high at Waianae, Nanakuli, Kaneohe, and Kailua. (Mosq. Cont. Br., Dept. of Health).

Miscellaneous Insects - TOBACCO BUDWORM (*Heliothis virescens*) larvae moderate; feeding on foliage of tagua passionflower (*Passiflora foetida*) on Sand Island, Oahu. (Funasaki).

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**INSECT DETECTION**

New State Records

RED-CLOVER SEED WEEVIL (*Tychius stephensi*) - MISSOURI - On red clover at Weldon Springs, St. Charles County. Collected by R.E. Munson and L.R. Hanning August 8, 1967. Determined by R.E. Warner. (p. 31).

A PLATYZEID FLY (*Microsania imperfecta*) - SOUTH CAROLINA - In smoke from sawmill at West Union, Oconee County. Collected by T.R. Adkins October 4, 1968. Determined by W.W. Wirth. (p. 33).

New County Record

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - TEXAS - Shelby County. (p. 33).

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**LIGHT TRAP COLLECTIONS**

FLORIDA - Gainesville - 1/3-9, BL - Black cutworm (*Agrotis ipsilon*) 1, granulate cutworm (*Feltia subterranea*) 2, yellow-striped armyworm (*Prodenia ornithogalli*) 1. TEXAS - Brownsville - 1/4-10, 2BL, 33-81°F., precip. 0.01 - Armyworm (*Pseudaletia unipuncta*) 2, black cutworm 2, variegated cutworm (*Peridroma saucia*) 3, yellow-striped armyworm 5.



## TECHNIQUES TO DETERMINE LOSSES

Selected References 1967-1968\*

### Part III

Additional copies of Parts I through III of this bibliography are available from Survey and Detection Operations.

#### References

- AGRICULTURAL RESEARCH SERVICE, PLANT PEST CONTROL DIVISION. 1967. Estimated losses and production costs attributed to insects and related arthropods - 1966. U.S. Coop. Econ. Ins. Rpt. 17(45):991-1007.  
Infesting crops in the United States (including Hawaii)
- BARTON, G. T. and DUROST, D. D. 1967. Problems in expressing crop losses. FAO Symposium on Crop Losses. Oct. 2-6. pp. 265-272.
- BATZER, H. O. 1968. Hibernation site and dispersal of spruce budworm larvae as related to damage of sapling balsam fir. J. Econ. Ent. 61(1):216-220.
- BECCARI, F. 1967. Types of losses caused by insects. FAO Symposium on Crop Losses. Oct. 2-6. pp. 159-180.
- CONE, W. W. 1968. Black vine weevil larval damage to concord grape roots at different population densities. J. Econ. Ent. 61(5):1220-1224.
- CRAMER, H. H. 1967. Economic aspects of crop losses caused by insects. FAO Symposium on Crop Losses. Oct. 2-6. pp. 99-106.
- DICKASON, E. A., LEACH, C. M. and GROSS, A. E. 1968. Clover root curculio injury and vascular decay of alfalfa roots. J. Econ. Ent. 61(5):1163-1168.
- EDEN, W. G. 1967. Insect damage to corn in three Southeastern States at time of harvest and in farm storage. USDA Marketing Res. Rpt. 792, 9 pp.  
Georgia, Alabama and Mississippi
- FOOD AND AGRICULTURE ORGANIZATION. 1967. Report of the FAO symposium on crop losses held in Rome, Italy, 2-6 October 1967. Rpt. No. PL:1967/M/6, 35 pp., Rome  
Including those caused by insects
- FURR, R. E. and PFRIMMER, T. R. 1968. Effects of early-, mid-, and late-season infestations of two-spotted spider mites on the yield of cotton. J. Econ. Ent. 61(5):1446-1447.
- GALLUN, R. L., EVERLY, R. T. and YAMAZAKI, W. T. 1967. Yield and milling quality of monon wheat damaged by feeding of cereal leaf beetle. J. Econ. Ent. 60(2):356-359.
- JACOBSON, L. A. 1967. Damage by larvae of the pale western cutworm to winter wheat after heading. J. Econ. Ent. 60(5):1318-1320.
- JUDENKO, E. 1967. Methods for field trials to assess the loss of yield of crops attacked by pests. FAO Symposium on Crop Losses. Oct. 2-6. pp. 75-78.

---

\* Additional citations for 1961-1963, 1965-1966 are included at the end of this list.

- KINZER, H. G. and HENDERSON, C. F. 1968. Damage by larvae of the corn earworm to grain sorghum. *J. Econ. Ent.* 61(1):263-267.
- KINZER, H. G. and HENDERSON, C. F. 1967. Effect of sorghum webworm on yield of grain sorghum in Oklahoma. *J. Econ. Ent.* 60(1):118-121.
- LECLERG, E. L. 1967. Proposal for an international program for estimating crop-pest losses in the field. *FAO Symposium on Crop Losses*. Oct. 2-6. pp. 327-330.
- LEUCK, D. B. 1967. Lesser cornstalk borer damage to peanut plants. *J. Econ. Ent.* 60(6):1549-1551.
- MEYER, M. P. and WOOLFOLK, E. J. 1967. Anthill infestations; an airphoto mensurational technique for assessing forage losses on grazing lands due to ant activity. *Photogrammetric Engin.* 33(11):1247-1249.
- ORDISH, G. 1967. Some problems in the evaluation of crop losses caused by pests. *FAO Symposium on Crop Losses*. Oct. 2-6. pp. 251-264.
- RADEMACHER, B. 1967. Investigations on the actual loss of yield from the infestation of winter wheat and summer barley by the two cereal leaf beetles (L. cyanella and L. melanopus) and by the wheat stem sawfly (C. pygmaeus). *Z. Pflkrankh. Pflpath. Pflschutz* 74(5):311-316. In Ger., Engl. Sum.
- READSHAW, J. L. 1968. Damage to swedes by the swede midge, Contarinia nasturtii (Kieff.), and a possible method of cultural control. *Bul. Ent. Res.* 58(1):25-29.
- REYNOLDS, H. T., DICKSON, R. C., HANNIBAL, R. M. and LAIRD, E. F., JR. 1967. Effects of the green peach aphid, southern garden leafhopper, and carmine spider mite populations upon yield of sugar beets in the Imperial Valley, California. *J. Econ. Ent.* 60(1):1-7.
- SEINHORST, J. W. 1967. Review of methods for measuring damage caused by nematodes. *FAO Symposium on Crop Losses*. Oct. 2-6. pp. 311-312.
- SMITH, R. F. 1967. Principles of measurement of crop losses caused by insects. *FAO Symposium on Crop Losses*. Oct. 2-6. pp. 205-224.
- SMITH, R. H. and KOWAL, R. J. 1968. Attack of the black turpentine beetle on roots of slash pine. *J. Econ. Ent.* 61(5):1430-1432.
- STRICKLAND, A. H. and BARDNER, R. 1967. A review of current methods applicable to measuring crop losses due to insects. *FAO Symposium on Crop Losses*. Oct. 2-6. pp. 289-309.
- USUA, E. J. 1968. Effect of varying populations of Busseola fusca larvae on the growth and yield of maize. *J. Econ. Ent.* 61(2):375-376.
- WOLFENBARGER, D. A. 1967. Seasonal abundance and damage estimates of cabbage looper larvae and two aphid species. *J. Econ. Ent.* 60(1):277-279.
- ZANGHERI, S. and MASUTTI, L. 1967. Effects of treatments against Ostrinia nubilalis on the yield of two maize hybrids. *Giornate Fitopat.* 1967. pp. 345-352. In Ital., Engl. Sum.

\*\*\*\*\*

ADDITIONAL REFERENCES 1961-1963, 1965-1966

ADKISSON, P. L., HANNA, R. L. and BAILEY, C. F. 1962. Cotton yield and quality losses resulting from various size populations of bollworms. Tex. Agr. Expt. Sta. Prog. Rpt. 2235, 5 pp.

GOULD, H. J., LEGOWSKI, T. J. and ATKINS, E. C. 1962. Surveys of pea moth damage on dry harvesting peas in East Anglia, 1957-1959. Plant Path. 11(1):1-6.

JUDENKO, E. 1961. Assessment of crop loss due to a pest. Tea Quarterly 32(4): 224.

JUDENKO, E. 1965. Some methods of assessing crop loss caused by pests. Internat'l. Cong. Ent. Trans. 12:614-615.

JUDENKO, E. 1965. The assessment of economic effectiveness of pest control in field experiments (with supplementary notes). Pest Art. and News Sum. Sect. A 11(3):359-368.

NARANJO H., N. and CAMACHO M., L. H. 1955. Evaluation of damage caused by *Diatraea saccharalis* Fab. to the sugar industry of the Rio Cauca Valley. Agr. Trop. 21(12):859-871. In Sp.  
Sugarcane pest

OKIGBO, B. N. 1963. An evaluation of losses caused by Hessian fly in a wheat fertilizer experiment. Agron. J. 55(2):117-119.

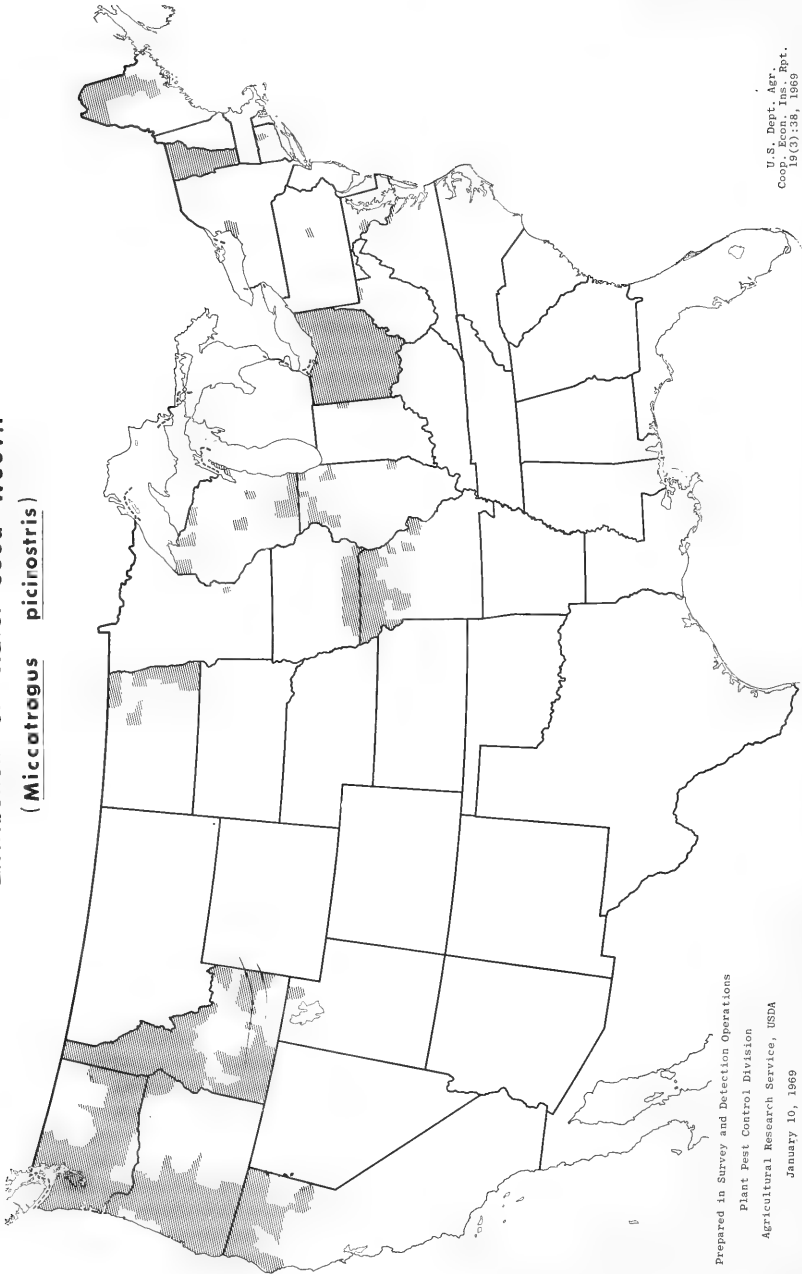
PRASAD, S. K. 1963. Quantitative estimation of damage to crucifers caused by cabbageworm, cabbage looper, diamondback moth and cabbage aphid. Indian J. Ent. 25(3):242-259.

SCHUTTE, F. 1966. A simple method for determining the damage of the cabbage gall midge (*Dasyneura brassicae* Winn.) and estimating the rape harvest. Anz. Schadlingskunde 39(11):167-171. In Ger., Engl. Sum.

TESCIC, T. 1963. Detection of frit fly eggs in oat panicles and larval damage to grain. Plant Path. 12(1):40-43.

WILSON, L. F. 1966. Life history, habits, and damage of the boxelder leaf gall midge, *Contarinia negundifolia* Felt (Diptera: Cecidomyiidae) in Michigan. Canad. Ent. 98(7):777-784.

**Distribution of Clover Seed Weevil**  
**(Micratrogus picinostris)**



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Plant Pest Control Division  
Agricultural Research Service, USDA  
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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

CALIFORNIA FIVE-SPINED IPS increasing in Mariposa County, California. (p. 43).

PINE NEEDLE SCALE widespread on ponderosa pines in an area of Klamath National Forest in California. (p. 43).

SHORT-NOSED CATTLE LOUSE heavy in Oklahoma. (p. 44).

NORTHERN FOWL MITE increasing in northwestern Arkansas. (p. 44).

#### Detection

New State records include an APHID in Utah (p. 41) and a WEEVIL in Maryland (p. 45).

For new county records see page 45.

#### Special Reports

EUROPEAN CORN BORER generally more abundant in those States reporting in 1968. Substantial increases occurred in 4 North Central States. Overwintering populations in Illinois highest for past 18 years except for 1955 and heaviest in Indiana since 1957. (p. 47).

Distribution of Alfalfa Plant Bug (map). (p. 54).

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Reports in this issue are for week ending January 17 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK  
MID-JANUARY TO MID-FEBRUARY

The Weather Bureau's 30-day outlook calls for temperatures to average colder than normal everywhere east of the Rockies except southern Florida and most of the Northeast, where near normal temperatures are expected. The Great Basin and the southern Plateau should have above normal temperatures, but California's interior valley, below normal. Elsewhere in the West, near normal temperatures are indicated. The Midwest and the Missouri Valley should receive more precipitation than normal, predominantly in the form of snow. The Great Basin, Texas, and the Southeast should be drier than normal. Elsewhere, 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 Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price \$5.00 a year.

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WEATHER OF THE WEEK ENDING JANUARY 20

**HIGHLIGHTS:** Stormy weather prevailed over the West. Central and northeastern areas were mostly mild and murky. This type of weather came to the Southeast over the weekend.

**PRECIPITATION:** A storm off the Pacific coast brought inclement weather to much of the Western United States. Strong winds and driving rains soaked coastal areas while heavy snow fell in the Cascades, northern Sierras, and eastward to the Rocky Mountains. Snow depths now approach 20 feet in the Cascades above 5,500 feet. Most of the West, even the deserts, received generous precipitation during the week. Precipitation totals over the West ranged from over 2 inches along the Pacific coast to about an inch along the Continental Divide except less than 0.3 inch over portions of the Great Basin. Only light rain fell along the eastern slopes of the Rockies and the western edge of the Great Plains. Weekly totals here were generally less than 0.3 inch and some areas received no rain. Most areas from the eastern Great Plains to the Atlantic received significant precipitation. Rain, freezing rain, sleet, or snow or a mixture of precipitation forms occurred from the eastern Dakotas to New York and southward as far as central Indiana slicking roads and highways and causing some damage to trees. Rain in the Southeast came late in the week or over the weekend. Totals over most of the Mississippi and lower Ohio River Valleys ranged from 1 to more than 2 inches. Fog covered much of the East over the weekend.

Weather continued on page 46.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG** (*Schizaphis graminum*) - NEW MEXICO - Increasing on barley at Roswell, Chaves County; 100+ per linear foot in several fields. (Mathews). Increased damage apparent on irrigated wheat in Curry County. (Campbell). TEXAS - Wheat surveyed January 13-15 in 13 panhandle counties. Maximum number per row foot in nongrazed fields by county: Donley 100; Carson 50; Armstrong and Collingsworth 30; Gray, Lipscomb, and Wheeler 10; Sherman, Dallam, Hartley, Roberts, Ochiltree, and Hemphill 5. Numbers decreased past 8 weeks in northern panhandle area. Wheat generally good. (Daniels). Some damaged wheat in Haskell, Foard, Cottle, King, and Stonewall Counties in Rolling Plains. Greenbug reported from Hall, Dickens, Motley, Wilbarger, and Wichita Counties. Not generally heavy on wheat in area, but greenbug plus dry weather causing some die out. (Boring). Up to 111 per row foot during survey of small grains in Denton County January 8. Counts 100+ per linear foot in one field; less than 10 per row foot in 6 of 10 fields examined. Grazed fields generally less infested than nongrazed fields. (Turney). OKLAHOMA - Absent in most fields but ranged 5-20 per foot in occasional fields in Haskell, Muskogee, Sequoyah, and Oklahoma Counties. Averaged 10 per foot in Kiowa County field and 1 per 5 feet in Logan County. Very light to absent in Caddo County. (Okla. Coop. Sur.). KANSAS - Negative on wheat examined in 3 northeast, 5 east-central, and 5 southeast counties. (Simpson).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - ARIZONA - Up to 1,800 per 100 sweeps at Yuma, Yuma County. (Ariz. Coop. Sur.). KANSAS - Negative in southeast district on established and seedling alfalfa. (Simpson). MISSISSIPPI - Very light on Oktibbeha County alfalfa. (Dinkins, Jan. 10).

## CORN, SORGHUM, SUGARCANE

**SOUTHWESTERN CORN BORER** (*Diatraea grandiosella*) - OKLAHOMA - Live larvae in half of cornstalks in one McIntosh County field and in 30 percent of 2 fields in Muskogee and Pittsburg Counties. (Okla. Coop. Sur.).

**A BILLBUG** (*Sphenophorus venatus vestitus*) - FLORIDA - Larvae severe January 2 in stems and soil around 10 sugarcane plants at Apopka, Orange County. Larvae taken January 8 from roots of all 5 sugarcane plants inspected at Apopka. (Holley et al.). Mostly larvae moderate to severe January 8 in stems, roots, and soil of all 10 clumps of sugarcane inspected at Groveland, Lake County. (Henderson).

## TURF, PASTURES, RANGELAND

**AN APHID** (*Capitophorus patonkus*) - UTAH - Collected (probably on *Achillea*) at Cedar Breaks National Monument at 10,000 feet elevation in Iron County July 15, 1963, and at Duck Creek Camp, Kane County, July 14, 1963, by G.F. Knowlton. Identified by D. Hille Ris Lambers. This is a new State record. (Knowlton, Jan. 14).

**AN ARMORED SCALE** (*Diaspis dignus*) - FLORIDA - Taken on button-snakeroot (*Eryngium yuccifolium*) at Samsula, Volusia County, for a new Florida Department of Plant Industry host record. (Desin, Aug. 9).

**BERMUDAGRASS MITE** (*Aceria neocynodonis*) - CALIFORNIA - Medium on Bermuda grass at Anderson, Shasta County. This is a new county record. (Cal. Coop. Rpt., Jan. 10).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - One adult and no larvae per square foot in Oktibbeha County field. (Dinkins, Jan. 10). MISSOURI - Average number of egg punctures per square foot by county: St. Charles 5.7, New Madrid 4.7, Cape Girardeau 3.4, Ste. Genevieve 2.6, Howell 1.3, and in Ralls, Osage, Maries, Laclède, and Lawrence - 0.3 and less. The first 3 counties averaged over 9 eggs per puncture. Percent viability of eggs ranged 57-100 (averaged 95) percent. (Munson).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Averaged 5 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

RED-CLOVER SEED WEEVIL (Tychius stephensi) - MISSOURI - Collected on red clover at Valley Park in St. Louis County July 13, 1967, by R.E. Munson and L.R. Hanning. This is a new county record. (Munson).

## DECIDUOUS FRUITS AND NUTS

EUROPEAN RED MITE (Panonychus ulmi) - CALIFORNIA - General infestation medium on cherry trees at San Jose, Santa Clara County. (Cal. Coop. Rpt., Jan. 10).

## CITRUS

Quarterly Citrus Insect and Mite Outlook in Florida - January through March - This outlook is based on the assumption that weather beyond the period of the current U.S. Weather Bureau 30-day Outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Insect and Disease Summary" usually released twice each month by this station.

CITRUS RUST MITE (Phyllocoptruta oleivora) expected to remain moderate with slight decrease through February and increase in March. Will be heavy in about 20 percent of groves. TEXAS CITRUS MITE (Eutetranychus banksi) will increase gradually but expected to be moderate. Will be heavy in about 8 percent of groves in scattered locations. CITRUS RED MITE (Panonychus citri) will gradually increase but expected to remain in low range. Predicted heavy for about 5 percent of groves in scattered locations. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) will appear on inside leaves in few groves. Expected to be important in less than 2 percent of groves. GLOVER SCALE (Lepidosaphes gloverii) will change very little. Expected to be lower than in recent years and remain at low to moderate level. PURPLE SCALE (L. beckii) and CHAFF SCALE (Parlatoria pergandii) will remain very low. YELLOW SCALE (Aonidiella citrina) expected to increase slightly but remain in low range. BLACK SCALE (Saissetia oleae) will remain low and unimportant through March. An ARMORED SCALE (Unaspis citri) will occur in some previously uninfested groves and will spread in those now infested. APHIDS will start to appear late in February and increase rapidly in March with peak expected early in April. (W.A. Simanton).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Heavy on citrus trees and fruit at Porterville, Tulare County. (Cal. Coop. Rpt.).

## ORNAMENTALS

ARMORED SCALES - FLORIDA - All stages of Fiorinia theae (tea scale) severe on all 100 lusterleaf holly plants inspected in nursery at Glen Saint Mary, Baker County. (Collins, Jan. 7). The following were collected in 1968 for new Florida Department of Plant Industry host records. Abgrallaspis cyanophylli on asparagus-fern (Asparagus plumosus) at Stuart, Martin County. (Campbell, Oct. 7). Chrysomphalus dictyospermi (dictyospermum scale) on Cleyera japonica at Williston, Levy County. (Graham, Oct. 29). CALIFORNIA - Diaspis boisduvalii medium week ending January 10 on orchid nursery stock in orchid house at Paso Robles, San Luis Obispo County. D. boisduvalii, Aspidiotus nerii (oleander scale), and Pseudococcus microcirculus (a mealybug) were heavy on cymbidium and cattleya orchids in orchid house at Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

A WALSHIID MOTH (Periploca nigra) - CALIFORNIA - Adults and larvae medium to heavy on juniper nursery stock at San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt., Jan. 10).

SPIDER MITES (Tetranychus spp.) - NEW MEXICO - Moderate on house plants in several greenhouses at Las Cruces area, Dona Ana County. (Elson).

## FOREST AND SHADE TREES

CALIFORNIA FIVE-SPINED IPS (Ips confusus) - CALIFORNIA - About 30 ponderosa and sugar pines in 10-acre area infested at Sweetwater Point, Mariposa County. Thinning operations responsible. Infestation increasing. (Swinford, USFS).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Widespread on ponderosa pines in Tennant Road of Goosenest Ranger District, Klamath National Forest. (Wilcox, USFS). Medium on twigs on spruce trees locally in game reserve at Tulelake, Siskiyou County. Prevalent past several months in many areas in forests. (Cal. Coop. Rpt.).

A BARK APHID (Pineus sp.) - CALIFORNIA - Infesting Coulter pines in a plantation and pine reproduction in Fay Creek Plantation and adjacent area of Cleveland National Forest. About 60 trees in 2-acre area show damage; infestation increasing. (Boozer, Swain, USFS).

A CONIFER APHID (Cinara occidentalis) - CALIFORNIA - Medium on fir nursery stock at Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt., Jan. 10).

ARMORED SCALES - FLORIDA - The following were collected in 1968 for new Florida Department of Plant Industry host records. Pinnaspis strachani on mahogany (Swietenia mahagoni) at Miami, Dade County. (Sloan, Apr. 26). Diaspidotus ancylus (Putnam scale) on Chinese chestnut (Castanea mollissima) at Jay, Santa Rosa County. (Kuitert, May 5). Aonidiella citrina (yellow scale) on Magnolia sp. at St. Cloud, Osceola County (Crews, Oct. 28) and on Burford holly (Ilex cornuta var. burfordii) at Bardin, Putnam County (Graham, Dec. 12).

SOFT SCALES - CALIFORNIA - Mycetococcus ehrhorni heavy on live oaks at Lafayette, Contra Costa County. (Cal. Coop. Rpt.). FLORIDA - Pulvinaria psidii (green shield scale) taken on Australian brush-cherry (Eugenia paniculata) at Taft, Orange County, for a new Florida Department of Plant Industry host record. (Campbell, Oct. 7, 1968).

A MARGARODID SCALE (Neosteingelia texana) - FLORIDA - Taken on hickory (Carya sp.) near Santa Fe River, Columbia County, for a new Florida Department of Plant Industry host record. (Graham, Nov. 3, 1968).

AN APHID (Lachnus salignus) - ARIZONA - Heavy on willows at Tempe area, Maricopa County. (Ariz. Coop. Sur.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 4 cases reported in U.S. January 12-18 as follows: TEXAS - Brooks, Dimmit, Kenedy, Jim Hogg. Total of 91 cases reported in portion of Barrier Zone in Republic of Mexico January 6-11 as follows: Sonora 55, Chihuahua 4, Coahuila 2, Nuevo Leon 18, Tamaulipas 12. Total of 3 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 11,568,000; Mexico 37,400,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Larval average per back by county: Osage 14, Rogers and Muskogee 4, and Cherokee 3. (Okla. Coop. Sur.). ARKANSAS - Lighter than normal. Bumps appearing in backs of cattle about 30 days later than normal. (Boyer, Simco).

CATTLE LICE - ALABAMA - Generally much lighter than usual on cattle statewide. Some increase reported in Bibb and other counties. (McQueen). OKLAHOMA - Mostly Haematopinus eurysternus (short-nosed cattle louse) heavy on cattle in Texas, Ottawa, and Tillman Counties. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Increasing in poultry flocks in northwest area. (Simco).

BLACK-LEGGED TICK (Ixodes scapularis) - OKLAHOMA - Light on cattle and horses checked in Cherokee County. (Okla. Coop. Sur.).

## STORED PRODUCTS

RICE WEEVIL (Sitophilus oryzae) - CALIFORNIA - Adults heavy in seed corn in storage area at Davis, Yolo County. (Cal. Coop. Rpt.).

## BENEFICIAL INSECTS

PTEROMALID WASPS - OKLAHOMA - Euneura lachni reared from Cinara sp. collected on pine in Pushmataha County February 1967. Asaphes lucens from Schizaphis graminum (greenbug) collected on wheat in Tulsa County April 1967 and from Aphis gossypii (melon aphid) in Payne County July 1967. Pachyneuron siphonophorae from melon aphid collected in Payne County July 1967 and from greenbug\* on sorghum in Roger Mills County August 1968. Determined by B.D. Burks. (Okla. Coop. Sur.).

BRACONIDS - OKLAHOMA - Aphidius smithi reared from Acyrtosiphon pisum (pea aphid) collected in Tulsa County April 1967. Lysiphlebus testaceipes from Aphis craccivora (cowpea aphid) collected in Tulsa County April 1967; from melon aphid in Payne County July 1967; from greenbug\* on wheat in Tulsa County April 1967, and on sorghum in Roger Mills County August 1968. Determined by P.M. Marsh. (Okla. Coop. Sur.).

ENCYRTID WASPS - OKLAHOMA - Aphidencyrthus aphidivorus reared from melon aphid collected in Payne County in July 1967. Comperia merceti from oothecae of Supella supelletilium (brown-banded cockroach) collected in home at Perry, Noble County, November 1968. Determined by B.D. Burks. (Okla. Coop. Sur.).

A EULOPHID WASP (Tetrastichus minutus) - OKLAHOMA - Reared from melon aphid collected in Payne County July 1967. Determined by B.D. Burks. (Okla. Coop. Sur.).

\* According to recent taxonomic studies by L.M. Russell. This aphid on sorghum appears to be this species.



## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Male trapped November 26, 1968, in 60-acre grove in Hidalgo County is third specimen of season. (PPC South. Reg., Dec. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Survey at seasonal low. Postharvest gin trash and lint cleaner examinations completed December 6 in Kern County; inspection of 4,412 bushels of gin trash from 26 gins represents sampling of all cotton-producing areas in county; all surveys negative. Operation of 100 sex lure traps continued in Coachella Valley, Riverside County; 20 moths trapped during December, but none since December 13. ARIZONA - Lint cleaner inspections during December 1968 continued to show increased numbers of larvae. NEW MEXICO - Late seasonal surveys of cotton fields and lint cleaners by State and Federal personnel show populations at lowest levels since 1964. Infestations economic in only few fields in Dona Ana and Eddy Counties. Surveys of cotton stalks showed approximately 50 percent of full-grown larvae in cocoons attached to stalks dead. (PPC West. Reg.). Field sampled December 16, 1968, showed 70 percent of larvae in trash above ground alive. Of larvae found in soil, 43 percent alive. Another field sampled January 8, 1969, showed 48 percent of larvae above ground and 37.5 percent of larvae in soil alive. Both fields in southern Dona Ana County. (Adams). TEXAS - Infestation in general at lowest level for past 9 years. OKLAHOMA - Lint cleaner inspections during harvest season positive in 24 counties, negative in 10 counties. (PPC South. Reg., Dec. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - NORTH CAROLINA - Weevils found December 30, 1968, in one lot of sweetpotatoes in warehouse at Tabor City, Columbus County. (PPC South. Reg.).

## INSECT DETECTION

### New State Records

A WEEVIL (Gymnaetron netum) - MARYLAND - On weeds near Clarksville, Howard County. Collected by C.W. McComb July 6, 1967. Determined by R.E. Warner. (U. Md., Ent. Dept.).

AN APHID (Capitophorus patonkus) - UTAH - Collected at Duck Creek Camp in Kane County by G.F. Knowlton July 14, 1963. Determined by D. Hille Ris Lambers. (p. 41).

### New County Records

AN APHID (Capitophorus patonkus) - UTAH - Iron County. (p. 41).

BERMUDAGRASS MITE (Aceria neocynodonis) - CALIFORNIA - Shasta County. (p. 41).

RED-CLOVER SEED WEEVIL (Tychius stephensi) - MISSOURI - St. Louis County. (p. 42).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 1/10-16, BL - Black cutworm (Agrotis ipsilon) 4, granulate cutworm (Feltia subterranea) 3. TEXAS - Brownsville - 1/11-17, 2BL, 42-81 F., trace precip. - Armyworm (Pseudaletia unipuncta) 26, black cutworm 31, cabbage looper (Trichoplusia ni) 1, fall armyworm (Spodoptera frugiperda) 6, granulate cutworm 2, salt-marsh caterpillar (Estigmene acrea) 2, variegated cutworm (Peridroma saucia) 17, yellow-striped armyworm (Prodenia ornithogalli) 11.

HAWAII INSECT REPORT

Turf, Pasture - A GRASS WEBWORM (*Herpetogramma licarsisalis*) apparently subsiding on Kauai as lawns over most of island much improved. Pastures slower to recover and in danger of being overrun by weeds in some areas. Remains light to moderate on Hawaii in pastures and lawns in several areas. Damage moderate to heavy on pastures and lawns in windward northeastern Maui; adults numerous over most of island. Damage light on lawns in many Oahu areas but heavy on some Tiifgreen lawns in windward area. (Sugawa et al.). Adults of a BILLBUG (*Sphenophorus venatus vestitus*) light in pastures at Hana, Maui. (Ah Sam).

General Vegetables - DIAMONDBACK MOTH (*Plutella xylostella*) larvae, pupae, and adults unusually heavy in celery cabbage farm in Volcano area on Hawaii, elevation 4,000 feet. Usually pest of cole crops at low elevations during warm months. (Yoshioka). CHINESE ROSE BEETLE (*Adoretus sinicus*) adult foliar damage moderate to heavy in all edible ginger fields at Pepeekeo and Papaikou, Hawaii Island. (Yoshioka, Kobayashi). BEAN FLY (*Melanagromyza phaseoli*) remains heavy and damaging on backyard snap bean plantings at Pukalani and Kahului, Maui. (Miyahira).

Fruits - COCONUT SCALE (*Aspidiotus destructor*) heavy on foliage of mountain apple at Halawa Heights and on about 25 banana trees (very light on fruits) in farm at Pearl City, Oahu. Not on banana leaves in windward farms. (Nakao, Funasaki).

Beneficial Insects - A MINUTE EGG PARASITE (*Trichogramma semifumatum*) parasitism rate of *Hypena strigata* (lantana defoliator caterpillar) during December: Hawaii - 31.5 percent at Halepiula (North Kona) and 61.5 percent at Hilo; Kauai - *H. strigata* activity low, eggs scarce; Maui - averaged 58.8 percent at Kihei, Kula, and Ulupalakua. (Yoshioka et al.).

Miscellaneous Pests - Large movement of a MILLIPED (*Trigoniulus lumbricinus*) from weed to residential areas annoying in North Kona district on Hawaii Island. (Kobayashi). GIANT AFRICAN SNAIL (*Achatina fulica*) surveillance and bait applications continuing in localized infested areas on Hawaii and Kauai Islands. Live snails picked up: Hawaii - 42 after heavy rains in December and 90 for past 2 weeks at Kahaluu (North Kona); Kauai - few at Wahiawa. Remains moderate to heavy on wild plants at Kahului and Hana, Maui. (Yoshioka et al.). CLUSTER FLY (*Pollenia rudis*) outbreak in December continues to annoy residents at North Kona and North and South Kohala districts, Hawaii Island, at elevations from 2,500 to 6,100 feet. (Yoshioka, Kobayashi).

Weather continued from page 40.

TEMPERATURE: Mild weather continued over most of the intermountain region with much of the Great Basin averaging 10° to 13° warmer than normal. In contrast cold weather has prevailed in western Montana since mid-December and in eastern Montana since about December 1. Much of Montana averaged 9° to 22° colder than normal. Unusual warming occurred over the eastern Great Plains, the Mississippi and Ohio River Valleys, and the Northeast. Portions of that huge area averaged 10° or more warmer than during the previous week. The average weekly temperature at Des Moines, Iowa, was 17° warmer than a week ago. Pennsylvania experienced the mildest weather in four weeks. Subfreezing weather pushed far southward over the Eastern States early in the week reaching the Florida Panhandle and the northern part of the peninsula on Monday and Tuesday mornings. The East warmed in the latter half of the week with maximums reaching the 40's and with minimums remaining above the freezing level as far north as Ohio. Most of the area from Maryland to Florida averaged cooler than normal, however. (Summary supplied by Environmental Data Service, ESSA.)

# Status of the European Corn Borer in 1968<sup>1/</sup>

Introduction: Cooperating agencies in 15 States reported on surveys conducted in their States to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hübner)) in 1968. All survey data, summaries, or records of field observations were submitted to Survey and Detection Operations in Hyattsville, Maryland, for final processing. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after completion.

The 1968 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. In all cases, except for some minor differences in compiling data, the accepted survey methods were followed. The survey was continued on a district basis whenever possible in 1968. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

In 1966, several of the States reduced the number of districts and/or the number of counties within districts. This change was followed during the 1968 survey. These changes were indicated in Tables 1 and 2 as footnotes in CEIR 17(4):46-52, 1967.

New Distribution: European corn borer was reported for the first time from 10 counties during 1968 according to ARS records; however, these counties were found in States already known to be infested. This was 8 more counties than reported the previous year. Two counties were reported in 1967 from North Dakota; 18 in 1966 from North Dakota and South Carolina; 11 in 1965, all in South Carolina; 5 in 3 States in 1964; and 25 new counties in 1963 in 4 States.

The new distribution reported in 1968 was Baldwin County, Alabama; Tift County, Georgia; and Bamberg, Barnwell, Berkeley, Charleston, Chester, Colleton, Dorchester, and Georgetown Counties, South Carolina. The infestation in Baldwin County, Alabama, is about 180 miles farther south than any previously known infestation in that State. In South Carolina, every county is now known to be infested except Beaufort County where no survey was conducted.

Abundance: European corn borer larvae were generally more abundant in 1968, although decreases were reported in Minnesota and South Dakota. Populations increased over 1967 in 9 of the 11 North Central States included in the survey. Substantial increases occurred in all districts in Illinois, Iowa, Missouri, and Ohio. Increases were also noted in most districts in Indiana, Kansas, Nebraska, North Dakota, and Wisconsin. Overwintering populations in Illinois are the highest for the past 18 years except for 1955 when the average count was 282 borers per 100 plants. Infestations are the heaviest in Indiana since 1957 when the survey was first initiated on a statewide basis. Overwintering populations in southwest (District VII) and west-central (District IV) Missouri are the highest on record for these districts. Greatest increases in Nebraska were in the southeastern counties. Populations were above 100 borers per 100 plants in 36 of the 74 districts surveyed in the 11 North Central States. Average counts of more than 200 borers per 100 plants were recorded in 11 of these districts. The highest population, 335 borers per 100 plants, was in southwest (District X) Iowa. European corn borer populations increased more than two-fold in Delaware and Maryland. The population in Delaware (444 borers per 100 plants) is the highest since the fall abundance survey was begun in that State in 1936. Infestations were also very high in other crops in Delaware such as sweet peppers and potatoes. European corn borer was heavier in Arkansas than in 1967 but lighter than in 1966.

<sup>1/</sup> Survey data provided by State agricultural agencies. Data compiled and summarized by Survey and Detection Operations, Plant Pest Control Division, Agricultural Research Service, United States Department of Agriculture.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1968, Compared with Data for 1967

States	1967		1968		: Comparable Districts or Counties	
	: Average No. of Borer Districts : Surveyed	: No. of Borer Districts : Surveyed	: Average No. of Borer Districts : Surveyed	: No. of Borer Districts : Surveyed	: No. of Counties	: Borer Per 100 Plants
Eastern						
Delaware	1	213	1	444	3	1
Maryland	3	140	3	296	13	3
Total	4		4		16	
Average 1/						177
North Central						
Illinois	7	63	7	199	39	7
Indiana	12	35	12	82	92	12
Iowa	12	55	12	171	99	12
Kansas	3	44	3	98	28	3
Minnesota	7	53	7	42	34	7
Missouri	7	90	7	154	39	7
Nebraska	5	47	5	76	26	5
North Dakota	1	101	1	112	5	1
Ohio 2/	5	17	5	137	33	5
South Dakota	6	78	6	71	35	6
Wisconsin	9	30	9	40	52	9
Total	74		74		474	74
Average 1/					482	56
Southern						
Arkansas	3	8	3	19	11	3
Other						
Michigan	1	44	1	50	40	1
Total	19		19		82	19

1/ Weighted average based on districts surveyed.

2/ Based on districts surveyed.

Table 2 - European Corn Borer Abundance in Corn,  
Fall of 1968, Compared with Data for 1967

State (Districts or Counties)	Average Number: of Borers Per 100 Plants 1967	1968:	State (Districts or Counties)	Average Number of Borers Per 100 Plants 1967	1968
<u>Arkansas</u> (Ark. Ins. Sur.)			<u>Iowa</u> (State Dept. Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT,ARS,USDA)		
Northwest	8	15	District I	31	59
North Central	0	6	District II	20	63
Northeast	<u>17</u>	<u>37</u>	District III	45	83
Average	8	19	District IV	59	163
<u>Delaware</u> (Agr. Expt. Sta.)			District V	50	100
New Castle	203	292	District VI	35	144
Kent	208	512	District VII	31	249
Sussex	<u>228</u>	<u>528</u>	District VIII	78	236
Average	213	444	District IX	96	241
<u>Illinois</u> (Natural History Survey, Ext. Ser.)			District X	34	335
Northwest	57	192	District XI	74	232
Northeast	32	148	District XII	<u>107</u>	<u>148</u>
West	99	233	Average	55	171
Central	90	187	<u>Kansas</u> (Ins. Sur.)		
East	29	246	Northeast	64	152
West-southwest	79	216	North Central	39	43
East-southeast	<u>52</u>	<u>170</u>	East Central	<u>30</u>	<u>101</u>
Average	63	199	Average	44	98
(63) <u>1</u> /	(198) <u>1</u> /		<u>Maryland</u> (Agr. Ext. Ser., Ins. Sur.)		
<u>Indiana</u> (Ext. Ser., Expt. Sta.)			Eastern Shore	144	339
North-northwest	80	121	Southern area	161	205
North-northcentral	66	92	Western and Central areas	<u>115</u>	<u>344</u>
North-northeast	34	84	Average	140	296
Northwest	13	82	<u>Michigan</u> (Ins. Sur.)		
North Central	8	71	Surveyed counties	44	50
Northeast	16	127	<u>Minnesota</u> (State Dept. Agr.)		
Southwest	42	24	Southwest	19	35
South Central	26	26	South Central	16	38
Southeast	29	59	Southeast	15	32
South-southwest	32	93	West Central	60	58
State-southcentral	53	176	Central	37	22
South-southeast	<u>25</u>	<u>31</u>	East Central	18	11
Average	35	82	Northwest	<u>209</u>	<u>99</u>
			Average	53	42

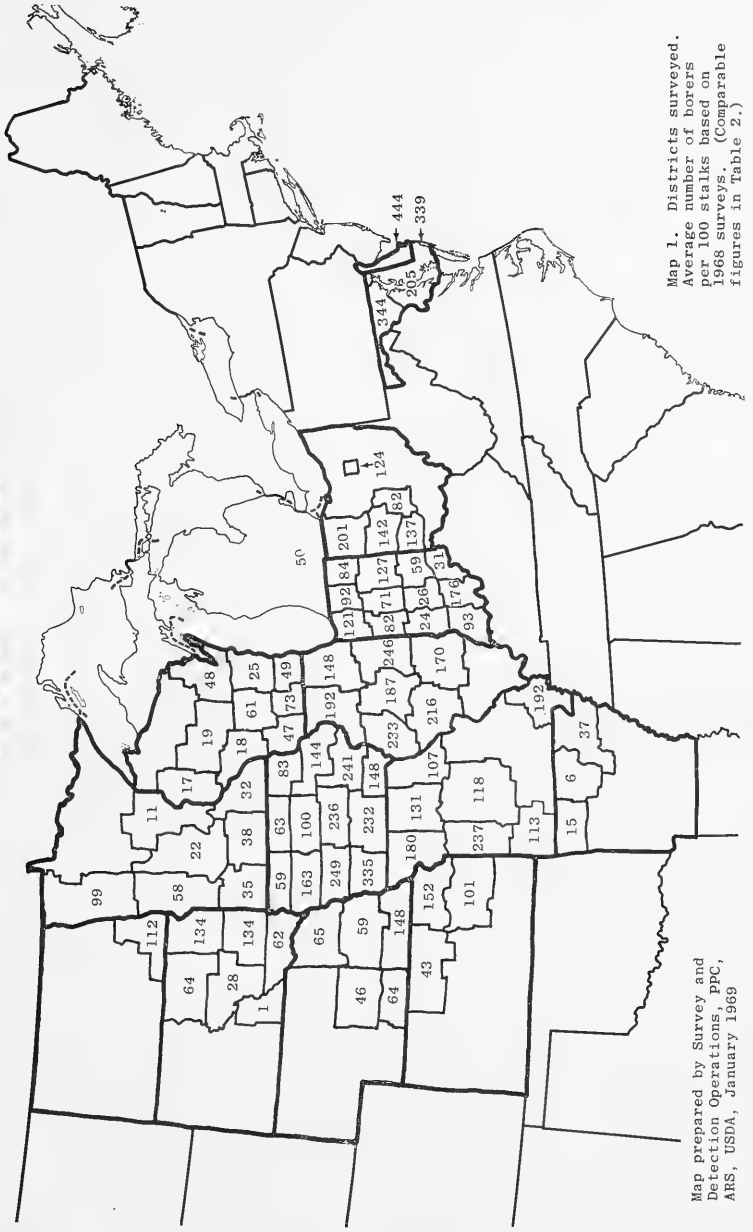
1/ Average based on 40 counties surveyed  
in 1967 and 39 counties in 1968,  
rather than districts.

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	
	:1967	1968:		1967	1968
<u>Missouri</u> (Ext. Ser., Ins. Sur.)			<u>South Dakota</u> (Agr. Expt. Sta., Ext. Ser.)		
District I	95	180	North Central	145	64
District II	86	131	Northeast	155	134
District III	87	107	Central	13	28
District IV	72	237	East Central	64	134
District V	92	118	Southeast	92	62
District VII	38	113	South Central	<u>1</u>	<u>1</u>
District IX	<u>163</u>	<u>192</u>			
Average	90 <u>1/</u>	154 <u>1/</u>	Average	78	71
<u>Nebraska</u> (Agr. Expt. Sta., Ext. Ser., Ins. Sur.)			<u>Wisconsin</u> (State Dept. Agr.)		
Northeast	46	65	Northwest	38	17
East	44	59	North Central	12	19
Southeast	60	148	West Central	62	18
Central	44	46	Central	40	61
South	<u>40</u>	<u>64</u>	Southwest	72	47
Average	47	76	South Central	23	73
			Southeast	10	49
			East Central	4	25
			Northeast	<u>7</u>	<u>48</u>
<u>North Dakota</u> (State Dept. Agr.)			Average	30	40
Southeast	101	112			
<u>Ohio</u> (Ext. Ser.; ARS, USDA)					
Northwest	25	201			
West Central	15	142			
Central	18	82			
Southwest	12	137			
Northeast	<u>15</u>	<u>124</u>			
Average	17	137			
	(18) <u>2/</u>	(157) <u>2/</u>			

1/ Figure for 1967 adjusted for comparison with 7 of 8 districts surveyed in 1968.  
2/ Averages calculated from county averages not district averages.

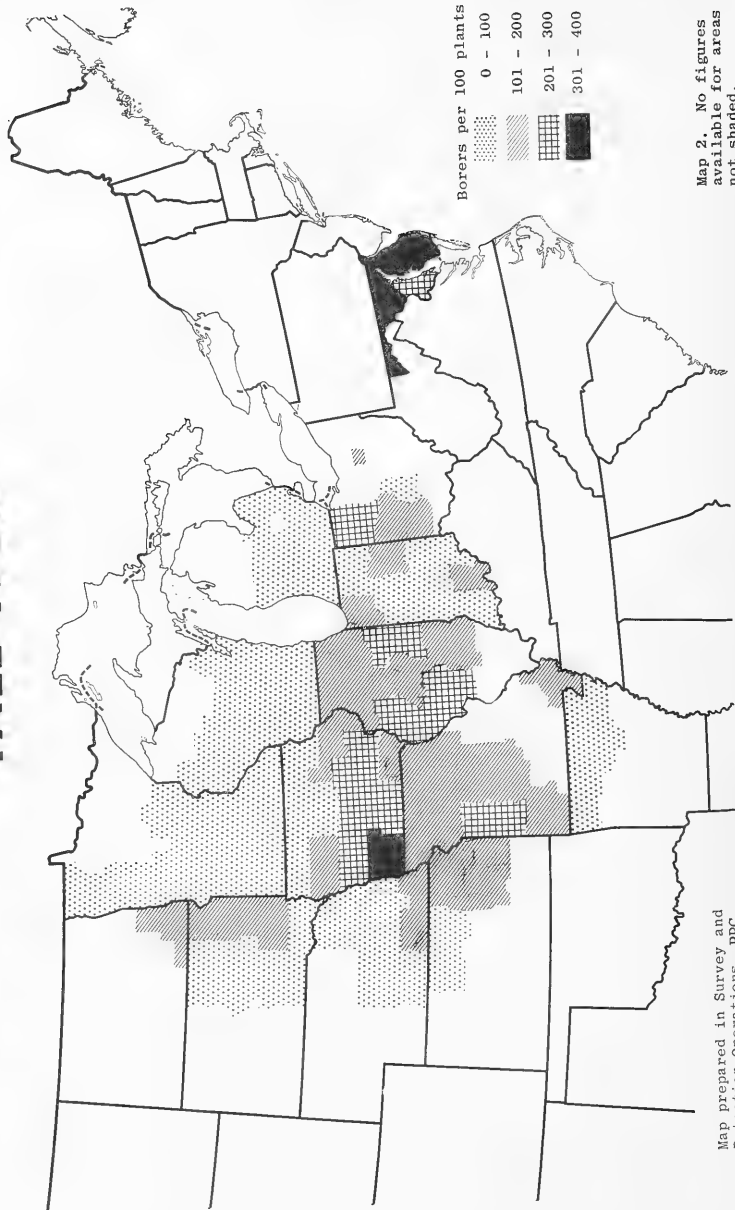
# EUROPEAN CORN BORER ABUNDANCE. FALL 1968



Map 1. Districts surveyed.  
Average number of borers  
per 100 stalks based on  
1968 surveys. (Comparable  
figures in Table 2.)

Map prepared by Survey and  
Detection Operations, PPC,  
ARS, USDA, January 1969

# EUROPEAN CORN BORER ABUNDANCE FALL 1968

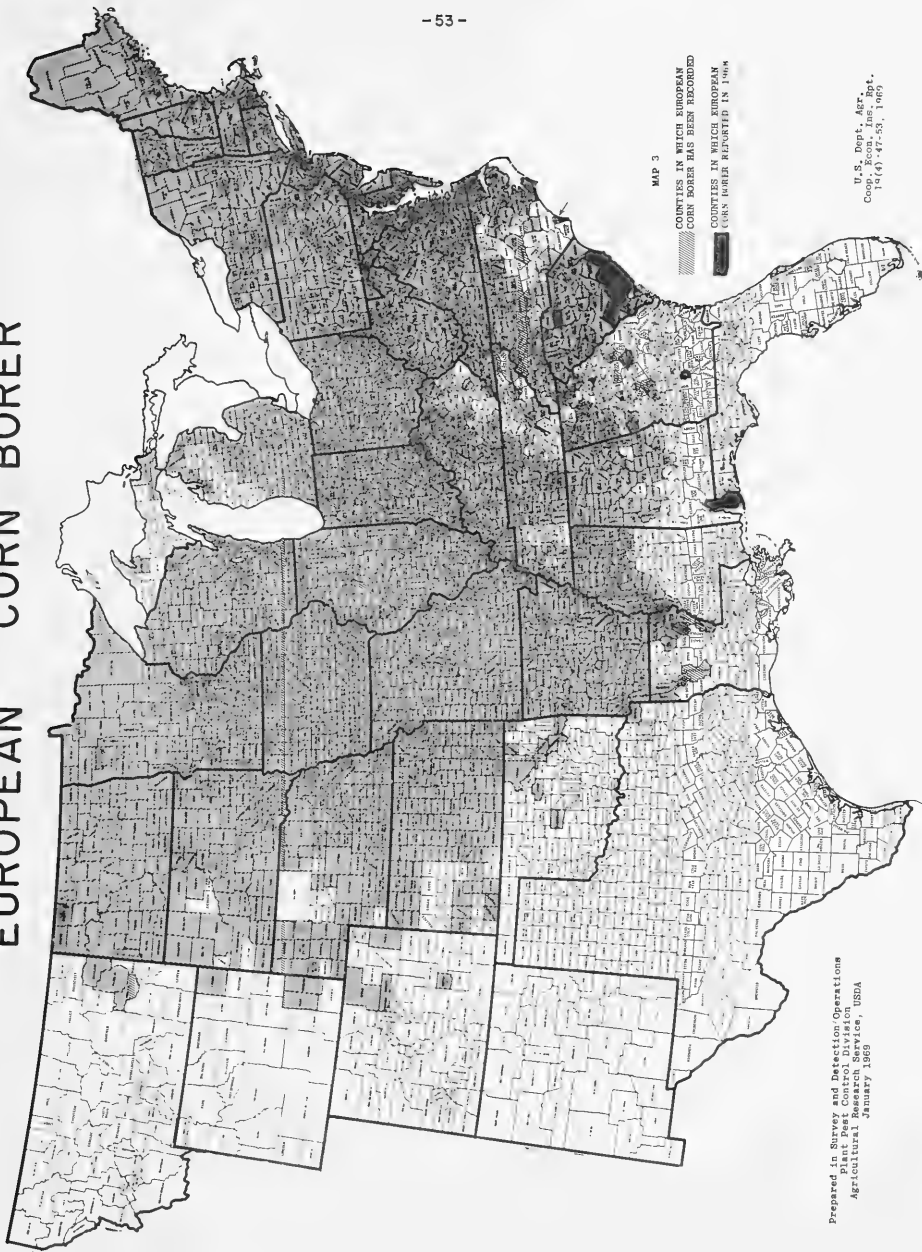


Map 2. No figures available for areas not shaded.

Map prepared in Survey and Detection Operations, PPC, ARS, USDA, January 1969



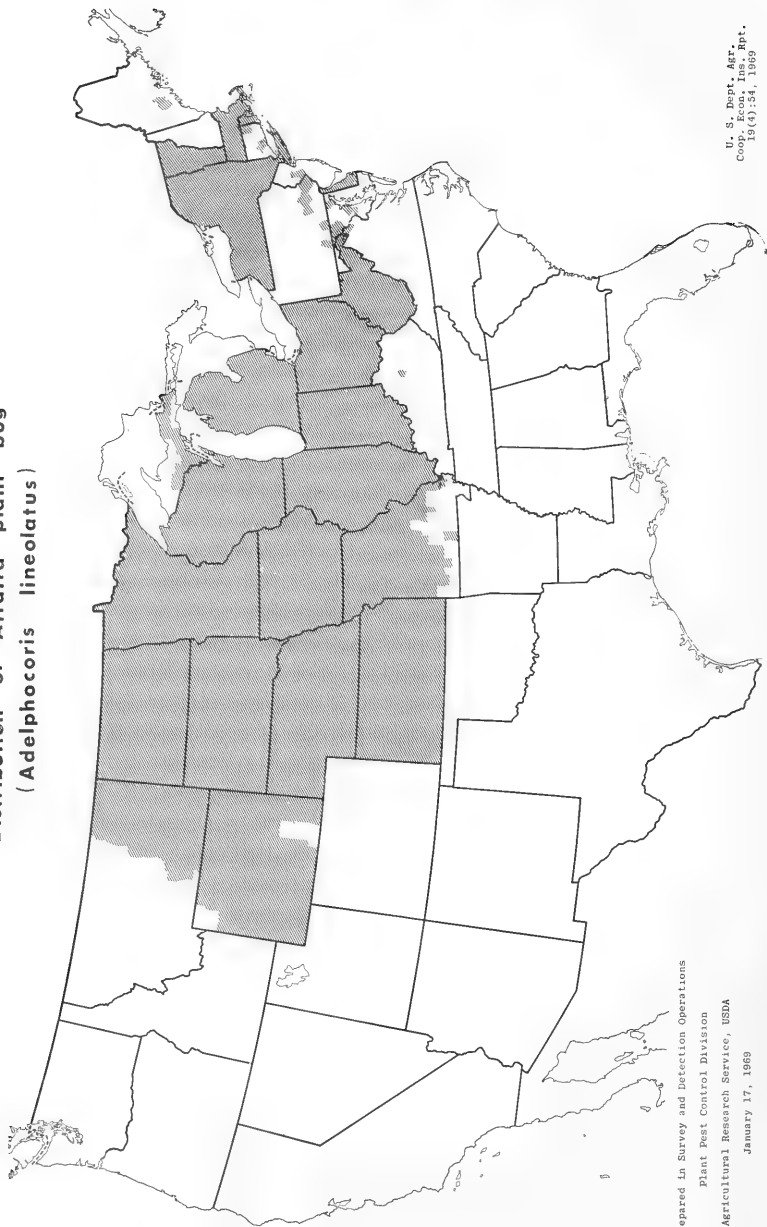
# EUROPEAN CORN BORER



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Entomology Service, USDA  
Agricultural January 1965

U. S. Dept. of Agr.  
Coop. Econ. Insect Res.  
16 (4) - 47-53, 1965

**Distribution of Alfalfa plant bug  
(*Adelphocoris lineolatus*)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
January 17, 1969

U. S. Dept. Agr.  
Coop. Econ. Inse. Rpt.  
19(4):54, 1969



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VOL. 19 No. 5

January 31, 1969

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

ARMY CUTWORM appearing on wheat in north-central Oklahoma. (p. 57).

PEA APHID increasing on alfalfa in southwest Arizona and on vetch in northwest Arkansas. (p. 57).

EGYPTIAN ALFALFA WEEVIL increasing in Yuma County, Arizona. (p. 57).

#### Detection

A DERMESTID BEETLE reported for the first time in the United States is also a new North American record. Little is known of the economic importance, but it may be found in homes and warehouses. (p. 61).

For new county records see page 60.

#### Special Reports

Anthrenus coloratus Reitter, a Dermestid New to North America. (p. 61).

The Greenbug Situation on Sorghum - 1968. (p. 63).

Distribution of Old-house Borer (map). (p. 66).

Soybean Cyst Nematode Quarantine Map. Centerfold.

Reports in this issue are for week ending January 24 unless otherwise indicated.

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### WEATHER OF THE WEEK ENDING JANUARY 27

**HIGHLIGHTS:** Bitter cold weather continued over the northern Great Plains. Snow reached record depths in the Cascades. Heavy rains saturated soil in southern California resulting in mudslides which destroyed many homes, killing occupants, and closing some canyon roads.

**PRECIPITATION:** Stormy weather covered almost all parts of the Nation last week. Rainy season continued in the Pacific Northwest. Snow covers entire State of Washington with depths ranging from 8 to 15 inches in the western lowland, 25 to 50 inches and 116 inches at 3,000 feet, and 225 inches at 5,500 feet in the Cascades. Heavy rains in California, which began Saturday, January 18, slackened temporarily late Tuesday after dumping up to 10 inches or more along the south coast but intensified again two days later. The weather situation in southern California became one of the worst on record. Mudslides closed some highways, especially canyon roads. Many homes crushed by mud; many fell into canyons when the saturated soil slipped from beneath them. Dozens of persons were killed - buried in mud. Thousands of persons were made homeless. Estimates of damage range widely from 30 million to 50 million dollars or more. Rain and snow fell in the Great Basin and snow spread eastward from the Cascades to the northern Great Plains. Freezing rain and freezing drizzle glazed the highways from eastern South Dakota, Nebraska, and Kansas northeastward across Minnesota and Iowa to Wisconsin. About midweek with arrival of colder temperatures, freezing rain ended and snow began. Strong winds lifted snow into the air, reducing visibility and drifting snow badly from the Dakotas to Kansas and from Minnesota to Arkansas. Travel was slow, hazardous, and, in some places, impossible. Warm, moist air poured northward over cold ground causing widespread fog from the eastern Great Plains to the Atlantic Ocean. Fog hindered both surface and air travel. Rain in the Deep South spread northward to the Middle Atlantic States on Monday and by Tuesday rain fell from the Ohio River Valley to the middle Atlantic coast. Rain, drizzle, and fog occurred in the valleys and along the coast. Snow or mixture of snow and freezing rain fell in the eastern mountains. Areas affected extended as far north as Maryland by Thursday and to New England by weekend. On Thursday morning a tornado in south-central Mississippi killed 28 persons, injured 138 others, and destroyed 96 dwellings. On Sunday 6-8 inches of snow fell over western and central Missouri and 1-2 inches from eastern Missouri and southern Illinois to the southern Appalachians where snow continued falling Monday morning. Weather of the week continued on page 59.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Second to fourth instars up to 1 per linear foot on Payne and Noble County wheat; present in Kingfisher County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Averaged 4-8 per linear foot on wheat at Clayton area, Union County; damage minor. (Mathews, Nielsen). OKLAHOMA - Range per linear foot by county: Kay and Kingfisher 8-10 on wheat, Payne and Noble 1-4, McCurtain 0-5. (Okla. Coop. Sur.). ARKANSAS - Survey negative in northwest. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Up to 4 per square yard on McCurtain County alfalfa. (Okla. Coop. Sur.).

### SMALL GRAINS

APHIDS - OKLAHOMA - Rhopalosiphum padi up to 5 per linear foot in 2 McCurtain County wheatfields. Macrosiphum avenae (English grain aphid) up to 1 per foot on Payne and Noble County wheat. (Okla. Coop. Sur.). ARKANSAS - M. avenae low, 50-100 per 100 sweeps on oats in northwest; few alates. (Boyer).

### FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Ranged 1,600-2,600 per 100 sweeps of alfalfa on the Yuma Mesa, Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Up to 4 per linear foot on McCurtain County alfalfa. (Okla. Coop. Sur.). MISSISSIPPI - Moderate, approximately 40 adults and nymphs per 100 sweeps on Lee County alfalfa. (Dinkins, Jan. 17). ARKANSAS - Ranged 5-10 per square foot on vetch in northwest area. (Boyer).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Averaged 9 adults and 2 larvae per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

### GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Some lettuce fields requiring treatment at Yuma, Yuma County. (Ariz. Coop. Sur.).

### DECIDUOUS FRUITS AND NUTS

ARMORED SCALES - CALIFORNIA - Parlatoria oleae (olive scale) heavy on apple tree in Grass Valley, Nevada County, for a new county record. Aspidiotus perniciosus (San Jose scale) heavy on almond trees at San Jose, Santa Clara County. (Cal. Coop. Rpt.). FLORIDA - Pseudaulacaspis pentagona (white peach scale) moderate on 200 of 1,000 peach trees in nursery at Glen St. Mary, Baker County (Collins, King, Jan. 8); females moderate on 1,000 of 10,000 peach trees in nursery at Mascotte, Lake County (Henderson, Jan. 14).

### CITRUS

ARMORED SCALES - FLORIDA - Parlatoria pergandii (chaff scale) and Lepidosaphes gloverii (Glover scale) light on 2,100 of 3,000 Citrus sp. nursery trees at Plant City, Hillsborough County. (Vaughan, Jan. 2).

## SMALL FRUITS

EUROPEAN CORN BORER (Ostrinia nubilalis) - ARKANSAS - Single larva found in grapevine by E. Brown in Johnson County November 16, 1968. Determined by W.D. Weisman. (Wylie, Rouse). This is a new host record. (Boyer).

## ORNAMENTALS

A BARK BEETLE (Phloeosinus cupressi) - CALIFORNIA - Adults heavy on Monterey cypress nursery stock at Danville, Contra Costa County. (Cal. Coop. Rpt.).

ARMORED SCALES - FLORIDA - Mature scales of Ceroplastes floridensis (Florida wax scale), some with eggs, severe on 1,320 container-grown plants of Burford holly in nursery in Hillsborough County. (Vaughan, Dekle). The following are new Florida Department of Plant Industry host records. All stages of Lepidosaphes beckii (purple scale) on variegated elaeagnus (Elaeagnus pungens) October 29, 1968, at Raiford, Union County. (Collins). This is a new county record. (Fla. Coop. Sur.). Aspidiotus juglansregiae (walnut scale) adults on stems of honeysuckle (Lonicera heckrottii) October 31, 1968, in nursery at Gainesville, Alachua County. (Graham).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy on orchids in orchid house at Larkspur, Marin County. (Cal. Coop. Rpt.).

A MEALYBUG (Spilococcus pressus) - CALIFORNIA - Heavy on oleander at Brawley, Imperial County. (Cal. Coop. Rpt.).

## FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Live pupae in 75 percent of young pine tips on roadsides in McCurtain County. (Okla. Coop. Sur.).

DOGWOOD BORER (Thamnosphenia scitula) - ALABAMA - Larval feeding increased in cambium layer of many dogwood trees past 10-15 warm days statewide. Increased larval feeding and movement attracted birds. Much fresh "pecking" injury to bark. Many older infested spots on older trees have 2-15 larvae. (McQueen).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 3 cases reported in U.S. January 19-25 as follows: TEXAS - Starr, Webb, Zapata. Total of 82 cases reported in portion of Barrier Zone in Republic of Mexico January 13-17 as follows: Territorio sur de Baja California 12, Sonora 45, Coahuila 6, Nuevo Leon 4, Tamaulipas 15. Total of 5 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 10,168,000; Mexico 46,000,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - UTAH - Adults very troublesome in several areas of Emery County in 1968; grubs now a problem. (Day, Knowlton, Jan. 20). OKLAHOMA - Range per head on steers by county: Noble 5-18, Payne 0-9. (Okla. Coop. Sur.). ARKANSAS - Average per head on cattle by county: Boone and Faulkner 12 on untreated, Independence 10 on untreated and 0.5 on treated animals. (Roberts).

CATTLE LICE - UTAH - Troublesome in several Kane County beef herds. (Knowlton, Jan. 23). OKLAHOMA - Haematopinus eurysternus (short-nosed cattle louse) less than 1 per hair part on Payne and Noble County steers. (Okla. Coop. Sur.).

MISSISSIPPI - Linognathus spp. moderate in dairy herd of 40 animals in Oktibbeha County. (Dinkins, Jan. 17).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Light on Payne County hogs. (Okla. Coop. Sur.).

#### BENEFICIAL INSECTS

TACHINA FLIES - OKLAHOMA - Reared from Peridroma saucia (variegated cutworm) collected in Noble County May 1968; Periscepsia laevigata, Archytas apicifer, Euphorocera omissa, Peleteria texensis, Winthemia rufopicta, Clausicella opaca, and Gonia sequax. Determined by D.M. Wood. (Okla. Coop. Sur.).

HYMENOPTEROUS PARASITES - ARKANSAS - Active on small grain in northwest area January 22. (Boyer). OKLAHOMA - Euplectrus plathypenae (a braconid) reared from Peridroma saucia (variegated cutworm) collected in Noble County May 1968. Determined by O. Peck. (Okla. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Results of preliminary statistical soil sampling in Coachella Valley. To date, 37 diapausing larvae recovered from 9 of 15 samples representing 135 cubic feet of soil; 3 samples of 9 cubic feet each, drawn from each of 5 fields. Larvae about 11,761 per acre. Host free period for cotton extended in district 3, comprising San Joaquin Valley cotton counties and Los Angeles and San Bernardino Counties. Rain, fog, and generally damp conditions in the valley delayed final harvest or stalk destruction and cultivation of fields. Host free period for 1968-1969 crop year will be February 1 to March 15, instead of from January 15, a reduction of 15 days. (Cal. Coop. Rpt.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Eggs very spotted and light in Union and Harding Counties. Egg masses light to heavy in area west of Abbott to Maxwell, Colfax County. (Mathews, Nielsen).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Prespray survey in infested areas of San Jose started. In Willow Glen area only 2 blocks remain to be treated. Skylift enabled scrutiny of yellow-poplar twigs 35 feet up; 146 trees on 115 properties examined, including trees just outside spray area. No indications of live infestations. (Cal. Coop. Rpt.).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - Larvae in soil around roots of citrus trees at Plymouth and Apopka, Orange County. (DeWolf et al., Jan. 15).

Weather of the week continued from page 56.

Gloomy weather with rain or fog occurred in most of the Great Lakes region and the Northeast on several days. Areas with no rain or only light scattered sprinkles last week include Texas and nearby portions of New Mexico and Oklahoma.

TEMPERATURE: Bitter cold prevailed through the week over Montana and North Dakota. Minimums dropped far below zero each morning and remained below zero many afternoons. Havre, Montana, chilled to -52° Friday morning and warmed to -29° in the afternoon. The average temperature at Havre for the week was -25°. By Friday morning the zero line enclosed parts of more than a dozen States and extended as far south as northern New Mexico. Most of the central Great Plains and the Southeast had remained above freezing but by Friday morning the freezing line had moved south of Austin, Texas, dropping the temperature from 46° the previous afternoon. Florida, however, still enjoyed summer temperatures with daily ranges generally from near 60° in the mornings to about 75° in the afternoons. Temperatures averaged above normal over the Southwest and much of the East and below normal over the northern Rockies and the northern and central Great Plains. Montana, the Dakotas, and Nebraska averaged more than 10° colder than normal. (Summary supplied by Environmental Data Service, ESSA.)

## HAWAII INSECT REPORT

General Vegetables - DIAMONDBACK MOTH (Plutella xylostella) larvae, pupae, and adults heavy on celery (Chinese) cabbage at Kalaheo, Kauai. Larvae heavy, damage light to moderate on watercress at Pearl City, Oahu. (Ikehara, Oshita). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) trace to light on snap beans, eggplants, cucumbers, and tomatoes in all farm areas on Oahu although bad weather hampered controls. Decrease may be due to unusually cold weather. (Funasaki).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) increasing and spreading on coconut trees from Honolulu International Airport area to Waianae district, Oahu. Light in several small banana patches at Pearl City. An ARMORED SCALE (Phenacaspis cockerelli) light to moderate and widespread on banana foliage in 80-acre field at Kaneohe, Oahu. Light to heavy on plumeria, oleander, and various palms in many residential areas of Honolulu and Waianae on Oahu and of Kona, Hawaii Island. (Nakao, Yoshioka).

Ornamentals - A SPIDER MITE (Schizotetranychus celarius) heavy on foliage of ornamental bamboo on Honolulu International Airport grounds, Oahu. (Shiroma). SWEETPOTATO HORNWORM (Agrius cingulatus) damage spotty on dichondra in Hawaii-Kai area of Honolulu, Oahu. (Kajiwara).

Beneficial Insects - Adults of a TACHINA FLY (Trichopoda pennipes var. pilipes) numerous on flowers of rattlebox, bur-marigold, and other weeds at Ewa, Oahu. SOUTHERN GREEN STINK BUG (Nezara viridula), mostly nymphs, moderate on rattlebox. (Hale, Funasaki).

Miscellaneous Insects - VAGRANT GRASSHOPPER (Schistocerca vaga) adults very heavy in weed areas on southwestern and western coasts of Oahu. Up to 12 adults per 10 by 10-foot area near the airport. (Olson et al.).

### INSECT DETECTION

#### New North American Record

A DERMESTID BEETLE (Anthrenus coloratus Reitter) - Collected at Richmond, Virginia, by I.E. Finold June 16, 1960. Also collected in California, District of Columbia, Illinois, and Maryland. All determinations were made by M. Mroczkowski. (p. 61).

#### New County Records

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Nevada County. (p. 57).

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Union County. (p. 58).

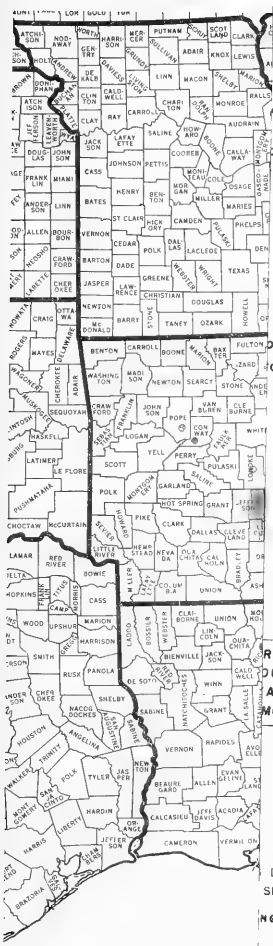
### CORRECTIONS

CEIR 19(2):27 - COOPERATIVE SURVEY ENTOMOLOGISTS - MARYLAND - Should read: Mr. John L. Hellman, Department of Entomology, University of Maryland, College Park 20742.

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 1/17-23, BL - Black cutworm (Agrotis ipsilon) 4, granulate cutworm (Feltia subterranea) 10, yellow-striped armyworm (Prodenia ornithogalli) 1. TEXAS - Brownsville - 1/18-24, 55-86°F., 0.01 in., 2BL - Armyworm (Pseudaletia unipuncta) 64, black cutworm 195, cabbage looper (Trichoplusia ni) 2, corn earworm (Heliothis zea) 24, fall armyworm (Spodoptera frugiperda) 6, granulate cutworm 6, salt-marsh caterpillar (Estigmene acrea) 1, tobacco budworm (H. virescens) 1, variegated cutworm (Peridroma saucia) 40, yellow-striped armyworm 91.

11. Ear corn, except shucked ear corn. Unshucked ear corn is exempt\*\* if harvested without coming into contact with the soil.
12. Used crates, boxes, burlap bags, cottonpicking sacks, and other used farm-products containers. Cottonpicking sacks are exempt\*\* if they have been cleaned or treated to the satisfaction of the inspector.



ARE COMPLETELY REGULATED;  
 ARE PARTIALLY REGULATED.

FEDERAL REGULATIONS

BASED ON MOVEMENT OF REGULATED  
 OR THROUGH WHITE

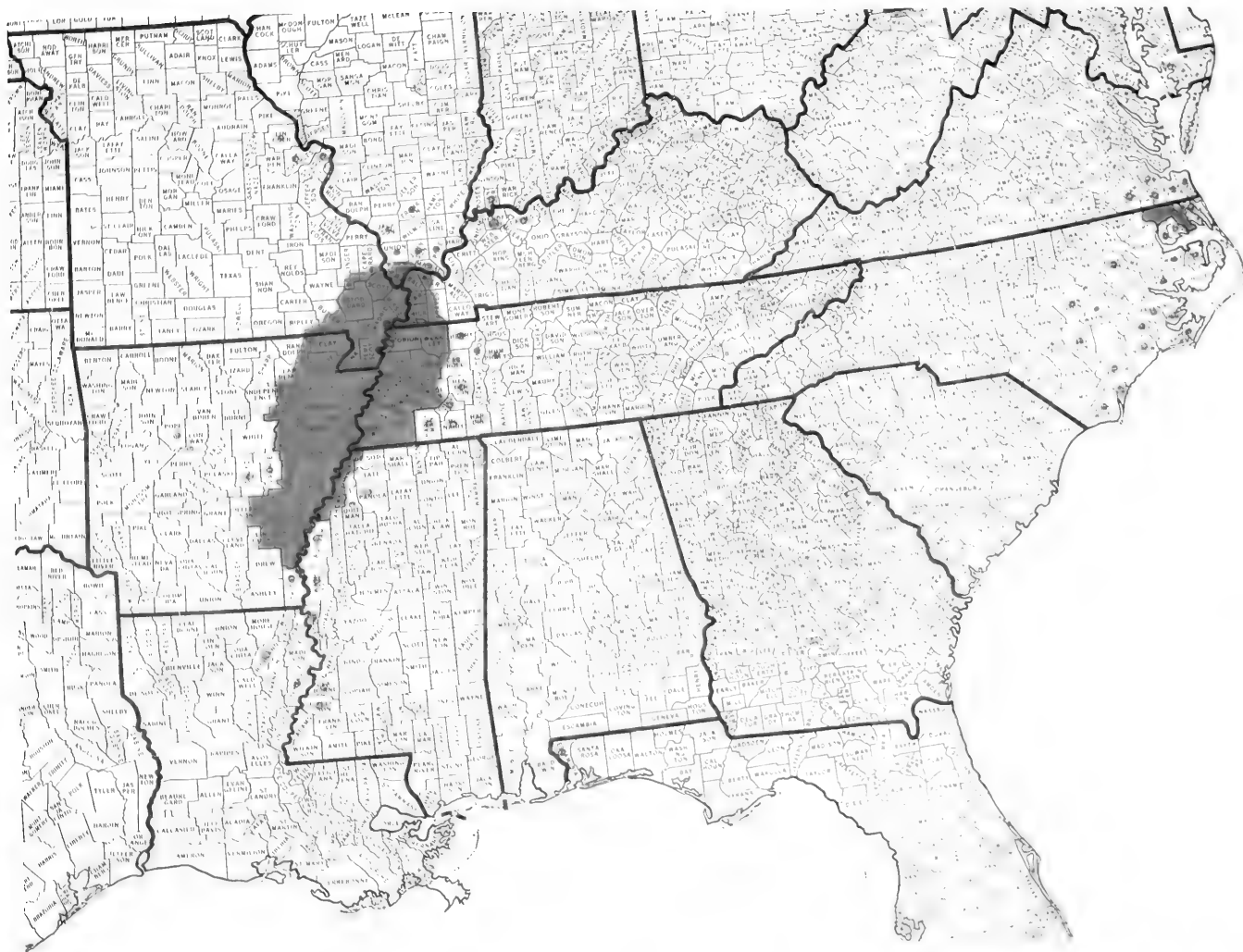
FEDERAL PLANT PEST CONTROL  
 COUNTY AGENT FOR ASSISTANCE  
 AS UNDER REGULATION AND  
 MOVING REGULATED ARTICLES.

DEPARTMENT OF AGRICULTURE  
 SERVICE - PLANT PEST CONTROL DIVISION  
 WITH AFFECTED STATES



# SOYBEAN CYST NEMATODE

## COOPERATIVE FEDERAL / STATE QUARANTINES



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

STATE AND FEDERAL REGULATIONS

RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED  
 ARTICLES FROM RED INTO OR THROUGH WHITE

CONSULT YOUR STATE OR FEDERAL PLANT PEST CONTROL  
 INSPECTOR OR YOUR COUNTY AGENT FOR ASSISTANCE  
 REGARDING EXACT AREAS UNDER REGULATION AND  
 REQUIREMENTS FOR MOVING REGULATED ARTICLES.

UNITED STATES DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL RESEARCH SERVICE - PLANT PEST CONTROL DIVISION  
 COOPERATING WITH AFFECTED STATES

THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER CERTIFICATE OR LIMITED PERMIT YEAR-ROUND EXCEPT AS NOTED

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.  
Soil samples shipped to Corps of Engineers Laboratories are exempt.
2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants.
6. Root crops, except those from which all soil has been removed.  
Root crops, such as beets, carrots, Irish potatoes, onions, radishes, rutabagas, sweetpotatoes, and turnips are exempt if moving to a designated processing plant.\*
7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.  
Peanuts are exempt if moving to a designated processing plant.\*
8. Soybeans.  
Soybeans, other than for seed purposes, are exempt\* if harvested in bulk or directly into new or treated containers, and if the beans and containers thereof have not come in contact with the soil.
9. Hay, straw, fodder, and plant litter of any kind.
10. Seed cotton.  
Seed cotton is exempt if moving to a designated rin.\*



Anthrenus coloratus Reitter,

a Dermestid New to North America (Coleoptera)

Collections of a species of dermestid beetle made in several localities in the United States were recently determined by Dr. Maciek Mroczkowski of Warsaw, Poland, to be Anthrenus (Anthrenops) coloratus Reitter (1800), the first records of this species in North America. The species was previously known from Asia, Africa, and Europe.

Anthrenus coloratus is easily distinguished from the other North American species of Anthrenus by the following combination of characteristics:

1. Each antenna with 9 segments (fig. 4). Other species have 5, 8, or 11 segments.
2. Basal abdominal segment without coxal lines. Compare fig. 2 and fig. 3.
3. Color pattern as in fig. 1. Transverse bands of golden yellow to chocolate brown scales alternated with bands of gray scales.
4. Small size. Length 1.5 to 2.25 mm. Width 1.0 to 1.5 mm.

In color, this species most closely resembles Anthrenus verbasci (L.), but the latter can be separated by its 11-segmented antennae, coxal lines, and unique emarginate eyes.

Little is known of the life history of Anthrenus coloratus except that it was bred from caraway seeds in the Sudan (Hinton, 1945). The records listed here indicate that it may be a minor pest of insect collections and may be found in the home or in warehouses.

Records -- VIRGINIA: Richmond, June 6, 1960, I. E. Finold collector, in tobacco warehouse; Arlington, June 5, 1966, in window of home. DISTRICT OF COLUMBIA: July 25, 1968, Janice White collector; June 9, 1960, H. Roberson collector; Nov. 1, 1964, in home; Jan. 31, 1968, John Lane collector, in dried insects. MARYLAND: Silver Spring, August 1968, John Kingsolver, collector, in lamp globe. ILLINOIS: Chicago, July 1963, Helen Kennedy collector, in cacao bean hulls from Ecuador. CALIFORNIA: Heber, May 8, 1968, R. A. Flock collector, in alfalfa.

Reference: Hinton, H. E. 1945. A monograph of the beetles associated with stored products. Vol. 1. British Museum, London. 443 pp. (pp. 356-357).

See page 62 for illustrations.

John M. Kingsolver  
Systematic Entomology Laboratory  
Entomology Research Division, ARS, USDA  
Washington, D.C.

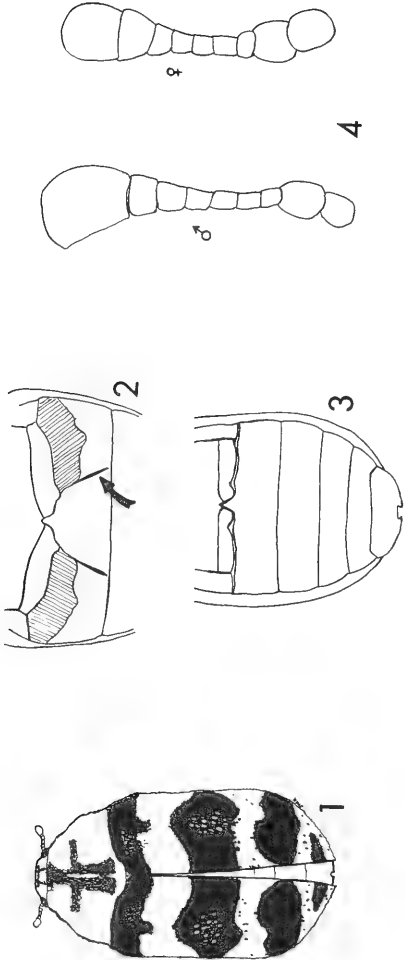
THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER CERTIFICATE OR  
LIMITED PERMIT YEAR-ROUND EXCEPT AS NOTED

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2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants.
6. Root crops, except those from which all soil has been removed.  
Root crops, such as beets, carrots, Irish potatoes, onions, radishes, rutabagas, sweetpotatoes, and turnips are exempt if moving to a designated processing plant.\*
7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.  
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Soybeans, other than for seed purposes, are exempt\*\* if harvested in bulk or directly into new or treated containers, and if the beans and containers thereof have not come in contact with the soil.
9. Hay, straw, fodder, and plant litter of any kind.
10. Seed cotton.  
Seed cotton is exempt if moving to a designated gin.\*
11. Ear corn, except shucked ear corn.  
Unshucked ear corn is exempt\*\* if harvested without coming into contact with the soil.
12. Used crates, boxes, burlap bags, cottonpicking sacks, and other used farm-products containers.  
Cottonpicking sacks are exempt\*\* if they have been cleaned or treated to the satisfaction of the inspector.
13. Used farm tools and implements.  
Used farm tools and implements are exempt\*\* if cleaned free of soil.
14. Used mechanized cultivating equipment and used harvesting machinery.
15. Used mechanized soil-moving equipment.

\*Information as to designated facilities, gins, oil mills, and processing plants may be obtained from an inspector.

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





1. Dorsal aspect of Anthrenus coloratus.
2. Abdomen showing coxal lines, Anthrenus verbasci.
3. Abdomen without coxal lines, Anthrenus coloratus.
4. Antennae, Anthrenus coloratus.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
19(5):61-62, 1969

# The Greenbug Situation on Sorghum-1968

Widespread outbreaks of greenbug (Schizaphis graminum (Rondani)) <sup>1/</sup> were reported on grain sorghum in the Midwest and Southwest in 1968. <sup>2/</sup> Severe infestations were reported from Nebraska, Kansas, Oklahoma, Texas, New Mexico, and Arizona. Infestations on sorghum were also reported in California, Utah, Colorado, Wyoming, and South Dakota, but the problem was not as serious as in the aforementioned States. Although a localized outbreak was reported on sorghum in Kansas in 1916, the aphid has never before been recorded causing widespread damage to that crop in this country. In fact, there are very few reports in Agricultural Research Service files of S. graminum occurring on sorghum.

Greenbug is of European origin, being first reported in the United States during 1882 in Virginia. It is now generally distributed over most of the country with its range extending northward into Canada. S. graminum is not common in the New England States. The greatest damage from this pest has occurred in the large grain-producing States west of the Mississippi River, including Texas, Oklahoma, Kansas, and Nebraska. Greenbug is considered the most destructive aphid that infests small grains in this country.

The first indication of this new development on sorghum came on September 19, 1967, when infestations were reported from 4 counties in west Texas. First reports of damage to sorghum by greenbug in 1968 came from Jefferson County, Nebraska, on May 20 when plants were 1.5 to 2 inches high. Damage to seedling sorghum was reported May 24 in Geary County, Kansas. Large numbers of greenbug were observed on this crop in Parmer County, Texas, the first week of July and in east-central New Mexico at the same time. Greenbug on sorghum in Oklahoma was first noted in Marshall County and in the southwest area during mid-July. The problem first appeared on sorghum in Cochise County, Arizona, in mid-July.

Greenbug populations increased slowly in Nebraska until about July 25, then increased at an explosive rate. Almost all sorghum acreage in the State was affected. Populations declined sharply by early August in the eastern area and had all but disappeared in the southwest and the panhandle areas of Nebraska by mid-August. The outbreak was first noted in Kansas in the northeast and within 2 weeks heavy numbers were found in many areas of the western section of the State. Infestations moved from south-central and southwestern Oklahoma into central, west-central, and northwestern areas of the State in very high numbers in restricted areas.

By July 20, greenbug was present on sorghum in most counties in the High Plains and panhandle areas of Texas. Populations developed rapidly. Scattered infestations were observed in the Rolling Plains counties, but economic populations were very rare. Greenbug also occurred on sorghum in central and southern counties of Texas, but no economic populations were encountered.

Infestations in New Mexico moved northward from the east-central area. Greenbug was first observed on sorghum in Arizona at San Simon in Cochise County in early July. By late July and early August greenbug ranged light to heavy on sorghum throughout the county. Greenbug was not a particular problem on sorghum in

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<sup>1/</sup> According to recent taxonomic studies by L.M. Russell, this aphid on sorghum appears to be this species.

<sup>2/</sup> A questionnaire was submitted to cooperators in 21 States in an attempt to gather information on the greenbug problem on sorghum in the fall of 1968. This report is based on responses received from all of these States.

California. The aphid occurred on this crop in only 6 counties and no significant damage was reported. The outbreak on feed sorghums in Washington County, Utah, became serious in late August and early September.

Greenbug populations were light but general throughout the sorghum-growing areas of Colorado by mid-July. By early August, infestations were heavy on lower leaves and damage was occurring. Populations on sorghum peaked August 16 in Wyoming and declined thereafter. The only infestation observed in the State was on 40 acres of experimental sorghum. Damage to sorghum in South Dakota was first observed in late July, at which time infestations were well advanced. An accurate estimate of the overall situation was difficult in the State as infestation was spotted. Incidence was higher in south-central counties, but infestations were detected as far north as Spink County.

According to contributors to this report, the principal factors involved in the greenbug problem on sorghum during 1968 were the rapidity with which infestations developed, the large area involved, a lack of knowledge of the pest on sorghum, and the unseasonable behavior of the aphid. Weather conditions also influenced the situation. Conditions were favorable for greenbug development.

The aphid reached damaging numbers before parasites and predators increased to effective levels. By late July and early August, however, populations of beneficial insects increased to significant levels in most areas and greenbug populations decreased. Damage to sorghum in some sections would have been more severe if predators and parasites had not been active.

There is an indication that the greenbug on planted wheat in some areas is the same biotype that infested sorghum. The greenbug on sorghum in Nebraska appeared to move to volunteer wheat where it remained in low numbers until late August when several infestations were reported on rye. The pest was observed on newly planted winter wheat during late September in eastern Nebraska. Movement to volunteer wheat occurred during late August in Kansas. In Oklahoma, there was no movement of greenbug from sorghum to small grains apparent after beneficial insects increased to effective levels.

No movement from sorghum to fall-planted small grains was reported in Arizona. In California, greenbug was found on some volunteer oats and barley and large numbers occurred on Johnson grass in Kings County. Some were seen on volunteer barley in Glenn, Fresno, Tulare, and Imperial Counties. Wheat emerging prior to September 1 in Colorado was completely killed out. After this date, emergence and survival were good, but the aphid ranged light to moderate on wheat in the Arkansas Valley. A survey completed October 5 in South Dakota indicated very little, if any, movement from sorghum to wheat.

Greenbug infested an estimated 7,343,000 acres of sorghum in the nine States where the problem was the most serious. An estimated 3,327,000 acres were treated. The average cost per acre for control ranged from \$1.50 to \$5.50 and averaged \$2.60. The estimated loss to sorghum due to infestations of greenbug in 1968 was well in excess of \$20,000,000 with Kansas, Oklahoma, Nebraska, and New Mexico reporting the most damage. No definite loss figures are yet available from Oklahoma and Texas.

See table on page 65.

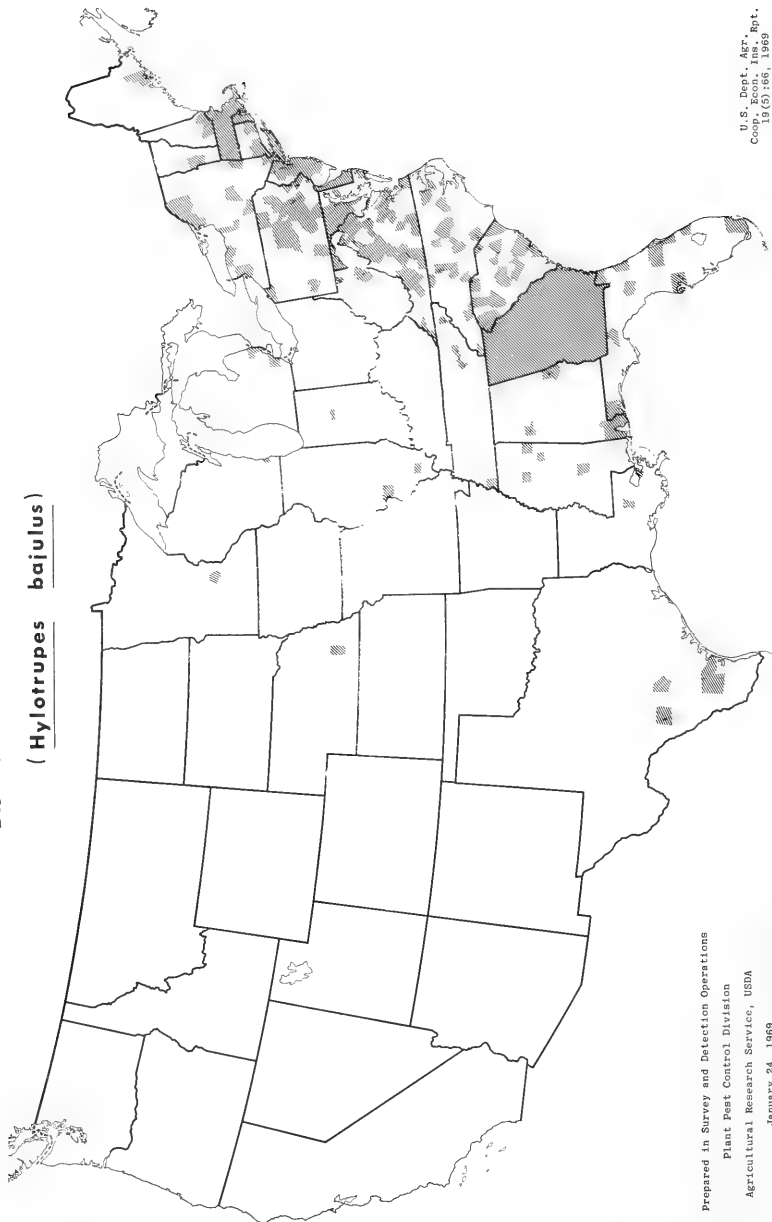
THE GREENBUG SITUATION ON SORGHUM - 1968

State	Estimated Acreage Treated	Control Cost Per Acre (Dollars)	Estimated Sorghum Loss (Dollars)	Predators and Parasites
Arizona	30,000	\$1.50	235,000	Lady beetles, syrphid fly larvae, and ichneumon wasps
California	38,500	2.25-5.50	99,000	Lady beetles, lacewings, syrphid fly larvae, assassin bugs, and a braconid wasp ( <u>Lysiphlebus testaceipes</u> )
Colorado	150,000	2.00-2.50	800,000	Convergent lady beetle and parasites
Kansas	600,000	2.50	12,240,000	Unspecified
Missouri	350+	3.50	Very small	Unspecified
Nebraska	575,000	2.85	* 3,500,000	Unspecified
New Mexico	137,000	1.80-2.50	3,375,000	Unspecified
Oklahoma	300,000	1.75-2.50	1-15 million	Unspecified
South Dakota	5,000	2.00-2.25	Undetermined	Unspecified
Texas	1,500,000	1.90	Not available	Unspecified
Utah	-	-	8,500	Lady beetles, syrphid fly larvae, flower bugs, big-eyed bugs, and anthocorid bugs

\* Includes control cost

**Distribution of Old-house Borer**

( Hylotrupes bajulus )



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
January 24, 1969

U. S. Dept. Agr., Rpt.  
Coop. Econ. Inv. Rpt.  
19 (5) 169, 1969





UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20782

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*Cooperative*  
ECONOMIC INSECT  
REPORT

*Issued by*

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

ALFALFA WEEVIL larvae appearing in Mississippi. (p. 69).

No SCREW-WORM cases reported in southwestern U.S. (p. 70).

#### Detection

New State records include a TICK in Arkansas (p. 70) and a WHITEFLY and an ENCYRTID WASP in Hawaii (p. 72).

For new county records see page 73.

#### Special Reports

BOLL WEEVIL hibernation survey for fall of 1968 shows the average number of weevils per acre is lower than for fall of 1967 in all areas surveyed in six Southern States. (p. 74).

Summary of Insect Conditions in Hawaii - 1968. (p. 77).

Reports in this issue are for week ending January 31 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

FEBRUARY 1969

The Weather Bureau's 30-day outlook for February calls for temperatures to average above seasonal normals over the eastern half of the country as well as the southern Plains. Below normal temperatures are expected from the northern Plains through the northern half of the Great Basin to the West Coast States while near normal temperatures are in prospect in unspecified areas. Precipitation is expected to exceed normal from the Appalachians through the Mississippi Valley as well as over northern portions of the Plains and Rockies. Although heavier than normal amounts are in prospect for the West Coast States, the excessive rains of the past month in California are not likely to recur. Lighter than normal rainfall is expected over the southern Plains, while near normal totals are indicated elsewhere.

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

WEATHER OF THE WEEK ENDING FEBRUARY 3

HIGHLIGHTS: Heavy snow continued to accumulate in the Far Northwest. Montana emerged from the "deep freeze." Mild sunny weather continued in Florida.

PRECIPITATION: Stormy weather covered most of the Nation early in the week. Heavy snow continued in Washington. On Friday snow slides blocked all highway passes and drifting snow closed many highways in the eastern part of the State. Snow accumulated to 12 to 20 inches along the coast and in the Puget Sound lowlands, 30 to 50 inches in the foothills, and 140 to over 200 inches in the mountains. Heavy rains and strong winds continued the first part of the week in California but tapered off after Tuesday. Precipitation in the Rockies and the western Great Plains, snow in the north, and mostly showers in the south ranged from moderate to heavy west of the Continental Divide but was mostly light east of the Divide and in the nearby Plains. Heavy snow fell from the eastern portions of the Dakotas to the Great Lakes early in the week, accumulating to 2 to 3 feet in the Dakotas to about 4 feet in west-central Minnesota and near 3.5 feet in northern Wisconsin. Freezing rain or freezing drizzle, sometimes mixed with light snow, occurred from eastern Nebraska early in the week to New England and southward along the coast by Thursday. Highways became heavily iced and driving, even walking, became hazardous in some areas. Weather of the week continued on page 73.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - OKLAHOMA - Moderate to heavy numbers scattered in wheat in several southwest and south-central counties, especially in ungrazed fields. (Okla. Coop. Sur.). KANSAS - Remains light in wheat in Finney County. (DePew). MISSISSIPPI - Light on winter wheat in Yazoo and Franklin Counties. Nymphs, wingless adults, and some developing alate forms present. (Dinkins). NEW JERSEY - Moderate on barley near Harmony, Warren County. Collected December 9, 1968, by H. Serfass. Determined by M.D. Leonard. This is a new county record. (Race).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Populations decreased on alfalfa in Yuma County due to cool weather and heavy showers. Currently 200 per 100 sweeps. (Ariz. Coop. Sur.).

### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ALABAMA - Light in 2 Lee County oat-fields. Winged forms and stem mothers becoming active. (McQueen).

### FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Average per 100 sweeps in alfalfa in Yuma County: Yuma Valley 400, Yuma Mesa 1,750, Parker and Poston 300. (Ariz. Coop. Sur.). MISSISSIPPI - Light to medium in Lee County alfalfa; approximately 20-25 adults and nymphs in 50 sweeps. (Dinkins, Jan. 24). FLORIDA - Approximately 2-3 per sweep on alfalfa at Gainesville, Alachua County; increasing. (Mead).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Averaged 15 per 100 sweeps of alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

A LEAFHOPPER (Agallia constricta) - VIRGINIA - Adults 100 per 100 sweeps of red clover in Botetourt County. Determined by J.P. Kramer. (Allen).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae building up on alfalfa in Yuma area, Yuma County; averaged 30 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Averaged 8 first and second instars per square foot in Lee County alfalfa. (Dinkins, Jan. 24).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - FLORIDA - Adults 18 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Averaged 5 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Light on alfalfa in Yuma Valley, Yuma County; ranged 0-10 per 100 sweeps. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - FLORIDA - Larvae 16 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

### GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Colonies present on larger lettuce at Yuma, Yuma County. Treatments required. (Ariz. Coop. Sur.).

## CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - All stages very light on 82,000 citrus nursery trees at Bay Lake and Clermont in Lake County (Henderson); infesting all 52 citrus nursery plants at Gotha, Orange County (Ware).

## ORNAMENTALS

TEA SCALE (Fiorinia theae) - ALABAMA - Crawlers on several hundred camellias examined in Lee County. (McQueen).

FERN SCALE (Pinnaspis aspidistrae) - CALIFORNIA - Adults heavy on Liriope spicata nursery stock at Oroville, Butte County. (Cal. Coop. Rpt.).

FLORIDA RED SCALE (Chrysomphalus aonidum) - FLORIDA - All stages were taken on Philodendron selloum at a nursery in Ocala, Marion County. (Holder). This is new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

AN ARMORED SCALE (Parlatoria proteus) - FLORIDA - Taken on leather leaf viburnum (Viburnum rhytidophyllum) at nursery near Federal Point, Putnam County. (Graham). This is new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Adults and larvae heavy on gardenia nursery stock in San Lorenzo, Alameda County. (Cal. Coop. Rpt.).

## FOREST AND SHADE TREES

CONIFER BARK BEETLES (Dendroctonus spp.) - CALIFORNIA - D. brevicomis (western pine beetle) and D. valens (red turpentine beetle) active. Damage increasing in Letts Lake area of Mendocino National Forest; 40+ ponderosa and sugar pines killed in 80-acre lakeshore area. (Rieger, USFS).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - OREGON - Infested 500-600 plants in highway planting of about 20,000 plants along 9 miles of freeway near Azalea, Douglas County. Mostly dogwood, mockorange, and oceanspray planted during fall 1967; severe infestation noted during summer 1968. Infested plants replaced during November 1968. (Hazelton, Westcott).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases were reported in U.S. January 26-February 1. Total of 107 cases reported in portion of Barrier Zone in Republic of Mexico January 20-25 as follows: Territorio sur de Baja California 6, Sonora 71, Chihuahua 2, Coahuila 5, Nuevo Leon 8, Tamaulipas 15. Total of 2 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 3,068,000; Mexico 42,500,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - KANSAS - Survey underway throughout State. Preliminary reports indicate numbers slightly higher than in 1967 in south-central and southeast areas. (Simpson). OKLAHOMA - H. lineatum (common cattle grub) light on cattle in Mayes County. (Okla. Coop. Sur.). MISSISSIPPI - Hypoderma spp. larvae averaged 5-6 per animal on 4 milk cows in Yazoo County. (Dinkins).

A TICK (Ornithodoros concanensis) - ARKANSAS - Collected from a nest of eastern phoebe (Phoebe seyonis) by B. Schiefer in Stone County January 4, 1969. Determination by G.M. Kohls. This is a new State record. (Boyer).



#### STORED PRODUCTS

POTATO TUBERWORM (Phthorimaea operculella) - PENNSYLVANIA - Heavy on stored potatoes in Cambria County. (Adams, Jan. 14).

PEA WEEVIL (Bruchus pisorum) - VIRGINIA - Damaged peas in storage room in Scott County. (Pratt, Amos, Jan. 23).

#### BENEFICIAL INSECTS

A EUPELMID WASP (Eupelmus cyaniceps amicus) - PENNSYLVANIA - Parasitized cocoons of Diprion similis (introduced pine sawfly) collected by A. Jeffery and L. Rhodes during September and October 1968 in Chester County. Determined by B.D. Burks and E. Simons. (Adams).

TACHINA FLIES - WEST VIRGINIA - Madremyia saundersii and Lespesia archippivora reared from adults of Danaus plexippus (monarch butterfly) collected in Monongalia County. Determined by C.W. Sabrosky. (Weaver).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Inspections made of 23,841 trees on 378 acres in Matamoros district negative. In Monterrey district, 781 trees on 560 acres in Municipios Linares, Hualahuises, and Montemorelos, Nuevo Leon, found infested; includes 6 new infestations in these Municipios. Inspections of 2,201 trees on 237 properties at Hermosillo, Sonora, and of 43 trees on 10 properties at Tijuana, Baja California, negative. Biological Control Zone - Inspection of 648 trees on 11 acres in Municipio Victoria, Tamaulipas, negative. (PPC Mex. Reg., Dec. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Adults light on grass at Madisonville, Madison County. Collected by O.H. Barham and W.T. Williamson January 21. Determined by D.R. Smith. This is a new county record. (PPC).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Total of 25 native flies (12 males, 13 females) trapped at Tijuana, Baja California, during 1968. One native male fly caught at Ensenada during year. No native flies caught at Tecate. Total of 15 native flies caught at La Paz, Territorio sur de Baja California during 1968. In addition, 318 A. spatulata taken at La Paz during same period. (PPC Mex. Reg., Dec. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Lint cleaner inspections of gins in southwest areas revealed 16 larvae from 105 bales of short staple cotton; no larvae recovered from 40 bales of long staple cotton. (Hare).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - NEW MEXICO - Survey of sweet-potatoes in warehouse at Portales, Roosevelt County, negative. (Mathews).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Biological control investigations progressing. Eretmocerus paulistus (a eulophid wasp) and Amitus spiniferus (a platygasterid wasp) considered established in release areas of San Diego. Colonies increased. (Cal. Coop. Rpt.).

WHITE GARDEN SNAIL (Theba pisana) - CALIFORNIA - Detection survey in 10-block area involving 248 properties in Manhattan Beach, Los Angeles County, negative. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

New State Records - A WHITEFLY (Paraleyrodes perseae) light on plumeria in lower Manoa area of Honolulu, Oahu. Determined by L.M. Russell. (Beardsley). An ENCYRTID WASP (Aphycus portoricensis) reared from Asterolecanium pustulans (pit scale) collected at Barbers Point, Oahu, in April 1965. Described from Puerto Rico; apparently an accidental immigrant. Determined by J.W. Beardsley. (Beardsley).

General Vegetables - SWEETPOTATO VINE BORER (Omphisa anastomosalis) heavy in all sweetpotato fields on windward Oahu and at Haiku, Maui; damage heavy on vines, slight on tubers. SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) and SWEETPOTATO HORNWORM (Agrius cingulatus) very light in all fields. (Satoyama, Funasaki). LEAF MINER FLIES (Liriomyza spp.) larvae and adults decreased from heavy to light in 10 acres of carrots at Kealahou, Maui, elevation 2,000 feet. Larvae light on small plantings of cucumbers at Kahului, Maui, and in many snap and yard-long bean fields on Oahu. (Miyahira, Arakaki). CABBAGE APHID (Brevicoryne brassicae) light on backyard broccoli plantings at Puunene, Maui. Heavy (10-20 per square inch) on older leaves in 1.5 acres of head cabbages at Kaaawa, Oahu. (Olson, Suzukawa). Mostly SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs moderate to heavy on wild spider flower (Gynandropsis gynandra) at Kahului; very light in acre of watercress at Pauwela, Maui. About 90 percent of adults bore eggs of Trichopoda pennipes and/or T. pennipes var. pilipes (tachina flies). (Miyahira, Ah Sam).

Fruits and Nuts - GIFFARD WHITEFLY (Bemisia giffardi) heavy on orange and tangerine trees at Kahului and light on grapefruit at Makawao, Maui; moldy leaves on many trees at Kahului. FLORIDA RED SCALE (Chrysomphalus aonidium) heavy on coconut leaves of many trees at Kahului, Wailuku, and Lahaina on Maui; yellowed leaves conspicuous. (Miyahira).

Miscellaneous Insects - One adult of a PYRRHOCORID BUG (Melamphaus faber) caught in building at Hickam Air Force Base, Honolulu, Oahu, December 6, 1968, by D.H. Kong. No additional specimens to date. Known to occur in Malaysia, breeds on fruits of chaulmoogra tree (Hydnocarpus sp.). Determined by J.L. Herring. (Takabayashi). RED-SHOULDERED STINK BUG (Thyanta accerra) remains very light and confined to swollen fingergrass on southwestern and western coasts of Oahu. Averaged 20 nymphs and/or adults per 100 sweeps in airport area and at Ewa. (Funasaki).

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**INSECT DETECTION**

New State Records

A TICK (Ornithodoros concanensis) - ARKANSAS - Collected from a nest of eastern phoebe (Phoebe seynonis) by B. Schiefer in Stone County January 4. Determined by G.M. Kohls. (p. 70).

A WHITEFLY (Paraleyrodes perseae) - HAWAII - On plumeria in lower Manoa area of Honolulu, Oahu. Determined by L.M. Russell. (p. 72).

AN ENCYRTID WASP (Aphycus portoricensis) - HAWAII - Reared from Asterolecanium pustulans (pit scale) collected at Barbers Point, Oahu, in April 1965. Determined by J.W. Beardsley. (p. 72).

New County Records

GREENBUG (Schizaphis graminum) - NEW JERSEY - Warren County. (p. 69).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Madison County. (p. 71).

#### CORRECTIONS

CEIR 18(51):1139 - YELLOW SCALE (*Aonidiella citrina*) - FLORIDA - Taken on crapemyrtle should read: Taken on Japanese privet (*Ligustrum japonicum*). This is not a new host record. (Fla. Coop. Sur.).

CEIR 19(5):60 - INSECT DETECTION - A DERMESTID BEETLE (*Anthrenus coloratus* Reitter) - Line 2 should read: "by I.E. Finold June 6, 1960..."

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 1/24-30, BL - Granulate cutworm (*Feltia subterranea*) 5, yellow-striped armyworm (*Prodenia ornithogalli*) 3. TEXAS - Brownsville - 1/25-31, 2BL, 48-84°F., 0.07 in. - Armyworm (*Pseudaletia unipuncta*) 12, black cutworm (*Agrotis ipsilon*) 67, cabbage looper (*Trichoplusia ni*) 6, corn earworm (*Heliothis zea*) 11, granulate cutworm 11, variegated cutworm (*Peridroma saucia*) 7, yellow-striped armyworm 27.

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Weather of the week continued from page 68. Widespread fog from the central Great Plains to the middle Atlantic coast increased the danger of driving. Some schools in eastern West Virginia were kept closed on Wednesday because of the severe glaze. Moderate to heavy showers fell at midweek from northeastern Texas to the Ohio River Valley and spread over the rest of the East by weekend. Totals from southwestern to northeastern Arkansas ranged from 6 to 8 inches. Considerable flooding occurred in Arkansas and in the Ohio River Valley. Ice jams in the Maumee River in Ohio caused flooding that forced 25 families from their homes. Snow fell in the central and southern Appalachians in the latter half of the week, with freezing rains in the Piedmont and rain along the coast.

**TEMPERATURE:** Intense cold continued in the northern Rocky Mountains and the northern Great Plains. The temperature at Havre, Montana, struggled to reach -20° Wednesday afternoon and plunged to -44° Thursday morning. Some stations in Montana had remained in subzero weather since Friday, January 17. A large area from eastern Washington to the Red River of the North averaged 10° to more than 20° colder than normal. In contrast temperatures in southern Texas and southern Florida dropped to the upper 60's each night and reached the upper 70's and low 80's in the afternoon. A cold front separated the cold air from the warm air and, at times, the transition zone was rather narrow. For instance, on Tuesday afternoon the respective afternoon maximums at Ponca City, Oklahoma, and Fort Smith, Arkansas, were 34° and 74°. The distance between the two locations is less than 200 miles. A Chinook late in the week brought the temperatures above freezing in western Montana, to the 30's in Wyoming, and the 40's in the western portions of South Dakota and Nebraska. Eastern North Dakota continued in the "deep freeze." The East and South warmed during the week and averaged above normal. A large area from Texas to Ohio and West Virginia averaged 7° to 12° warmer than normal. (Summary supplied by Environmental Data Service, ESSA.)

# Boll Weevil Hibernation Survey - Fall 1968

The fall collections of surface ground (woods) trash samples (two square yards per sample) have been completed in six Southern States by State and Federal agencies to determine the number of boll weevil (*Anthonomus grandis*) adults that went into hibernation. A total of 3 samples was collected at each location in the Carolinas, Mississippi, Louisiana, and Texas; 12 samples were taken in Tennessee. In North and South Carolina, 30 locations were sampled in each area; the number of counties per area from which samples were taken varied from 3 to 6. In Mississippi, a total of 45 samples was taken from 15 locations in each of 4 areas; each area was composed of 2 counties. A total of 45 locations was sampled 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 first year trash samples have been collected in Richland Parish. In Texas, 75 samples were taken from either 6 or 7 locations in each of 4 counties.

Average counts (live weevils per acre) were lower than those of 1967 in all areas surveyed. The number of weevils per acre entering hibernation in north-central North Carolina decreased from 4,060 in 1967 to 914 in 1968. The decrease in southern Tennessee was from 7,580 in 1967 to 1,210 in 1968.

In Florence County, South Carolina, where fall examinations have been made since 1942 (except for the fall of 1946), the number of weevils per acre (4,734) is the lowest since the fall of 1954.

In Tennessee, the survey was conducted in McNairy, Hardin, Fayette, and Hardeman Counties as infestations were heaviest in these counties during the growing season. The number of weevils per acre averaged 1,210 in those counties. This compares with 7,580 in 1967, 7,120 in 1966, 1,211 in 1965, 807 in 1964, 1,089 in 1963, 3,633 in 1962, and 3,025 in 1961. The figures for 1965 through 1961 are for McNairy County only.

The 1968 State average for Mississippi was 2,768 live weevils per acre of ground trash. This compares with 6,304 in 1967, 2,956 in 1966, 7,325 in 1965, 4,545 in 1964, 3,010 in 1963, 6,213 in 1962, and 8,403 in 1961. Except for Monroe County, there were fewer weevils present in every county in the fall of 1968 than in the fall of 1967.

In the five-parish area of northeast Louisiana, the average number of boll weevils per acre was 3,137. The average per parish was 4,114 in Madison, 2,986 in Tensas, 806 in East Carroll, 2,420 in West Carroll, and 2,581 in Richland. During the past 32 years that these records have been made in Madison Parish, there were 13 years when the number of weevils per acre was higher than in 1968. In the past 13 years that these records have been made in East Carroll and Tensas Parishes, the 1968 average was lower than any previous year in East Carroll and had been exceeded 7 times in Tensas. Collection of woods trash was started November 20 and completed December 5. All but 15 samples were collected from November 20 to November 26, but rain prevented collection of trash in West Carroll Parish until December 5. The lowest temperature recorded was 29° November 21. The temperature was 32° October 29, 31° November 12 and December 4, 30° November 13 and 19. Rain-fall was recorded on 7 days after November 20, for a total of 4.21 inches. There were 8.85 inches of rain in November.

In central Texas, boll weevils averaged 4,070 per acre in the fall of 1968 compared with 4,942 in 1967, 4,877 in 1966, 4,425 in 1965, 4,406 in 1964, 517 in 1963, 1,781 in 1962, 4,114 in 1961, and 4,501 in 1960. More weevils entered hibernation in the fall of 1968 in McLennan County than any year except 1959 when the survey was started. In Limestone County the number was higher than any year except 1964 and in Falls County more weevils were found than in 4 of the previous 9 years. In Hill County fewer weevils were found this year than in any previous except 1963. The area average was lower in the fall of 1968 than in any year except 1962 and 1963. Planting was delayed in Falls, Limestone, and McLennan Counties for 3 to 4

weeks and in Hill County for 8 to 9 weeks by excessive rains. Harvest and stalk destruction were 3 to 4 weeks late in Falls, Limestone, and McLennan Counties and moderate to heavy numbers of boll weevil built up and entered hibernation. Infestation was light in Hill County, probably due to the very late planting date. (H.M. Taft, A.R. Hopkins, J.H. Locke, T.R. Pfrimmer, T.C. Cleveland, C.B. Cowan).

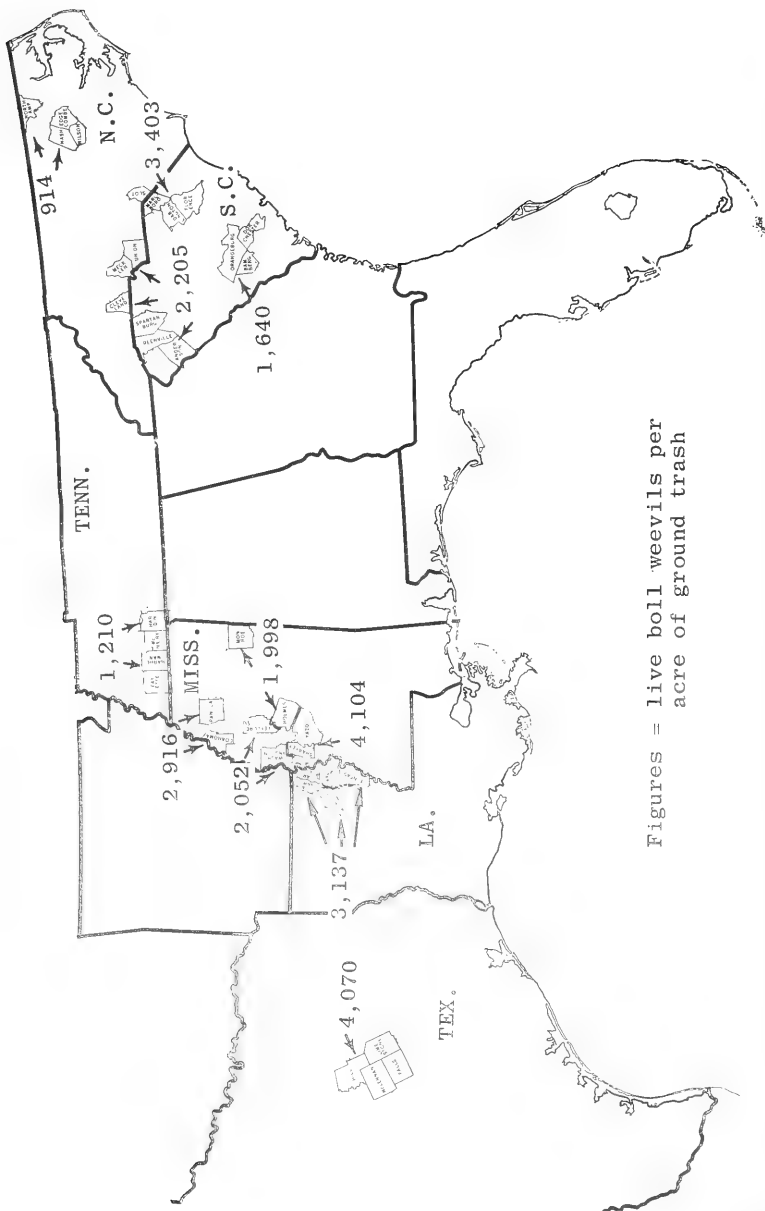
BOLL WEEVIL HIBERNATION SURVEYS - FALL 1968

Area (State and County)	Number of Weevils Per Acre	
	1967	1968
<u>NORTH AND SOUTH CAROLINA</u>		
South Central South Carolina (Orangeburg, Bamberg, and Dorchester Counties).	1,802	1,640
Coastal Plain of South and North Carolina (Florence, Darlington, and Marlboro Counties, S.C.; Scotland County, N.C.).	6,965	3,403
Piedmont of South and North Carolina (Anderson, Greenville, and Spartanburg Counties, S.C., Mecklenburg, Cleveland, and Union Counties, N.C.).	4,302	2,205
North Central North Carolina (Nash, Northampton, Wilson, and Edgecombe Counties).	4,060	914
<u>TENNESSEE</u>		
Southern Tier of Counties (McNairy, Fayette, Hardin, and Hardeman).	7,580	1,210
<u>MISSISSIPPI</u>		
South Delta (Sharkey and Yazoo Counties (area 1)).	7,938	4,104
Central Delta (Washington and Leflore Counties (area 2)).	4,860	2,052
North Delta (Coahoma and Panola Counties (area 3)).	5,940	2,916
Hill Section (Holmes and Monroe Counties (area 4)).	6,480	1,998
<u>LOUISIANA</u>		
Northeastern (Madison, Tensas, East Carroll, West Carroll, and Richland Parishes).	----*	3,137
<u>TEXAS</u>		
Central (Falls, Hill, Limestone, and McLennan Counties).	4,942	4,070

\*Richland Parish included in 1968 survey. Only Madison, Tensas, East Carroll, and West Carroll Parishes surveyed in 1967; counts averaged 6,473 hibernating weevils for these 4 parishes in 1967.

See map on following page.

BOLL WEEVIL HIBERNATION SURVEYS - FALL 1968



Figures = live boll weevils per acre of ground trash

SUMMARY OF INSECT CONDITIONS IN HAWAII - 1968

Highlights

A GRASS WEBWORM has spread to most of the islands. BEAN FLY and LARGE MANGO TIP BORER were important new Western Hemisphere records. TUMID SPIDER MITE on sweet corn and CARMINE SPIDER MITE on beans were of concern. LANTANA DEFOLIATOR CATERPILLAR controlled lantana.

Corn, Sugarcane, Rice

CORN EARWORM (*Heliothis zea*) damage ranged light to heavy on corn statewide throughout 1968. CORN PLANTHOPPER (*Peregrinus maidis*) heavily infested untreated field corn at Kaaawa, Oahu. TUMID SPIDER MITE (*Tetranychus tumidus*) built up in all sweet corn fields on Oahu from June to August. Numbers peaked in late August. Heavy infestations during harvesttime annoyed workers.

NEW GUINEA SUGARCANE WEEVIL (*Rhabdoscelus obscurus*) damage was light on Oahu and Maui but very heavy in several sugarcane fields on Kauai and in some on Hawaii Island. ASIATIC RICE BORER (*Chilo suppressalis*) was light in rice stems at Wailua, Kauai, early in November. This is the first report in the State since 1939. This infestation resulted either from the original or from a new introduction.

Turf, Pasture, Rangeland

A GRASS WEBWORM (*Herpetogramma licarsisalis*) was reported for new island records on Kauai, Maui, Hawaii, Molokai, and Lanai. On Oahu heavy numbers infested lawns and pastures from January to April and from October to December. On Kauai and Molokai heavy numbers occurred during April and May and from October to December. On Maui and Hawaii moderate to heavy numbers infested scattered areas throughout 1968. Several parasitic species occurred in heavily infested areas on all islands. The most effective appeared to be *Trichogramma semifumatum* (a minute egg parasite). Light to medium numbers of a BILLBUG (*Sphenophorus venatus vestitus*) caused light, spotty damage in Kikuyu grass pastures at Kipahulu, Maui, in March. Generally, trace to light numbers prevailed during the year on lawns and pastures in other areas of Maui and on the other islands.

General Vegetables

BEAN FLY (*Melanagromyza phaseoli*) infested snap beans at Waiahole, Oahu, in June for a new Western Hemisphere record. Later, light to severe numbers were found on lima, soy, lablab, and snap beans and on 3 species of weed legumes throughout Oahu. New island records were reported for Kauai, Maui, Molokai, Lanai, and Hawaii. BEAN POD BORER (*Maruca testulalis*) and BEAN BUTTERFLY (*Lampides boeticus*) ranged trace to light on commercial beans statewide. Heavy numbers infested untreated backyard lima and hyacinth-bean plantings during spring and summer. CARMINE SPIDER MITE (*Tetranychus cinnabarinus*) was heavy on snap beans in lowland farm areas on Oahu in January and on other crops around April. Despite intensive controls, infestations continued until late November.

IMPORTED CABBAGEWORM (*Pieris rapae*) was generally light on head cabbage and other cole crops on Maui, Hawaii, and Oahu Islands. Numbers were lighter than in past years in the Kula area of Maui, where most of the State's head cabbage is grown. A granulosis virus infected larvae in this area. DIAMONDBACK MOTH (*Plutella xylostella*) numbers and damage were heavy on head cabbage on Maui during spring and summer. Light to moderate numbers infested cole crops in scattered areas on Oahu during summer and fall.

Rains during fall and winter activated GIANT AFRICAN SNAIL (*Achatina fulica*) in weed areas on Oahu and Maui. Some snails moved into residential and farm areas. Damage ranged light to moderate on ornamentals and crops, especially eggplant and bell pepper. Crops had to be protected in several areas. Eradication measures continued in localized infested areas on Hawaii and Kauai Islands. Heavy numbers

of MELON FLY (Dacus cucurbitae) caused light to severe damage to cucumbers and squash in small commercial plantings on Oahu during early 1968. Damage ranged trace to light on cucurbits and tomatoes throughout most areas on all islands due to applications of protein insecticide baits. Three adults of a TEPHRITID FLY (Ensinia sonchi) were taken on Sonchus sp. at Ewa, Oahu, in March for a new Western Hemisphere record. LEAF MINER FLIES (Liriomyza spp.) infested various crops in the lowlands of Oahu, Kauai, and Maui. Damage was heavy on green onions, watermelons, cucumbers, snap beans, tomatoes, and yard-long beans during summer and fall. Controls were intensive. Heavy numbers of POTATO TUBERWORM (Phthorimaea operculella) damaged much of about 50 acres of potatoes at Hoolehua, Molokai, during spring. Trace to light numbers of BEET ARMYWORM (Spodoptera exigua) prevailed in most green onions on Oahu. Higher numbers moderately damaged some fields at Koko Head and Waimanalo in July and at Waianae in November. TARO LEAFHOPPER (Tarophagus proserpina) remained very light in many taro fields on Oahu, Maui, Kauai, and Hawaii Islands. Over 100 nymphs and adults per stem infested a small, new planting at Waikapu, Maui, during February and March. A predator, Cyrtorhinus fulvus (a mirid bug), was light in most plantings throughout the year. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) ranged medium to heavy on various crops in lowland areas, being heaviest during the spring and fall.

### Fruits

LARGE MANGO TIP BORER (Bombotelia jocosatrix) and a STINK BUG (Plautia stali) were reported as new Western Hemisphere records in 1968. Several large mango tip borer moths were taken at a light in the Punahou area of Honolulu, Oahu, in early April. For the rest of the year larvae ranged trace to light on terminal leaves of mango throughout Oahu. It was also reported on Kauai for a new island record. Larvae were noted feeding on mango blossoms at Manoa, Oahu, in mid-November. The first adult of P. stali was taken at a light on November 14, 1967. Since then, many adults have been taken at lights from various areas on Oahu. It was found feeding on black nightshade at Ewa and strawberry guava at Kailua (Lanikai).

COCONUT SCALE (Aspidiotus destructor) was reported on coconut leaves at Kailua, Oahu, for a new State record. Surveys revealed more infestations at Sand Island, Honolulu International Airport and vicinity, Kaneohe, and along the leeward coast of Oahu. MEDITERRANEAN FRUIT FLY (Ceratitis capitata) and ORIENTAL FRUIT FLY (Dacus dorsalis) were generally light in commercial fruits on all islands. Protein insecticide baits sprayed along borders were effective. Medium to heavy numbers infested guava, mountain apple, mango, rose-apple, and other fruits in forests, rangeland, waste areas, and along roadsides. BARNACLE SCALE (Ceroplastes cirripediformis) was generally medium in a commercial passionfruit farm at Kahului, Maui, early in January. By the end of 1968, numbers were generally light except in about 10 acres which remained heavily infested. The parasitic eulophid wasps Anestetus ceroplastae and Tetrastichus sp. were common. Larvae of a NOCTUID MOTH (Phlegetonia delatrix) caused much foliar damage to Java plum on Oahu and Kauai during summer and fall. Moderate to heavy numbers infested mountain apple on Oahu during fall. Reported for the first time on Maui in November, it caused moderate to heavy damage to Java plum and mountain apple in several areas. RED-BANDED THRIPS (Selenothrips rubrocinctus) heavily scarred commercial and wild guava fruits and foliage at Waimanalo, Oahu, during summer. Foliar damage was heavy on mango, Java plum, and false kamani (Terminalia catappa) on Maui in November and December, and on false kamani on Kauai in December.

### Ornamentals

ORCHID WEEVIL (Orchidophilus aterrimus) numbers and damage were heavy on vanda and dendrobium orchids at Hilo, Hawaii Island, during fall. An outbreak of HIBISCUS LEAF MINER (Parectopa hibiscella) severely damaged hibiscus hedges at Hickam Air Force Base, Honolulu, Oahu, from late April to May. Subsiding in June, numbers remained at trace levels for the rest of the year. An ARMORED SCALE (Phenacaspis cockerelli) ranged light to heavy on plumeria, bird-of-paradise-flower, oleander, and on mango, coconut, and candlenut (kukui) trees on Kauai, Oahu, Maui, and Hawaii Islands. A LEAFHOPPER (Protalebrella brasiliensis) was heavy on wedelia



in various areas of Oahu; foliar damage was conspicuous in several areas. HAWAIIAN THRIPS (Taeniothrips hawaiiensis) ranged light to heavy on flowers statewide. Gardenias were again a favorite host.

#### Forest and Shade Trees

A CONIFER APHID (Cinara carolina) was reported for a new island record on Hawaii; heavy infestations occurred at various times. Generally light infestations prevailed on loblolly pine on Maui, Kauai, Molokai, and Lanai. An APHID (Cupressobium maui) found on Portuguese cypress in 1967 on Hawaii was reported for new host and island records. PACIFIC BEETLE COCKROACH (Diploptera punctata) damage was sporadic on cypress on Maui and Hawaii Islands in June. During fall heavy numbers caused moderate to heavy damage to foliage and stems of orange trees, moderate damage to bark of Norfolk Island pine, and light damage to foliage of pineapples at Kaiku, Maui. KIAWE FLOWER LOOPER (Cosymbia serrulata) adults in light traps on Oahu increased in March and peaked in early June. The population appeared to be correlated with the kiawe flowering season, which occurs mostly during February and March but extends until about May.

KOU LEAFWORM (Ethmia nigroapicella) ranged moderate to heavy on kou trees (Cordia subcordata) throughout the year at Kailua-Kona, Hawaii Island. It is normally active near the end and/or the beginning of the year. CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) built up on Chinese banyan in many areas of Oahu from January to March, but remained light for the rest of the year. Light numbers prevailed on the other islands. A predator, Montandoniola moraguesi (an anthocorid bug), was common on infested leaves. The usual serious spring outbreaks of MONKEYPOD MOTH (Polydesma umbricola) did not occur. A PSYLLID (Psylla uncatoides) remained generally light on koa trees on Oahu, Kauai, and Maui.

#### General Pests

CHINESE ROSE BEETLE (Adoretus sinicus) adults caused light to heavy foliar damage on ornamentals; crops; and forest, fruit, and shade trees statewide. They also infested roses, snap beans, litchi, dryland taro, and shower trees. A PLATASPID BUG (Coptosoma xanthogramma) ranged light to severe on ornamentals and fruit and shade trees on Kauai, Oahu, Maui, and Hawaii Islands. Adults were a nuisance in homes, hotels, and cars. Damage was slight on snap beans at Waihee, Maui, and at Kaaawa, Oahu, in April and May. It was reported on Lanai for a new island record. Light to heavy numbers of SOUTHERN GREEN STINK BUG (Nezara viridula) built up on weeds during spring and summer, especially on Maui. Movement into farms resulted in slight damage to crops and ornamentals. Controls were required in some fields. Nymphs and adults were found feeding on papaya trunks for the first time at Puna, Hawaii Island, in September. A BARK BEETLE (Xylosandrus compactus) ranged light to heavy on ornamentals, forest trees, and weeds on Kauai and Oahu. Heavy infestations were discovered on wild coffee and on forest, fruit, and shade trees at Wailuku, Maui, in November and December; this was a new island record. Many of the infested plants on Kauai, Oahu, and Maui were new host records for the State.

#### Man and Animals

The following mosquitoes were collected from 48 light traps on Oahu from January to October. Aedes vexans nocturnus averaged 16.0 per trap per month. Its highest monthly average per trap was 45.1 in April, and the lowest was 1.7 in August. Collections were higher in windward areas during spring. Culex pipiens quinquefasciatus (southern house mosquito) averaged 137.6 per trap per month. Its lowest monthly average per trap was 61.1 in June, and the highest was 237.5 in October. Collections were generally higher in windward areas from January to March, at Waipahu during spring, and the north shore areas during summer and fall.

HORN FLY (Haematobia irritans) was heavy on beef cattle, especially on Maui and Hawaii Islands. Generally light numbers prevailed on dairy cattle on Oahu. Several adults on an ENCYRTID WASP (Homalotylus sp.) developed as solitary internal parasites of larvae of 2 lady beetles Telsimia nitida and Lindorus lophanthae which were preying on Aspidiotus destructor (coconut scale) at Kailua, Oahu, in September. The determination was made by J.W. Beardsley.

#### Beneficial Insects

Larvae of a TORTRICID MOTH (Apotoforma sp.) ranged medium to heavy on blackberry terminals on Kauai, Maui, and Hawaii Islands. This insect was introduced to help control blackberry, a pasture and rangeland weed. Larvae of a CERAMBYCID BEETLE (Archlagocheirus funestus) continued to topple the remaining pricklypear cacti in the Kawaihae-uka, South Kohala district, Hawaii Island. Cacti in the area are now less abundant than in previous years. MELASTOMA BORER (Selca brunella) ranged light to medium on Indian rhododendron from January to August on Kauai and Hawaii Islands. Beginning in September, numbers increased and caused moderate to heavy damage to fruits, foliage, and terminals. Heavy numbers of a CECIDOMYIID MIDGE (Zeuxidiplosis giardi) infested the few remaining Klamath-weed plants on Mt. Hualalai, Hawaii Island, between 6,700-8,250 feet from August to November.

Heavy numbers of LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) and a NOCTUID MOTH (Catabena esula) caused nearly 100 percent defoliation at Ka Lae and Halepiula on Hawaii Island in March. Heavy numbers of H. strigata caused nearly 100 percent defoliation in approximately 1,000 acres of lantana at Keokea and Ulupalakua on Maui in April. For the rest of 1968 both species were generally light. LANTANA CERAMBYCID (Plagiohammus spinipennis) remained moderate at Kau, Hawaii Island. LANTANA PLUME MOTH (Platyptilia pusillodactyla), LANTANA SEED FLY (Ophiomyia lantanae), LANTANA GALL FLY (Eutreta xanthochaeta), and LANTANA HISPID (Uroplata girardi) numbered moderate to heavy in many areas. Other introduced lantana insects were generally light.

Several adults of a PTEROMALID WASP (Halticoptera patellana) emerged from pupae of Melanagromyza phaseoli (bean fly) collected at Waiahole, Oahu, in July. A low percentage of parasitism of bean fly by this wasp was observed during the rest of 1968. A HISTERID BEETLE (Hister nomas) was reported for new island records on Maui in November 1967 and on Mo'okai in April 1968. This predator of Haematobia irritans (horn fly) larvae was not released on either island. A SCIOMYZID FLY (Sepedon sauteri), a predator of liverfluke snails, was recovered on Kauai and Maui. It is now established on both islands and on Oahu. Adults of a TACHINA FLY (Trichopoda pennipes var. pilipes) were light in weed areas on Kauai, Oahu, and Hawaii Islands. T. pennipes and T. pennipes var. pilipes were moderate in gardens and weed areas on Maui during summer and fall. In June and October at Kula and Pukalani on Maui, 75-90 percent of Nezara viridula (southern green stink bug) adults bore eggs of these tachinids. A SCELIONID WASP (Trissoicus sp.) parasitized eggs of Coptosoma xanthogramma (a plataspid bug) statewide. Parasitism of egg clusters ranged from 30 to 95 percent.

#### Miscellaneous Insects

The following GRASSHOPPERS were new Western Hemisphere records. Nymphs and adults of Oedaleus abruptus were found at Hickam Air Force Base, Honolulu, Oahu, in July. Surveys revealed a generally widespread infestation on dry grass; no specimens were found elsewhere. On Oahu one male of Euconocephalus nasutus was caught January 15 in a vacant lot at Waipahu and another November 25 in a yard in the Kaimuki area of Honolulu.

The following were reported as new State records. A RHOPALID BUG (Jadera haematoloma) was found on Oahu in August. Surveys revealed moderate to heavy numbers on balloonvine (Cardiospermum halicacabum) from Honolulu to Waianae, Oahu. Specimens of a CADDISFLY (Hydroptila sp.) were caught in light traps at Honolulu International Airport and in downtown Honolulu, Oahu. The first was caught in May.







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February 14, 1969

*Cooperative*  
ECONOMIC INSECT  
REPORT

*Issued by*

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations  
Plant Pest Control Division  
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United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

GREENBUG damage heavy on small grains in Wilbarger and Foard Counties, Texas. (p. 83).

WINTER GRAIN MITE heavy on winter wheat in Archer and Wichita Counties, Texas. (p. 83).

An ARMORED SCALE general and severe on orange plants in Lake County, Florida. (p. 84).

NANTUCKET PINE TIP MOTH damage excessive throughout northeastern and east-central Texas. (p. 85).

EASTERN TENT CATERPILLAR larvae appearing in Alachua County, Florida. (p. 85).

#### Detection

GOLDEN NEMATODE reported for first time in Delaware. (p. 85).

For new county records see page 87.

#### Special Reports

Survey Methods. Selected References 1968. Part XV. (pp. 88-96).

Summary of Insect Conditions in the United States - 1968

Introduction (p. 97).

Federal and State Plant Protection Programs (pp. 97-104).

Reports in this issue are for week ending February 7 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING FEBRUARY 10

HIGHLIGHTS: Two major storms hit New England, the latter becoming the worst in years. Milder temperatures returned to the central Great Plains.

PRECIPITATION: Daily rains continued along the Washington and Oregon coast with some rain in California early in the week. Snow continued to accumulate in the Cascades and northern Sierras. Light snow fell eastward from the Cascades across the northern Great Plains to the Great Lakes. Fair skies prevailed over the Southwest early in the week, but cloudiness increased in Arizona on Wednesday with rain, snow above 6,000 feet, on Thursday. Rains fell over the lower Mississippi River Valley Wednesday and over most of the Southeast Thursday. Two major storms hit the Northeast during the week. The first dumped heavy snow in parts of New York and northern New England on Monday and Tuesday with rain over southern New England. Greenville, Maine, received 22 inches in 24 hours ending at 7 a.m. Tuesday, bringing the snow cover there to 56 inches. Winds at Mount Washington, New Hampshire, gusted to 102 m.p.h. on Tuesday. Heavy snow fell in parts of New York, 8 inches at Boonville, on Wednesday, accompanied by strong winds which caused considerable drifting snow and blowing snow with occasionally zero visibility. A storm centered in Utah dumped locally heavy snow in the central Rocky Mountains on Friday, 14 inches at Durango, Colorado. The storm moved eastward rapidly leaving mostly light but locally moderate to heavy precipitation. Snow occurred in the Ohio River Valley and thunderstorms spotted the Deep South. After leaving moderate to heavy snow over the central Appalachians on Saturday, the storm turned northeastward dumping 15-20 inches in large metropolitan centers in the Northeast on Sunday and becoming the worst storm in more than 10 years. Winds in southern New England, gusting to over 70 m.p.h. drifted the snow to depths of 6-8 feet. In the New York City area, heavy snow and blowing snow stopped both surface and air traffic and halted nearly all business and industrial activity in the major cities of the Northeast on Monday February 10. Weather of the week continued on page 87.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**GREENBUG** (*Schizaphis graminum*) - TEXAS - Spotty in the Rolling Plains. Maximum per row foot January 21-24 by county: Wilbarger 120, Foard 150, Hardeman 300, Childress 400, Baylor 250, and Knox 250. Heavy damage in Wilbarger and Foard Counties; medium in Baylor, and some damage in small grain in Hardeman, Motley, Wichita, and Haskell Counties. Very light, up to 5 per row foot, in Karnes, Lavaca, and Brazos Counties on small grains. (Boring, Green). NEW MEXICO - Averaged per linear foot: 10-30 at Carlsbad and 100+ in barley at Artesia, Eddy County, 30-100+ in barley at Roswell, Chaves County, 2-20 in wheat at Clovis, Curry County. (Mathews). OKLAHOMA - As high as 40 per linear foot in areas of Jackson and Tillman Counties. Continues light (0-3 per linear foot) in Payne and Noble Counties. (Okla. Coop. Sur.). ARKANSAS - Survey negative in northwest. (Boyer).

## SMALL GRAINS

**WINTER GRAIN MITE** (*Penthaleus major*) - TEXAS - Heavy, up to 1,000 per row foot, damaging wheat in Archer and Wichita Counties; light to medium in Young and Baylor Counties. (Green, Boring, Jan. 31).

## FORAGE LEGUMES

**PEA APHID** (*Acyrtosiphon pisum*) - NEW MEXICO - Very light in alfalfa at Roswell, Chaves County. (Mathews). None to very light in alfalfa in Mesilla Valley, Dona Ana County. (Nielsen). ARKANSAS - Low in northwest area, 3-5 per square foot in vetch. (Boyer). ARIZONA - Averaged 2,000 per 100 sweeps on alfalfa in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

**ALFALFA WEEVIL** (*Hypera postica*) - MISSISSIPPI - Averaged 1 larva per 20 sweeps in Oktibbeha, Pontotoc, and Marshall Counties. (Pitre). MISSOURI - January egg survey averages per square foot (and percent viability) by county: Ralls .7 (70.6), Cape Girardeau 3.8 (86.4), New Madrid 6.5 (77.5), Osage and Maries .6 (30.0), Howell 3.3 (43.1). Average egg punctures increased; average viability down from 95 percent in December to 64.9 percent in January. (Huggans).

**EGYPTIAN ALFALFA WEEVIL** (*Hypera brunneipennis*) - ARIZONA - Up to 90 larvae per 100 sweeps on alfalfa at Yuma, Yuma County; averaged 10 adults and 20 larvae per 100 sweeps in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

**THREE-CORNERED ALFALFA HOPPER** (*Spissistilus festinus*) - ARIZONA - Averaged 20 per 100 sweeps on alfalfa in Salt River Valley, Maricopa County; up to 30 per 100 sweeps at Yuma, Yuma County. (Ariz. Coop. Sur.).

## CITRUS

**Citrus Insect Situation in Florida - End of January - CITRUS RUST MITE** (*Phyllocop-truta oleivora*) infested 62 (norm 64) percent of groves; 40 (norm 45) percent economic. In moderate range and near normal for January. Infestations on leaves and on fruit similar. Little change expected. Highest districts south, west, and north. **TEXAS CITRUS MITE** (*Eutetranychus banksi*) infested 28 (norm 32) percent of groves; 14 (norm 12) percent economic. In low range and near normal with little change expected. Very few infestations will be important. Highest districts west and central. **CITRUS RED MITE** (*Panonychus citri*) infested 31 (norm 36) percent of groves; 7 (norm 12) percent economic. Presently at low level and slightly below normal for January. Although some increase expected, less than 5 percent of groves will have heavy infestations. Highest districts east and central. **GLOVER SCALE** (*Lepidosaphes gloverii*) infested 62 (norm 78) percent of groves; 5 (norm 15) percent economic. **PURPLE SCALE** (*L. beckii*) infested 53 (norm 77) percent of groves; less than 1 percent (norm 7 percent) economic.

BLACK SCALE (*Saissetia oleae*) infested 29 (norm 37) percent of groves; 7 (norm 17) percent economic. YELLOW SCALE (*Aonidiella citrina*) infested 59 (norm 60) percent of groves; 2 (norm 11) percent economic. CHAFF SCALE (*Parlatoria oleae*) infested 44 (norm 59) percent of groves; 1 (norm 9) percent economic. Above 5 scales all below normal levels for January and all in low to moderate range in all districts. Few, if any infestations heavy at this time and little change expected. An ARMORED SCALE (*Unaspis citri*) present in 16 percent of groves and important in 5 percent. Increase expected. WHITEFLIES, MEALYBUGS, APHIDS, and SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) near or below very low levels normal for January. Very little change will occur in February but increase expected in March. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

AN ARMORED SCALE (*Unaspis citri*) - FLORIDA - General and severe on 79,000 of 790,000 nursery orange plants at Grand Island, Lake County. (Bentley, Jan. 30).

YELLOW SCALE (*Aonidiella citrina*) - CALIFORNIA - Medium in trees in Willows, Glenn County. (Cal. Coop. Rpt.).

#### ORNAMENTALS

HEMISPHERICAL SCALE (*Saissetia coffeae*) - FLORIDA - All stages general and severe on a percentage of 1,000 orchids in greenhouses at Zellwood, Orange County. (Musgrove, Jan. 30).

ARMORED SCALES - FLORIDA - *Fiorinia theae* (tea scale) adults on holly at Kissimmee, Osceola County. (Crews). This is a new Department of Plant Industry county record. (Fla. Coop. Sur.). *Lepidosaphes maskelli* adults on 452 of 2,260 nursery plants of juniper at Dover, Hillsborough County. (Vaughan, Jan. 24). CALIFORNIA - *Aspidiotus nerii* (oleander scale) medium on palm tree nursery stock in Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

CITRUS MEALYBUG (*Planococcus citri*) - FLORIDA - Nymphs general and severe on 100 of 1,000 plants of African violet in greenhouses at Zellwood, Orange County. (Musgrove, Jan. 30).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - TEXAS - Control helped by brood tree utilizations, chemical control, and lower temperatures. Controlled 426 infestations containing 70,542 trees. Controlled 2,993 spots containing 236,035 trees for 1968. Total of 48 percent of all spots aerially detected required controls; 79 trees treated per spot. (Ollieu, Mason; For. Pest Activity Rpt., Oct.-Dec. 1968).

BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) - TEXAS - Damage in Houston, Liberty, Newton, Orange, San Augustine, San Jacinto, Shelby, Trinity, and Taylor Counties. Logging and lightning helped in control with salvage and chemicals. (Ollieu, Mason; For. Pest Activity Rpt., Oct.-Dec. 1968).

DEODAR WEEVIL (*Pissodes nemorensis*) - TEXAS - Fall buildup for second straight year. Moderate mortality of young loblolly pines on roadsides in Angelina County. Feeding symptoms on trees up to 50 feet tall. Negligible in other eastern counties. (Ollieu, Mason; For. Pest Activity Rpt., Oct.-Dec. 1968).

RED-HEADED PINE SAWFLY (*Neodiprion lecontei*) - TEXAS - Damaged 125-acre site of sapling loblolly and slash pines north of Houston. Loblolly pines lost all foliage; slash pines showed occasional attack. (Ollieu, Mason; For. Pest Activity Rpt., Oct.-Dec. 1968).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - TEXAS - Excessive damage to short-leaf and loblolly pine terminals throughout northeast and east-central areas. Damage to loblolly pine in plantation north of Houston. (Ollieu, Mason; For. Pest Activity Rpt., Oct.-Dec. 1968).

AN ARMORED SCALE (Fiorinia externa) - MARYLAND - On hemlock at Severna Park, Anne Arundel County. Collected by C.W. McComb December 18, 1968. Determined by J.A. Davidson. This is a new county record. (U. Md., Ent. Dept.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - First instars observed first time this year; larvae feeding on blossoms of wild plum at Gainesville, Alachua County. Collected and determined by L.A. Hetrick. (Fla. Coop. Sur.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 2 cases reported in U.S. February 2-8 as follows: TEXAS - Webb, Zapata. Total of 66 cases reported in portion of Barrier Zone in Republic of Mexico January 27-31 as follows: Sonora 32, Chihuahua 1, Coahuila 1, Nuevo Leon 2, Tamaulipas 30. Total of 4 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 10,068,000; Mexico 44,600,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - ARKANSAS - Averages in Fulton County: Untreated - 5 grubs per head in herd of 6, 3 per head in herd of 10; treated - 8 in 6 head in herd of 30, 8 in 3 in herd of 26. Sharp County: Treated 1 grub each in 2 head in herd of 20, 3 in 2 head in herd of 6; untreated - up to 10 per animal in 5 head in herd of 6 (average 6.5). (Roberts). OKLAHOMA - Averaged 2 per head in Payne County herd; light in Mayes County. (Okla. Coop. Sur.).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Heavy on cattle in Woodward County, controls needed; light in Tulsa and Noble Counties. (Okla. Coop. Sur.).

#### HOUSEHOLDS AND STRUCTURES

A POWDER-POST BEETLE (Lyctus sp.) - CALIFORNIA - Light in ash mantel in Riverside, Riverside County; medium in basement structures in San Anselmo, Marin County; heavy in oak furniture in Sunnyvale, Santa Clara County; heavy in oak lumber in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

#### STORED PRODUCTS

A DERMESTID BEETLE (Trogoderma parabile) - CALIFORNIA - Larvae medium in sorghum seed and heavy in lettuce seed at El Centro, Imperial County. (Cal. Coop. Rpt.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GOLDEN NEMATODE (Heterodera rostochiensis) - DELAWARE - Eight larvae and 6 cysts in 3 samples from potato farm at Middleton, New Castle County. Collected by B.C. Emens October 31, 1968. Determined by A.M. Golden. This is a new State record. (PPC).

GRASSHOPPERS - OKLAHOMA - Egg surveys averaged 1 viable egg pod per square foot of sod in Cimarron, Texas, Beaver, Ellis, and Harper Counties. Parasite and predator damage light. (Okla. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Ten live larvae in trash above ground and 9 live larvae in soil in 40-square-foot plot in southern Dona Ana County last week of January. (Adams).

SOYBEAN CYST NEMATODE (Heterodera glycines) - KENTUCKY - Light in soybeans in Union County. Collected by J. Alvis January 23. Determined by A.M. Golden. This is a new county record. (PPC).

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#### HAWAII INSECT REPORT

General Vegetables - GREEN PEACH APHID (Myzus persicae) and CABBAGE APHID (Brevicoryne brassicae) medium in mustard cabbage at Pearl City, Waianae, and Palolo Valley, Oahu. M. persicae light to medium (2-7 per square inch) on egg-plant foliage at Koko Head, Pearl City, and Waianae on Oahu and at Kahului, Maui. (Miyahira, Sato). BEAN FLY (Melanagromyza phaseoli) larvae light in wild bean plants (Phaseolus lathyroides) in vacant lot near airport at Honolulu, Oahu. (Olson, Funasaki).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) light to medium on few coconut trees at Kahaluu and Waiahole, Oahu. Negative in adjacent banana fields. (Kumabe, Funasaki).

Ornamentals - BLACK SCALE (Saissetia oleae) light and widespread on aalii (Dodonaea viscosa) in Haleakala National Park, Maui, at 7,000 feet. (Miyahira, Harris).

Beneficial Insects - LANTANA DEFOLIATOR CATEPILLAR (Hypena strigata) larvae medium and defoliation 10-25 percent on lantana in pastures at Ulupalakua and Waihee, Maui. (Miyahira). Numerous adults of a MINUTE EGG PARASITE (Trichogramma semifumatum) emerged from eggs of a NOCTUID MOTH (Phlegetonia delatrix). Eggs collected from foliage of Java plum in January at Palolo Valley, Honolulu, Oahu. (Wong).

Man and Animals - MOSQUITOES - Collected 1,137 Aedes vexans nocturnus and 18,935 Culex pipiens quinquefasciatus in 52 light traps on Oahu during January. Aedes catches highest at Kahuku (232). Culex high at Nanakuli (4,213) and Waianae (3,750). (Mosq. Cont. Br., Dept. of Health).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) collected during January after heavy showers in North Kona, Hawaii Island; of 164 snails, 74 dead or dying from poison baits. Dead snails picked up in January on Kauai: 45 from Poipu and 87 from Wahiawa. Surveillance and poison bait applications continuing. (Yoshioka, Sugawa). Light numbers of nymphs and adults of a GRASSHOPPER (Oedaleus abruptus) concentrated in 2 separate "pockets" of grassy area at Hickam Air Force Base, Honolulu, Oahu. Sprays to continue. (Olson).

## INSECT DETECTION

### New State Record

GOLDEN NEMATODE (Heterodera rostochiensis) - DELAWARE - Larvae and cysts in potato farm at Middleton, New Castle County. Collected by B.C. Emens October 31, 1968. Determined by A.M. Golden. (p. 85).

### New County Records

TEA SCALE (Fiorinia theae) - FLORIDA - Osceola County. (p. 84).

AN ARMORED SCALE (Fiorinia externa) - MARYLAND - Anne Arundel County. (p. 85).

SOYBEAN CYST NEMATODE (Heterodera glycines) - KENTUCKY - Union County. (p. 85).

## CORRECTIONS

CEIR 19(6):72 - INSECT DETECTION - A WHITEFLY (Paraleyrodes perseae) - HAWAII - On plumeria in lower Moano area of Honolulu, Oahu. Should read ... Manoa...

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 2/1-6, BL - Black cutworm (Agrotis ipsilon) 2, granulate cutworm (Feltia subterranea) 9. TEXAS - Brownsville - 2/1-7, 2BL, 52-86 F., trace precip. - Armyworm (Pseudaletia unipuncta) 16, black cutworm 79, cabbage looper (Trichoplusia ni) 8, corn earworm (Heliothis zea) 11, granulate cutworm 6, salt-marsh caterpillar (Estigmene acrea) 8, variegated cutworm (Peridroma saucia) 11, yellow-striped armyworm (Prodenia ornithogalli) 9.

Weather continued from page 82.

TEMPERATURE: A warming trend occurred over most of the western and central portions of the Nation. A large area from the central Rockies to the lower Ohio River Valley averaged 4°-9° above normal. North Dakota continued colder than normal although most parts of the State averaged 15° warmer than a week ago. Temperatures in Georgia and Florida averaged near normal to slightly below normal after two weeks of mild weather. New England averaged cooler than normal following three weeks with above normal temperatures. (Summary supplied by Environmental Data Service, ESSA.)

SURVEY METHODS

Selected References 1968

Part XV

Additional copies of Parts I through XV of this bibliography are available from Survey and Detection Operations.

POPULATION MEASUREMENT

BERRYMAN, A. A. 1968. Development of sampling techniques and life tables for the fir engraver Scolytus ventralis (Coleoptera: Scolytidae). *Canad. Ent.* 100(11): 1138-1147

DURANT, J. A. 1968. Leafhopper populations on ten corn inbred lines at Florence, South Carolina. *Ent. Soc. Amer. Ann.* 61(6):1433-1436

EIKENBARY, R. D. and FOX, R. C. 1968. Responses of nantucket pine tip moth parasites to tree level, orientation, and hosts per pine tip. *Ent. Soc. Amer. Ann.* 61(6):1380-1384

KNAPP, F. W. and ROGERS, C. E. 1968. A survey of sheep bot fly larva infestations in Kentucky. *J. Econ. Ent.* 61(1):23-25

PILLAI, M. K. K., MADHUKAR, B. V. R. and GROVER, K. K. 1968. A report on the breeding sites and incidence of Aedes in Delhi. *Cur. Sci.* 37(1):4-5  
Aedes aegypti, A. albopictus and A. vittatus

PROKOPY, R. J. 1968. Sticky spheres for estimating apple maggot adult abundance. *J. Econ. Ent.* 61(4):1082-1085

SOLOMON, M. E. 1968. Logarithmic regression as a measure of population density response: comment on a report by G. W. Salt. *Ecology* 49(2):357-358

SOUTHWOOD, T. R. E. (Editor). 1968. Insect abundance. *Roy. Ent. Soc. Symposia* No. 4, 160 pp.

WOLFENBARGER, D. O. and MOORE, W. D. 1968. Insect abundances on tomatoes and squash mulched with aluminum and plastic sheetings. *J. Econ. Ent.* 61(1):34-36

REARING

ADAMS, T. S. and MULLA, M. S. 1968. The reproductive biology of Hippelates collusor. III. effect of temperature on oogenesis. *Ent. Soc. Amer. Ann.* 61(2): 368-372

ALLEN, D. C., KNIGHT, F. B. and FOLTZ, J. L. 1968. A technique for rearing Choristoneura pinus on artificial diet. *Ent. Soc. Amer. Ann.* 61(2):362-364

BAILEY, D. L. and CHADA, H. L. 1968. Effects of natural (sorghum) and artificial (wheat germ) diets on development of the corn earworm, fall armyworm, and southwestern corn borer. *J. Econ. Ent.* 61(1):257-260

BECK, S. D., CHIPPENDALE, G. M. and SWINTON, D. E. 1968. Nutrition of the European corn borer, Ostrinia nubilalis. VI. A larval rearing medium without crude plant fractions. *Ent. Soc. Amer. Ann.* 61(2):459-462



- BRUBAKER, R. W. 1968. Seasonal occurrence of Voria ruralis, a parasite of the cabbage looper, in Arizona, and its behavior and development in laboratory culture. J. Econ. Ent. 61(1):306-309
- BUTLER, G. D., JR., BRYAN, D. E. and JACKSON, C. G. 1968. Development of the salt-marsh caterpillar parasite, Exorista mella at controlled constant and variable temperatures in the laboratory. J. Econ. Ent. 61(1):161-162
- CHAPMAN, P. J., LIENK, S. E. and DEAN, R. W. 1968. Bionomics of Choristoneura rosaceana. Ent. Soc. Amer. Ann. 61(2):285-290
- CHAUTHANI, A. R. and CLAUSSEN, D. 1968. Rearing Douglas-fir tussock moth larvae on synthetic media for the production of nuclear-polyhedrosis virus. J. Econ. Ent. 61(1):101-103
- CLEVELAND, M. L., WONG, T. T. Y. and LAMANSKY, K. W. 1968. Rearing methods and biology of the lesser peach tree borer, Synanthedon pictipes, in the laboratory. Ent. Soc. Amer. Ann. 61(4):809-814
- CREIGHTON, C. S. and CUTHBERT, E. R. JR. 1968. A semisynthetic diet for adult banded cucumber beetles. J. Econ. Ent. 61(1):337-338
- CUTHBERT, F. P., JR., CREIGHTON, C. S. and CUTHBERT, R. B., II. 1968. Mass rearing banded cucumber beetles, with notes on rearing spotted and striped cucumber beetles. J. Econ. Ent. 61(1):288-292
- GALFORD, J. R. and PEACOCK, J. W. 1968. Combined laboratory and greenhouse techniques for year-round rearing of the mimosa webworm, Homadaula anisocentra. Ent. Soc. Amer. Ann. 61(4):919-920
- GEEST, L. P. S. VAN DER. 1968. Effect of diets on the haemolymph proteins of larvae of Pieris brassicae. J. Insect Physiol. 14(4):537-542
- KAUFMANN, T. 1968. A laboratory study of feeding habits of Melanopus differentialis in Maryland (Orthoptera: Acrididae). Ent. Soc. Amer. Ann. 61(1):173-180
- KONSTANTINOV, A. S. 1968. Rearing chironomids in the laboratory. Zool. Zh. 47(4):626-627. In Rus., Engl. Sum.  
Chironomus dorsalis
- LAARMAN, J. J. and GEROLD, J. L. 1968. Mass rearing of mosquitoes for medical-entomological purposes. Ent. Ber. 28(5):86-87. In Du.
- LAKE, P. and FRIEND, W. G. 1968. The use of artificial diets to determine some of the effects of Nocardia rhodnii on the development of Rhodnius prolixus. J. Insect Physiol. 14(4):543-562
- LEVENGOOD, W. C. 1968. Rearing a giant silkworm moth, Hyalophora cecropia, on an artificial culture medium. Ent. Soc. Amer. Ann. 61(6):1594-1596
- LINLEY, J. R. 1968. Colonization of Culicoides furens. Ent. Soc. Amer. Ann. 61(6):1486-1490
- LOWRIE, R. C. and GUBLER, D. J. 1968. A time-saving method for the rearing of mosquitoes in the laboratory. Mosquito News 28(1):115-117
- MONROE, R. E., POLITYKA, C. S. and LAMB, N. J. 1968. Utilization of larval cholesterol-4-<sup>14</sup>C for reproduction in house flies fed unlabeled cholesterol in the adult diet. Ent. Soc. Amer. Ann. 61(2):292-296
- MOORE, G. E. and CLARK, E. W. 1968. Suppressing microorganisms and maintaining turgidity in coniferous foliage used to rear insects in the laboratory. J. Econ. Ent. 61(4):1030-1031

- MYERS, A. A. 1968. The diet of the Hadena rivularis Fab. (Lep. Hadeninae) group of species. Entomologist (London) 101(1257):35-36  
Restricted to the Caryophyllaceae
- NAYAR, J. K. 1968. Biology of Culex nigripalpus Theobald (Diptera: Culicidae). 1. Effects of rearing conditions on growth and the diurnal rhythm of pupation and emergence. J. Med. Ent. 5(1):39-46
- NELSON, D. R. and SUKKESTAD, D. R. 1968. Fatty acid composition of the diet and larvae and biosynthesis of fatty acids from <sup>14</sup>C-acetate in the cabbage looper, Trichoplusia ni. J. Insect Physiol. 14(2):293-300
- PILLAI, P. R. P. and WINSTON, P. W. 1968. Culture and nutrition of Caloglyphus anomalus (Acarina: Acaridae). Ent. Soc. Amer. Ann. 61(1):56-60
- RAULSTON, J. R. and AUCLAIR, J. L. 1968. Responses of Lygus hesperus to chemically defined diets. Ent. Soc. Amer. Ann. 61(6):1495-1500
- RAYNAUD, P. 1968. Rearing hybrids of Coleoptera Carabidae. Soc. Linn. Lyon. Bul. Mens. 37(1):34-42. In Fr.
- REED, D. K., HART, W. G. and INGLE, S. J. 1968. Laboratory rearing of brown soft scale and its hymenopterous parasites. Ent. Soc. Amer. Ann. 61(6):1443-1446
- REXRODE, C. O. and KRAUSE, C. R. 1968. Rearing larvae of Pseudopityophthorus pruinosis and P. minutissimus on ground phloem media. Ent. Soc. Amer. Ann. 61(4):814-816
- RHINE, J. J. and STAPLES, R. 1968. Effect of high-amylose field corn on larval growth and survival of five species of stored-grain insects. J. Econ. Ent. 61(1):280-282
- ROBERSON, J. L. and NOBLE, L. W. 1968. Rearing the tobacco budworm in honeycomb-like cells. J. Econ. Ent. 61(1):331-332
- ROBINSON, W. H. and FOOTE, B. A. 1968. Biology and immature stages of Megaselia aequalis, a phorid predator of slug eggs. Ent. Soc. Amer. Ann. 61(6):1587-1594  
Includes rearing
- ROTHSCHILD, A., EISENBERG, W. V. and VAZQUEZ, A. W. 1968. A simple rearing container for Drosophila. J. Hered. 59(2):98
- RUPRAH, N. S. and TREECE, R. E. 1968. Further studies on the effect of bovine diet on face fly development. J. Econ. Ent. 61(5):1147-1150
- RUSSELL, W. G. 1968. A medium for laboratory rearing of the peach tree and lesser peach tree borers. J. Econ. Ent. 61(5):1450-1451
- SCHAEFER, C. H. 1968. The relationship of the fatty acid composition of Heliothis zea larvae to that of its diet. J. Insect Physiol. 14(2):171-178
- SCHMIDT, C. D., HARRIS, R. L. and HOFFMAN, R. A. 1968. New techniques for rearing horn flies at Kerrville, 1967. Ent. Soc. Amer. Ann. 61(4):1045-1046
- SHAHJAHAN, M. 1968. Effect of diet on the longevity and fecundity of the adults of the tachinid parasite Trichopoda pennipes pilipes. J. Econ. Ent. 61(4):1102-1103
- SPIEKSMAN, F. T. M. 1968. Rearing the house dust mite Dermatophagoides pteronyssinus (Trt. 1897). Ent. Ber. 28(5):84. In Du.

STERN, V. M. and SHOREY, H. H. 1968. Biological notes on, and eradication of Trichogramma semifumatum from laboratory cultures of eight species of Noctuidae. J. Econ. Ent. 61(4):898-901

STRONG, R. G., PARTIDA, G. J. and WARNER, D. N. 1968. Rearing stored-product insects for laboratory studies: Six species of moths. J. Econ. Ent. 61(5):1237-1249

TAKAHASHI, M. 1968. Laboratory rearing of Culex (Melanoconion) portesi Senevet and Abonnenc. Mosquito News 28(1):82-84

VANDERZANT, E. S. 1968. Dietary requirements of the bollworm, Heliothis zea (Lepidoptera: Noctuidae), for lipids, choline, and inositol and the effect of fats and fatty acids on the composition of the body fat. Ent. Soc. Amer. Ann. 61(1):120-125

WARDOJO, S. 1968. Rearing of phytophagous insects with the help of synthetic media. Ent. Ber. 28(5):85. In Du.

WENE, G. P. 1968. Biology of the elm leaf beetle in southern Arizona. J. Econ. Ent. 61(5):1178-1180

WILLIAMS, J. H. and WILBUR, D. A. 1968. Respiratory environments of grain-infesting weevils. I. Comparison of culture-jar and laboratory rearing-room atmospheres. J. Econ. Ent. 61(2):345-348  
Sitophilus zeamais

WOOL, D. and KUGLER, J. 1968. Laboratory culture of chironomid species from the Hula Nature Preserve, Israel. Ann. Zool. Fenn. 5(1):153-154  
Glyptotendipes glaucus, Chironomus calipterus, and Kiefferulus chloronatus

YAMAMOTO, R. T. 1968. Mass rearing of the tobacco hornworm. I. Egg production. J. Econ. Ent. 61(1):170-174

YONKE, T. R. and MEDLER, J. T. 1968. Biologies of three species of Alydus in Wisconsin. Ent. Soc. Amer. Ann. 61(2):526-531

#### EQUIPMENT AND TECHNIQUES

ADKINS, T. R., JR. 1968. A foot-controlled device using carbon dioxide for the anesthetization of insects. J. Econ. Ent. 61(1):340-341

AHRING, R. M. and HOWELL, D. E. 1968. A suggested method of collecting insects associated with forage grass seed production. J. Econ. Ent. 61(4):975-981

ANDERSON, G. R., JOHNSON, S. W., MELANSON, H. G. and SCHMIDT, C. H. 1968. Conversion of a standard refrigerator to a biological incubator. U.S. Dept. Agr. ARS 33-131. 11 pp.

BRUST, R. A. and GIARDINO, J. 1968. Illumination and photography of mosquito eggs. Ent. Soc. Amer. Ann. 61(4):1039-1041

HARRELL, E. A. and SNOW, J. W. 1968. A rapid method of marking corn earworm moths with dyes for release studies. ARS 42-149. 6 pp.

HERON, R. J. 1968. Vital dyes as markers for behavioral and population studies of the larch sawfly, Pristiphora erichsonii (Hymenoptera: Tenthredinidae). Canad. Ent. 100(5):470-475

HORSBURGH, R. L. and ASQUITH, D. 1968. A light-weight cage to confine small insect predators with their prey on the host plant. J. Econ. Ent. 61(2):572-573

- HUDDLESTON, E. W. and FLUKER, S. S. 1968. An unbreakable, disposable aspirator. J. Econ. Ent. 61(1):338-339
- JARVIS, J. L. 1968. The balanced lattice as an experimental design for testing large numbers of plants for feeding preferences of white-fringed beetles. J. Econ. Ent. 61(1):132-134
- KARPEL, M. A. and HAGMANN, L. E. 1968. Medium and techniques for mass rearing the red-banded leaf roller. J. Econ. Ent. 61(5):1452-1454
- KASTING, R. and MCGINNIS, A. J. 1968. Growth cabinet for the efficient handling of containers used for rearing insects. Canad. Ent. 100(2):193-195
- KURCZEWSKI, F. E. and BREZNER, J. 1968. A use for the densitometer in insect taxonomy. Ent. Soc. Amer. Ann. 61(1):230-232
- LADD, T. L., JR. and BAKELY, C. L. 1968. A sorting trap for manual sexing of the Japanese beetle. J. Econ. Ent. 61(4):1121-1122
- LEFKOVITCH, L. P. and BRUST, R. A. 1968. Locating the eggs of Aedes vexans (Mg.) (Diptera: Culicidae). Bul. Ent. Res. 58(1):119-122
- LENER, W. 1968. Economical and disposable olfactometer. Ent. Soc. Amer. Ann. 61(6):1618
- LINLEY, J. R. and EVANS, F. D. S. 1968. A simple device to aid time-lapse studies with insects. Ent. Soc. Amer. Ann. 61(3):775-777
- LLOYD, E. P. and COAUTHORS. 1968. A red dye to evaluate bait formulations and to mass mark field populations of boll weevils. J. Econ. Ent. 61(5):1440-1444
- LORD, F. T. 1968. An appraisal of methods of sampling apple trees and results of some tests using a sampling unit common to insect predators and their prey. Canad. Ent. 100(1):23-33
- LOVITT, A. E., OKUMURA, G. T. and NELSON, H. D. 1968. Techniques for preparing slide mounts of female genitalia of the khapra beetle, Trogoderma granarium, and related species. Ent. Soc. Amer. Ann. 61(6):1623-1624
- MEDLEY, J. G. and AHRENS, E. H. 1968. Fluorescent dyes for marking and re-covering fowl ticks in poultry houses treated with insecticides. J. Econ. Ent. 61(1):81-84
- MILLER, T. and METCALF, R. L. 1968. A simple device for insect mechano-cardiogram. Ent. Soc. Amer. Ann. 61(6):1618-1620
- MILLER, T. A. and TREECE, R. E. 1968. A device for obtaining flies of known age. Ent. Soc. Amer. Ann. 61(2):548
- NICHOLLS, C. F. and GRILLS, E. E. 1968. An improved incubator for insects for operation above room temperature and relative humidity. J. Econ. Ent. 61(5):1142-1145
- ORTMAN, E. E., PETERS, D. C. and FITZGERALD, P. J. 1968. Vertical-pull technique for evaluating tolerance of corn root systems to northern and western corn rootworms. J. Econ. Ent. 61(2):373-375
- PATTON, R. L., EDWARDS, L. J. and GILMORE, S. K. 1968. Delivering safe levels of CO<sub>2</sub> for insect anesthesia. Ent. Soc. Amer. Ann. 61(4):1046-1047
- PERRY, A. S. 1968. An apparatus for dispensing house fly eggs mechanically. J. Econ. Ent. 61(4):1112-1113

- PLATNER, G. R. and OATMAN, E. R. 1968. An improved technique for producing potato tuberworm eggs for mass production of natural enemies. *J. Econ. Ent.* 61(4):1054-1057
- PLESS, C. D. 1968. A lightweight, weather-resistant field insect cage. *J. Econ. Ent.* 61(2):501-503
- RICKER, D. W. and GOEDEN, R. D. 1968. A fume ventilator for dissecting microscopes. *Ent. Soc. Amer. Ann.* 61(4):1043-1044
- ROBERTS, D. W. and GRANADOS, R. R. 1968. An inexpensive device for pulling glass microneedles for injection of small arthropods. *Ent. Soc. Amer. Ann.* 61(4):1042-1043
- ROWLEY, W. A., GRAHAM, C. L. and WILLIAMS, R. E. 1968. A flight mill system for the laboratory study of mosquito flight. *Ent. Soc. Amer. Ann.* 61(6):1507-1514
- SHOWERS, W. B., LEWIS, L. C. and REED, G. L. 1968. A possible marker for European corn borer moths. *J. Econ. Ent.* 61(5):1464-1465
- STERN, V. M. and MUELLER, A. 1968. Techniques of marking insects with micro-nized fluorescent dust with especial emphasis on marking millions of Lygus hesperus for dispersal studies. *J. Econ. Ent.* 61(5):1232-1237
- TARSHIS, I. B. 1968. Use of fabrics in streams to collect black fly larvae. *Ent. Soc. Amer. Ann.* 61(4):960-961
- THOMAS, H. A. 1968. A description of the pupa of the pales weevil, Hylobius pales, and a method for identifying its sex. *Canad. Ent.* 100(4):434-437
- TRUMAN, J. W. 1968. Acetone treatment for preservation of adult and larval mosquitoes. *Ent. Soc. Amer. Ann.* 61(3):779-780
- WIRTH, W. W. and MARSTON, N. 1968. A method for mounting small insects on microscope slides in Canada balsam. *Ent. Soc. Amer. Ann.* 61(3):783-784
- WOODRING, J. P. 1968. An automatic collecting device for tyroglyphid (Acaridae) mites. *Ent. Soc. Amer. Ann.* 61(4):1030-1031
- WOODRING, J. P. and CUTCHER, J. J. 1968. Vital dye marking of tyroglyphid (Acaridae) mites. *Ent. Soc. Amer. Ann.* 61(4):1031-1032

#### TRAPS

- BARTNETT, R. E. and STEPHENSON, R. G. 1968. Effect of mechanical barrier mesh on light trap collections in Harris County, Texas. *Mosquito News* 28(1):108-109
- COLE, A. E. 1968. Light weight battery for use with blacklight trap. *U.S. Dept. Agr. Coop. Econ. Ins. Rpt.* 18(23):505
- COOK, P. P., JR. and HORN, H. S. 1968. A sturdy trap for sampling emergent Odonata. *Ent. Soc. Amer. Ann.* 61(6):1506-1507
- COON, B. F. 1968. Aphid trapping with black-light lamps. *J. Econ. Ent.* 61(1):309-310
- COON, B. F. 1968. Aphid vectors of barley yellow dwarf virus in blacklight traps in eastern United States. *J. Econ. Ent.* 61(5):1279-1282
- COON, B. F. and PEPPER, J. O. 1968. Alate aphids captured in air traps arranged at different heights. *J. Econ. Ent.* 61(5):1473-1474

- CROSS, W. H. and HARDEE, D. D. 1968. Traps for survey of overwintered boll weevil populations. U.S. Dept. Agr. Coop. Econ. Ins. Rpt. 18(20):430
- ELLINGTON, J. J., NORRIS, J. F. and DURKIN, J. 1968. A simplified field cage for trapping pink bollworm adults. J. Econ. Ent. 61(5):1468-1469
- FAY, R. W. 1968. A trap based on visual responses of adult mosquitoes. Mosquito News 28(1):1-7  
Tests with Aedes aegypti
- GONZALEZ, D. and RAWLINS, W. A. 1968. Aphid sampling efficiency of Moericke traps affected by height and background. J. Econ. Ent. 61(1):109-114
- HARDWICK, D. F. 1968. A brief review of the principles of light trap design with a description of an efficient trap for collecting noctuid moths. Lepidopterists' Soc. J. 22(2):65-75
- HARTSTACK, A. W., JR., HOLLINGSWORTH, J. P. and LINDQUIST, D. A. 1968. A technique for measuring trapping efficiency of electric insect traps. J. Econ. Ent. 61(2):546-552
- HOLLINGSWORTH, J. P., HARTSTACK, A. W., JR. and LINDQUIST, D. A. 1968. Influence of near-ultraviolet output of attractant lamps on catches of insects by light traps. J. Econ. Ent. 61(2):515-521
- KALOOSTIAN, G. H. and WOLF, W. W. 1968. Attraction of pear psylla to blacklight. J. Econ. Ent. 61(1):145-147
- KISHIMOTO, R. 1968. Yellow pan water trap for sampling the small brown planthopper, Laodelphax striatellus (Fallen), a vector of the rice stripe virus. Appl. Ent. Zool. 3(1):37-48
- LAMBERT, H. L. and WILSON, E. T. 1968. A device for examining large insect traps. J. Econ. Ent. 61(1):324-326
- LOY, V. A., BARNHART, C. S. and THERRIEN, A. A. 1968. A collapsible, portable vehicle-mounted insect trap. Mosquito News 28(1):84-87
- MAXWELL, C. W. 1968. Interception of apple maggot adults on colored traps in an orchard. J. Econ. Ent. 61(5):1259-1260
- MCFADDEN, M. W. and LAM, J. J., JR. 1968. Influence of population level and trap spacing on capture of tobacco hornworm moths in blacklight traps with virgin females. J. Econ. Ent. 61(5):1150-1152
- MEDLER, J. T. and GHOSH, A. K. 1968. Apterous aphids in water, wind, and suction traps. J. Econ. Ent. 61(1):267-270
- MERRILL, W. and SKELLY, J. M. 1968. A window trap for collection of insects above the forest canopy. J. Econ. Ent. 61(5):1461-1462
- NIJHOLT, W. W. and CHAPMAN, J. A. 1968. A flight trap for collecting living insects. Canad. Ent. 100(11):1151-1153
- PILLAI, J. S. and MACNAMARA, F. N. 1968. A portable mosquito trap for use with a bantam fowl. Mosquito News 28(1):87-90
- SIGGS, L. W. 1968. New forest mercury vapour light records for 1967. Ent. Rec. J. Variation 80(4):92-93  
Lepidoptera

STEELMAN, C. D., RICHARDSON, C. G., SCHAEFER, R. E. and WILSON, B. H. 1968. A collapsible truck-boat trap for collecting blood-fed mosquitoes and tabanids. Mosquito News 28(1):64-67

STEWART, P. A., GENTRY, C. R., KNOTT, C. M. and LAM, J. J., JR. 1968. Seasonal trends in catches of moths of the tobacco hornworm, tomato hornworm, and corn earworm in traps equipped with blacklight lamps in North Carolina. J. Econ. Ent. 61(1):43-46

STEWART, P. A. and LAM, J. J., JR. 1968. Catch of insects at different heights in traps equipped with blacklight lamps. J. Econ. Ent. 61(5):1227-1230

TURNER, E. C. and EARP, U. F. 1968. A timing device for direct current New Jersey light traps. Mosquito News 28(1):75-76

VAIL, P. V., HOWLAND, A. F. and HENNEBERRY, T. J. 1968. Seasonal distribution, sex ratios, and mating of female noctuid moths in blacklight trapping studies. Ent. Soc. Amer. Ann. 61(2):405-411

WASHINO, R. K. and HOKAMA, Y. 1968. Quantitative sampling of aquatic insects in a shallow-water habitat. Ent. Soc. Amer. Ann. 61(3):785-786

ZHOGOLEV, D. T. and YUSUPOV, K. YU. 1968. Using light traps for collecting of malaria type mosquitoes. Zool. Zh. 47(4):628-629. In Rus., Engl. Sum.

#### ATTRACTANTS

BERGER, R. S. and CANERDAY, T. D. 1968. Specificity of the cabbage looper sex attractant. J. Econ. Ent. 61(2):452-454

BRADLEY, J. R., JR., CLOWER, D. F. and GRAVES, J. B. 1968. Field studies of sex attraction in the boll weevil. J. Econ. Ent. 61(5):1457-1458

DAVIS, H. G. and COAUTHORS. 1968. New chemical attractants for yellow jackets (Vesputa spp.). J. Econ. Ent. 61(2):459-462

DOOLITTLE, R. E. and BEROZA, M. 1968. Gas chromatographic analysis of the insect attractant cue-lure and related compounds. J. Econ. Ent. 61(1):21-23

FLETCHER, L. W., CLABORN, H. V., TURNER, J. P. and LOPEZ, E. 1968. Difference in response of two strains of screw-worm flies to the male pheromone. J. Econ. Ent. 61(5):1386-1388

GRAVITZ, N. and WILLSON, C. 1968. A sex pheromone from the citrus mealybug. J. Econ. Ent. 61(5):1458-1459

GUERRA, A. A. 1968. New techniques to bioassay the sex attractant of pink bollworms with olfactometers. J. Econ. Ent. 61(5):1252-1254

HAYES, J. T. and WHEELER, A. G., JR. 1968. Evidence for a sex attractant in Hemicrepidius decoloratus (Coleoptera: Elateridae). Canad. Ent. 100(2):207-208

JACOBSON, M. and HARDING, C. 1968. Insect sex attractants. IX. Chemical conversion of the sex attractant of the cabbage looper to the sex pheromone of the fall armyworm. J. Econ. Ent. 61(2):394-396

JACOBSON, M., TOBA, H. H., DEBOLT, J. and KISHABA, A. N. 1968. Insect sex attractants. VIII. structure-activity relationships in sex attractant for male cabbage loopers. J. Econ. Ent. 61(1):84-85

KAWANO, Y., MITCHELL, W. C. and MATSUMOTO, H. 1968. Identification of the male oriental fruit fly attractant in the golden shower blossom. *J. Econ. Ent.* 61(4): 986-988

KEYS, R. E. and MILLS, R. B. 1968. Demonstration and extraction of a sex attractant from female angoumois grain moths. *J. Econ. Ent.* 61(1):46-49

KLUN, J. A. 1968. Isolation of a sex pheromone of the European corn borer. *J. Econ. Ent.* 61(2):484-487  
Ostrinia nubilalis

LOPEZ D., F, SPISHAKOFF, L. M. and HERNANDEZ BECERRIL, O. 1968. Pelletized lures for trapping the Mexican fruit fly. *J. Econ. Ent.* 61(1):316-317

MANGUM, C. L. and CALLAHAN, P. S. 1968. Attraction of near-infrared radiation to Aedes aegypti. *J. Econ. Ent.* 61(1):36-37

MORGAN, N. O. and PICKENS, L. G. 1968. Influence of air temperature on the attractiveness of electric lamps to house flies. *J. Econ. Ent.* 61(5):1257-1259

ROELOFS, W. L. and ARN, H. 1968. Sex attractant of the red-banded leaf roller moth. *Nature (London)* 219(5153):513  
Argyrotaenia velutinana

ROELOFS, W. L. and FENG, K. C. 1968. Sex pheromone specificity tests in the Tortricidae--an introductory report. *Ent. Soc. Amer. Ann.* 61(2):312-316

ROLLER, H. and COAUTHORS. 1968. Sex pheromones of pyralid moths. I. Isolation and identification of the sex-attractant of Galleria mellonella L. (greater wax-moth). *Acta Ent. Bohemoslov.* 65(3):208-211

SCALES, A. L. 1968. Female tarnished plant bugs attract males. *J. Econ. Ent.* 61(5):1466-1467

SHOREY, H. H., MCFARLAND, S. U. and GASTON, L. K. 1968. Sex pheromones of noctuid moths. XIII. Changes in pheromone quantity, as related to reproductive age and mating history, in females of seven species of Noctuidae (Lepidoptera). *Ent. Soc. Amer. Ann.* 61(2):372-376

SILVERSTEIN, R. M. and COAUTHORS. 1968. Brevicomins: principal sex attractant in the frass of the female western pine beetle. *Science* 159(3817):889-891  
Dendroctonus brevicomis

TERAN, F. O. 1968. The potential use of insecticide-treated cane pieces to attract and control adults of the sugarcane weevil, Metamasius bilobus, in Bolivia. *J. Econ. Ent.* 61(4):1031-1033

TRAYNIER, R. M. M. 1968. Sex attraction in the Mediterranean flour moth, Anagasta kuhniella: location of the female by the male. *Canad. Ent.* 100(1):5-10



SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968

INTRODUCTION

The summary of insect conditions, beginning in this issue, will be continued in several succeeding issues of the Cooperative Economic Insect Report. This was compiled in Survey and Detection Operations from annual summaries that were submitted by various State and Federal cooperators. A list of the individuals who assisted in assembling data, as well as a summary of the weather for 1968, will appear after the last section of this summary is published. Survey and Detection Operations appreciates the assistance of all individuals who have participated in the preparation of material for the 1968 Summary.

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) hibernation survey was conducted in El Paso County, TEXAS, during the week of March 18 on 89 square yards of surface trash. Results were negative. A total of 600 square yards of trash was collected and examined within the High Plains control zone. One live weevil was recovered. Boll weevil traps were installed in four fields south of El Paso and one field on the Texas-New Mexico State line. One weevil was collected in the latter field. Boll weevil traps were placed in the High Plains area, coordinating with field survey to determine the area to be treated. Trap catches increased greatly during the last week of August. Control was begun on September 3 and continued through November 4, 1968; 437,269 acres were treated. One boll weevil was found in Andrews County, Texas. This county joins the southeastern corner of New Mexico.

BOLL WEEVIL COMPLEX (Anthonomus grandis complex) detection surveys were conducted in ARIZONA and NEW MEXICO. The new boll weevil sex lure trap was used. No weevils were found in New Mexico; however, heavy infestations were found in the Avra Valley area of Arizona. A heavy concentration of thurberia weevil (A. grandis thurberiae) was found in the Molino Basin. No weevils of the complex were reported from CALIFORNIA during 1968.

The BROWN-TAIL MOTH (Nygmia phaeorrhoea) population built up in the Cape Cod area of MASSACHUSETTS. Infestations were found in York and Cumberland Counties, MAINE; and in Hillsboro, Merrimack, Belknap, and Carroll Counties, NEW HAMPSHIRE. A total of 220 webs was destroyed on 11 properties in New Hampshire.

Surveys for CALIFORNIA RED SCALE (Aonidiella aurantii) in citrus groves and residences with host material in ARIZONA yielded 21 home infestations in central Phoenix during January. A 35-acre grove at Mesa was reinfested in June, despite repeated attempts during the past 10 years to eradicate this infestation. A reinfestation was found in a Phoenix organic nursery in late July, and 46 infestations were found in an older established neighborhood during September at Tucson, Pima County.

CARIBBEAN FRUIT FLY (Anastrepha suspensa) was reported for the first time in St. Johns and Hernando Counties, FLORIDA, during 1968. Infested counties now total 30. The total number of flies trapped since 1966 indicates a buildup. This fruit fly remained a serious pest of dooryard fruits, including certain types of citrus, and damaged a 20-acre grapefruit grove in the Fort Pierce area.

CEREAL LEAF BEETLE (Oulema melanopus) was found for the first time in KENTUCKY on May 22, 1968, when specimens from Boone County were collected. Additional counties found infested included Oldham, Scott, Fayette, Gallatin, Pendleton, Bracken, Robertson, Mason, Fleming, Lewis, Greenup, Boyd, and Lawrence. The beetle was found in WEST VIRGINIA for a new State record on May 8, 1968, in Wood County. On May 22 an infestation was found in Hancock County. The beetle spread to 13 additional counties in PENNSYLVANIA, namely Erie, Crawford, Warren, Venango, Forest, Clarion, Armstrong, Indiana, Westmoreland, Allegheny, Washington, Greene, and Fayette. Cuyahoga was the only new county reported in OHIO. No new counties

were reported in MICHIGAN. Six new counties were reported infested in INDIANA: Monroe, Brown, Jackson, Ohio, Jefferson, and Switzerland. In ILLINOIS, six counties were reported infested for the first time: Shelby, Moultrie, Champaign, Livingston, Grundy, and Cook. Control treatments were conducted on 507,360 acres in the State.

A survey for CHERRY FRUIT FLIES (*Rhagoletis* spp.) was conducted in the major sour cherry commercial orchard area of WISCONSIN during June, July, and August. A total of 240 sticky traps using ammonium carbonate bait were hung in cherry trees at 59 locations. No European cherry fruit flies (*R. cerasi*) were found; however, cherry fruit fly (*R. cingulata*), black cherry fruit fly (*R. fausta*), and apple maggot (*R. pomonella*) were caught.

CITRUS BLACKFLY (*Aleurocanthus woglumi*) is not known to occur in the United States. Surveys were conducted in the lower Rio Grande Valley of TEXAS, however, to detect infestations if they occurred. As an aid in keeping this species from gaining a foothold in this country, a chemical control zone is maintained from the Rio Grande southward for 100 miles into Mexico. Within this area, when infestations were found, infested trees and the margins around them were sprayed with carbo-phenathion. Spraying of 111,606 trees accomplished the desired goal of holding this pest in check.

The CITRUS WHITEFLY (*Dialeurodes citri*) eradication program in CALIFORNIA was terminated in spring of 1968 due to large, widely separated infestations.

Survey for CUBAN MAY BEETLE (*Phyllophaga bruneri*) in Dade and southern Broward Counties, FLORIDA, was completed June 26. No northward movement was noted. The northernmost boundary remained within the city of Miami. The southernmost infestation was extended 10 miles southwest to the Subtropical Experiment Station at Homestead. Survey was conducted as far south as Florida City with negative results.

EUROPEAN CHAFER (*Amphimallon majalis*) was reported for the first time in Orange, Chautauqua, Steuben, and Ulster Counties, NEW YORK. The first flight of chafers was noted on June 17 in Cleveland, OHIO, June 15 in Sayre, PENNSYLVANIA, and June 19 in Bayonne, NEW JERSEY. Granular chlordane and granular dieldrin were used in treating turf and other areas in MASSACHUSETTS, New York, Pennsylvania, and Ohio. Adults were recovered in Bratenahl, a suburb of Cleveland, Ohio; Winthrop, Suffolk County, Massachusetts; and Newark, Essex County, and North Bergen, Hudson County, New Jersey. Extensions of infestations were noted in Broome, Erie, Genesee, Jefferson, Livingston, Niagara, Oneida, and Queens Counties and Manhattan proper in New York.

The GOLDEN NEMATODE (*Heterodera rostochiensis*) infestation in Steuben County, NEW YORK, was delimited. Eight fields, comprising 350 acres, were found infested. Two of these fields, with a total of 84 acres, produced seed stock. Survey of areas with a history of receiving seed stock from Steuben County failed to reveal any infestation. A total of 22,102 samples was collected from 15,518 acres of tablestock potato land. On Long Island, 21,798 samples were collected from 9,323 acres. Three fields contained viable cysts. Growers and shippers on Long Island are encouraged to wash all potatoes from exposed fields prior to shipment. A total of 1,312 acres was treated for control of the golden nematode in New York.

Light numbers of a GRASS BUG (*Labops hirtus*) fed on 10,000 acres of wheatgrass on the Hualapai Indian Reservation, Mohave County, ARIZONA, in late May. During early June counts averaged 35 per square yard on wheatgrass at Reservation Flats in the Sitgreaves National Forest, Apache County. *Labops hesperius*, *L. utahensis*, *Irbisia pacifica*, *I. brachycera*, and *I. shulli* were the most conspicuous range grass pests in UTAH for 1968. Although planted grasses were damaged on several thousand acres, damage was less extensive than during 1966 or 1967. Most damage occurred in the southern range areas damaged during the preceding 2 years. To control these pests, 5,184 acres of Forest Service rangeland in the east fork of the Sevier River in Garfield and Kane Counties were aerially sprayed. The low

volume organic phosphate used, gave about 100 percent control. Labops hesperius ranged up to 5 per square foot and damaged wheatgrass in Caribou County, IDAHO. These pests damaged native grass in Elmore County in late May and 200 acres of rangeland wheatgrass in Clark County in late June. A black species, Irbisia pacifica, infested a field of wheatgrass in Idaho County during early June.

GRASSHOPPERS averaged 2.7 per square yard in fields and 3.1 in margins in ILLINOIS the last week of August. This was a slight increase over 1967. Second instars of Dissosteira carolina were noted by May 3 in WISCONSIN, first instars of Melanoplus sanguinipes by June 21; few M. femurrubrum second instars and M. differentialis third instars by July 12. M. sanguinipes and D. carolina adults occurred by August 9, M. femurrubrum adults August 16. Adults were still present on October 27. Numbers were low all season and feeding on crops was scarce. Economic numbers of grasshoppers were general in the same areas of MINNESOTA as in 1967, but populations were lower. This decline was due to wet weather in June and early July during and after hatch. Economic numbers infested an estimated 210,945 acres of alfalfa, red clover, and grass compared with 288,235 acres in 1967. Crop damage was not apparent during summer. Late in the season, grasshoppers damaged marginal rows of corn and soybeans in some areas. Egg surveys in fields with economic populations during the adult survey, showed egg pods in 84 percent of the fields. M. femurrubrum was again dominant throughout MINNESOTA. Chorthippus curtipennis has increased during the last few years primarily in the western area. This grasshopper has caused little crop damage but may cause problems in grassy areas. Other grasshoppers were important in only a few fields. Economic infestations will again occur in the west-central, central, and east-central districts in 1969. Infestations will be dispersed throughout this area on alfalfa and along roadsides and ditchbanks. Light and noneconomic infestations should be widely scattered, isolated problems. Weather conditions during egg hatch and early nymphal growth could modify this outlook.

Grasshopper infestations have been declining in NORTH DAKOTA since the severe outbreak in 1961 and were at the lowest level since that year. Hatch began in mid-May and continued through July. The main hatch occurred during the week of June 24. Damage was evident by mid-June. M. femurrubrum and M. differentialis eggs did not hatch until mid-June. Infestations were generally noneconomic over most of the State. The fall adult survey showed light infestations in Grant, Morton, and Emmons Counties and parts of Cass, Richland, and Ransom Counties. Threatening to severe infestations occurred in a few scattered fields, mainly in alfalfa, soil bank, and sweetclover. Grasshoppers were generally noneconomic on rangeland. M. femurrubrum, M. bivittatus, and M. sanguinipes were dominant. Grasshoppers are not expected to be a widespread problem in North Dakota during 1969. Surveys in SOUTH DAKOTA in late 1967 indicated a potentially severe grasshopper outbreak in 1968 if weather conditions were ideal. Prior to early May an egg development survey in eastern Fall River County along the Cheyenne River indicated that predators had destroyed up to 25 percent of the grasshopper eggs in some locations and that parasitism had accounted for up to 20 percent of the eggs. M. bivittatus and M. differentialis eggs hatched in cropland areas and Agenotettix deorum on rangeland in western Custer County the third week of May. By mid-June, when first cutting of alfalfa was underway, M. femurrubrum began to emerge. In the southeastern area M. bivittatus was mostly in second to third instars and M. differentialis in first to second instars. As expected, a threatening to severe buildup in Sanborn and Davison Counties ranged 25-30 grasshoppers per square yard in field margins and roadsides, and up to 50 per square yard in weedy areas. Similar buildups occurred along margins of winter wheat in eastern Pennington County. By the first week of July, up to 30 grasshoppers per square yard infested some alfalfa in west-central Sanborn County with 40-50 per square yard along margins of heavily infested areas. West of the Missouri River in Fall River, eastern Pennington, Shannon, Bennett, and Washabaugh Counties, counts per square yard ranged 4-15 in fields and 15-20 in margins of alfalfa. Through the end of July, rangeland infestations remained light. Apparent damage to cropland was confined to alfalfa fields and margins of wheat and corn. In some areas of South Dakota sufficient moisture through the middle of August kept crops ahead of damage. Chemical control on roadsides and fields was limited. A potential for

an economic infestation exists over most of eastern and parts of western South Dakota during 1969, particularly along the Cheyenne River.

Grasshoppers declined in NEBRASKA in 1968. Economic numbers infested only a few scattered areas in the southeast and northeast districts. No economic infestations were reported on western range and crop lands. The heaviest concentrations in the north occurred from Valentine to Lewis, and Clark Lake. Dominant species in the eastern area were Melanoplus femurrubrum, M. differentialis, and M. bivittatus. On western area croplands, M. bivittatus, M. differentialis, and M. sanguinipes were dominant. Aulocara ellioti, Ageneotettix deorum, and Trachyrhachys kiowa were important on rangeland in Nebraska. Grasshoppers caused concern and damage to margins of many wheatfields in south-central and southwestern KANSAS in the fall of 1968. Borders of many fields in this area were treated. M. femurrubrum, M. sanguinipes, and M. bivittatus caused some damage in many areas of the State, but less than in 1967. Treatments were applied to a large acreage, particularly in the south-central and southwest districts. The 1968 fall survey showed populations of 3-7 per square yard in most areas. In general, grasshopper numbers were below those of 1967 in Kansas. Grasshopper egg hatch in south-central OKLAHOMA began in early April. Fall surveys showed 687,000 acres of rangeland in 20 southwest, west-central, and northwest counties economically infested. Dominant rangeland species were Ageneotettix deorum, Phliobostroma quadrimaculatum, Aulocara ellioti, Drepanopterna femoratum, Metator pardalinus, Cordillacris crenulata, and Melanoplus lakinus. Dominant crop margin species were Aeoloplus turnbulli, M. packardii, and M. bivittatus. Hippiscus spp. caused damage to grasses and rangeland in TEXAS.

In NEW MEXICO 292,931 acres of rangeland were treated for grasshoppers in De Baca, Guadalupe, and Quay Counties. Light to moderate numbers of Trimerotropis spp. in ARIZONA were scattered throughout Cochise, Graham, and Maricopa Counties in early May. Grasshoppers appeared in areas of CALIFORNIA that have been relatively free since 1961 when the fungus Entomophthora grylli practically eliminated these pests. Infestations appeared in Kings, Riverside, and Kern Counties in April and by the end of May were general and heavy. Largest infestations appeared in the Sierra foothills and northern counties. Heavy infestations, primarily on rangelands and pastures, continued through July and decreased sharply in August. Some fruits, vegetables, and alfalfa were damaged. Grasshoppers were also locally damaging to grain plantings. Most treatment was done by individual growers. Treatments were applied to outbreaks totaling 70,000 acres in Humboldt, Lassen, Siskiyou, Kern, Riverside, and San Diego Counties. Grasshoppers caused some damage to potatoes in Siskiyou County, California. Although grasshoppers were more numerous in NEVADA than in 1967, no control programs were required and only small, localized acreages were treated. The 1968 fall adult survey indicated a potential infestation on 131,335 acres of rangeland in 1969, mostly in Eureka, Humboldt, Lander, and Pershing Counties.

Economic grasshopper infestations were small and scattered in OREGON during 1968. An estimated 24,000 acres in the northeastern area were infested with 8 or more grasshoppers per square yard; 12,000 of these acres are Federal lands. Melanoplus sp. nymphs damaged peppermint fields in Lane County where treatments were necessary. Some damage was also reported from Josephine County. First and second stage nymphs of Oedaleonotus enigma and M. sanguinipes were observed in western IDAHO in late April. First to third instars of O. enigma averaged 5 per square yard on rangeland south of Glens Ferry and scattered concentrations occurred on range north of Shoshone Falls in early May. Adults of O. enigma and Aulocara ellioti were first noted the second week of June in Elmore County. Nymphs and adults ranged 5-20 per square yard on an estimated 8,300 acres of rangeland. More grasshoppers survived to adult stage in 1968 than in 1967 in MONTANA. Range conditions were again excellent and damage was noticeable only in a very few areas. Some 21,000 acres of privately operated range were treated where heavy populations threatened needed forage. Again, some grain margins were sprayed as these pests moved into new fall seedings. In WYOMING there was one small control project on rangeland grasshoppers in 1968. On July 31, 7,768 acres were sprayed near Douglas, Converse County. More than 90 percent of the

grasshoppers were killed. The 1968 adult survey indicates that 1,164,300 acres of rangeland were economically infested. Grasshopper populations and damage in UTAH were below normal on corn, sorghum, and small grain. Although populations were generally lower than normal on rangeland, moderate to spotty damage occurred in many counties. An aerial spray program controlled outbreaks on planted grasses on over 6,000 acres of private range in the Cedar Mountain area of Iron County. Damage on forage was lighter than normal although spotty in various localities. Populations were high in some areas and threatened damage for 1969 in Utah County, particularly west of Utah Lake. A total of 124,150 acres was surveyed in 10 Utah counties in 1968.

Defoliation by GYPSE MOTH (Porthetria dispar) occurred on several hundred acres west of Hawk Mountain in Berks County, PENNSYLVANIA. Many larvae began "spinning up" on June 24. Defoliation occurred in the Morristown National Historical Park area, NEW JERSEY, during the third week of June, and in several areas of NEW HAMPSHIRE and MAINE. Aerial control was completed on June 4 in New Jersey, when 48,288 acres were treated. In NEW YORK, 17,253 acres were treated, and in Pennsylvania, 56,291 acres received treatment. New county records were established in Lancaster, Lebanon, Lehigh, and Montgomery Counties, Pennsylvania, when gypsy moth adults were trapped. Moths were recovered also in the following areas: Pennsylvania - Berks, Bucks, Carbon, Chester, Luzerne, Monroe, Northampton, Pike, Schuylkill, and Wayne Counties; New Jersey - Atlantic, Burlington, Camden, Cape May, Gloucester, Hunterdon, Mercer, Middlesex, Salem, Somerset, and Warren Counties; New York - Delaware County. Over 44,000 traps were utilized. For the second consecutive year, no moths have been trapped in MICHIGAN.

IMPORTED FIRE ANT (Solenopsis saevissima richteri) was detected for the first time in Lauderdale County, ALABAMA, and minor extensions were found in 18 counties. Only Colbert, Jackson, and De Kalb Counties remain uninfested in that State. No infestations were found in ARKANSAS outside the known infested counties in 1968. No new counties were found infested in FLORIDA, but extensions were found in 10 counties. The ant was found in Bacon, Jasper, Johnson, Long, McIntosh, and Montgomery Counties, GEORGIA, for the first time, and extensions of existing infestations were found in 6 counties. Claiborne Parish, LOUISIANA, remained free of imported fire ant in 1968; however, extensions were found in 7 parishes. Holmes County, MISSISSIPPI, was found infested for the first time, and extensions were noted in 17 counties. No new counties were found infested in NORTH CAROLINA, but extensions were found in 3 counties. In SOUTH CAROLINA, imported fire ant was found for the first time in Kershaw and Sumter Counties, and extensions reported from 2 counties. No imported fire ant has been found in TENNESSEE since 1966. New counties found infested in TEXAS included Cherokee, Shelby, and Trinity. Minor extensions occurred in 3 counties. Of the 14.2 million acres treated in 1968, 278 thousand were in Alabama, 20 thousand in Arkansas, 3.99 million in Florida, 7.2 million in Georgia, 6.4 thousand in Louisiana, 1.89 million in Mississippi, 75 thousand in North Carolina, 27 thousand in South Carolina, and 43 thousand in Texas.

Over 41,000 traps were operated to detect JAPANESE BEETLE (Popillia japonica) during 1968. Established infestations were found for the first time in De Kalb and Lee Counties, ALABAMA. Over 1,100 traps were operated during the year. Beetles were found in the treated area around Irondale, Jefferson County. Trapping in INDIANA resulted in finding this scarab in Hendricks, Lawrence, and Tipton Counties for the first time, and in Hancock County for the first time since 1958. Livingston County, ILLINOIS, was a new county, as were Christian, Grant, Leslie, and Menifee Counties, KENTUCKY. Other new county records included Putnam, OHIO, Anderson, and Lancaster, SOUTH CAROLINA. First adults of the season were reported from VIRGINIA on June 3, Illinois June 17, MICHIGAN June 25, and Ohio July 1. Heavy catches of beetles occurred in the 1966 treated area of East St. Louis, Illinois. Washington and Sullivan Counties, TENNESSEE, evidently are becoming reinfested. In that State beetles were collected in Anderson, Blount, Greene, Knox, Loudon, Monroe, Unicoi, and Washington Counties. Over 6,000 beetles were trapped in the Hamby Valley area of Monroe County, Tennessee. Survey was conducted in most States outside the generally infested area.

P. japonica was heavy in NEW JERSEY, DELAWARE, and southern NEW ENGLAND. Dover Air Force Base, Delaware, remained hazardous throughout the season, with 1,006 aircraft treated. In NORTH CAROLINA survey was confined to areas of regulatory importance; heavy infestations occurred. Populations were heavy in all States in 1968. In Monroe and Lenawee Counties, Michigan, 16 single finds were made around the perimeter of the current regulated area; Warren had 2,000 acres generally infested; Kalamazoo had one single find; Berrien County has approximately 4,600 acres generally infested. All surveys in cities of Lansing, Grand Rapids, and Kalamazoo were negative.

Survey conducted for KHAPRA BEETLE (Trogoderma granarium) in 18 States and the Republic of Mexico was negative during 1968. No infestations are known to occur in North America.

No specimens of MEDITERRANEAN FRUIT FLY (Ceratitis capitata) were caught in the United States or Mexico during 1968; 23,600 traps were operated for detection of this pest.

A detection survey for MEXICAN BEAN BEETLE (Epilachna varivestis) in IDAHO revealed one adult and one egg mass in adjacent bean fields at Rupert, Minidoka County, in mid-July.

MEXICAN FRUIT FLY (Anastrepha ludens) trapping was conducted in the States of Florida, Louisiana, Texas, Arizona and California, and in the Republic of Mexico. Flies were trapped in Hidalgo and Webb Counties, TEXAS; none were found in the other States. On January 22, 1968, a nongravid female was trapped near Harlingen. It was not until October 10 that another fly, a female, was trapped near McAllen. This was the earliest since the 1949-1950 fruit season. A single fly was trapped in each of Webb and Hidalgo Counties in November. Two larvae were found in fruit in Hidalgo County. Native flies were trapped in Baja California where sterile flies are released for control purposes. Such sterile flies are marked prior to release.

An insignificant MORMON CRICKET (Anabrus simplex) infestation was reported from La Grande, OREGON. Scattered crickets were found in Elko County, NEVADA; however, no indication of banding was found. Approximately 700 acres were found with light populations in Pershing and Eureka Counties, Nevada. Scattered crickets were seen in Rich County, UTAH, and Meagher County, MONTANA. No control was necessary in 1968.

Sex lure traps were operated for the detection of PINK BOLLWORM (Pectinophora gossypiella) in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, Texas, South Carolina, Arizona, New Mexico, and California. Pink bollworm was lighter during 1968 in all States except California. In ARKANSAS, 2 moths were trapped in Miller County and 2 larvae found in Cleburne County. In LOUISIANA, one larva was found in De Soto Parish and one larva in Red River Parish. Moths were trapped in Avoyelles, Caddo, Grant, Natchitoches, Rapides, and Red River Parishes. There was a late buildup in NEW MEXICO, but it was lighter than last year. Lint cleaner inspections and trap catches in ARIZONA were light, though there were large numbers of larvae in bolls and debris in Arizona cotton fields in January and February 1968. Moths were trapped in Nye and Clark Counties, NEVADA, and larvae were found in Nye County. No pink bollworm was found in the Bakersfield area of Kern County, CALIFORNIA, in 1968. As a means of control, over 9 million sterile moths were released in this area. In Imperial and Riverside Counties, moth catches indicated an increase while the rest of the country showed a decrease over 1967.

The RANGE CATERPILLAR (Hemileuca oliviae) egg mass survey in NEW MEXICO during January 1968 indicated that the 1967 spray program in Colfax, Union, and Harding Counties had greatly reduced populations. Development during 1968 was very late in Lincoln, Colfax, and Union Counties. Economic infestations were reported from Lincoln and Colfax Counties late in August.

The loss due to SOYBEAN CYST NEMATODE (*Heterodera glycines*) leveled off considerably from the spectacular increases of previous years in MISSOURI. However, there was a five-percent loss from this cyst nematode in the bootheel area. This nematode was found to be numerous on roots of soybeans in the Columbia bottoms at the northeast edge of St. Louis. Damage was noted in several fields. Females were present on the roots of soybeans throughout one field, causing damage of 10 percent. The resistant soybean variety, Pickett, performed very well in the heavily infested fields in southeastern Missouri. The earlier maturing soybean varieties, Custer and Dyer, were affected where rainfall was scarce. The dry weather appeared to reduce yields. Approximately 200,000 acres of the estimated 1.5 million acres in soybeans in southeast Missouri were planted to resistant varieties. Survey was conducted in 17 States on more than 690,000 acres. Local spread was reported from several counties in the infested States. The following counties or parishes were found infested with soybean cyst nematode for the first time during 1968: Conway, ARKANSAS; Tensas, LOUISIANA; Claiborne, Jefferson, Panola, Quitman, and Washington, MISSISSIPPI; St. Charles, Missouri; Beaufort, Onslow, and Washington, NORTH CAROLINA; Hardin and Henderson, TENNESSEE.

THE SWEETPOTATO WEEVIL (*Cylas formicarius elegantulus*) State quarantine was removed in NORTH CAROLINA during September. Weevils had been found in three counties in late 1967 and close inspection failed to reveal sweetpotato weevils present. The pest was found again in a Tabor City storage on December 30, 1968, however, and the quarantine once again became effective. Survey was conducted throughout the sweetpotato growing areas of ALABAMA, GEORGIA, LOUISIANA, MISSISSIPPI, North Carolina, and SOUTH CAROLINA. Infestations were recorded from all States. In South Carolina, sweetpotato weevil was found on wild hosts on Sullivan's Island; however, no weevils were found in sweetpotatoes. Sweetpotato weevil was found for the first time in Barbour County, Alabama; Franklin and Red River Parishes, Louisiana, and weevils were found in St. Tammany Parish for the first record in 25 years.

WEST INDIAN SUGARCANE ROOT BORER (*Diaprepes abbreviatus*) was detected in the Apopka and Plymouth area of Orange County, FLORIDA, in September and October 1968. In 1964 one adult was collected at Apopka. Over 6,000 acres are now considered infested, including 800 acres of citrus. Severe damage to young commercial citrus occurred when adults fed on leaves and larvae girdled roots. Larvae seriously damaged citrus nursery stock in a nursery at Apopka. Regulatory and control procedures were instigated by the State.

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) infestations were treated in Sacramento, Yolo, Placer, El Dorado, Fresno, and Kings Counties, CALIFORNIA. A late season infestation was found at Clovis, Fresno County, and immediate treatment was effective.

Surveys for WHITE-FRINGED BEETLES (*Graphognathus* spp.) revealed infestations in Newton County, TEXAS, and in Dunklin, Pemiscot, and New Madrid Counties, MISSOURI, for new State records. One new county, Pulaski, was found infested in ARKANSAS. Local spread occurred in that State, as well as in OKLAHOMA, FLORIDA, and GEORGIA. In LOUISIANA, local spread occurred in most parishes, and these beetles were found for the first time in Calcasieu, Evangeline, Rapides, and Terrebonne Parishes. New counties found infested in 1968 in MISSISSIPPI included Clay and Lowndes, while spread was noted in most other infested counties. White-fringed beetles were found in Dorchester and Greenwood Counties, SOUTH CAROLINA, and in Obion and Rhea Counties, TENNESSEE, for new county records. In VIRGINIA, adults of *G. leucoloma striatus* were found in James City, Mecklenburg, and York Counties and in the independent city of Williamsburg; *G. leucoloma fecundus* was reported from Chesterfield County. In addition to these new county records, local spread was evident in the Norfolk area. Larval digging in Hampton revealed 25 larvae per square foot in a soybean field. No spread was noted in MARYLAND, and only 2 larvae were reported in the eradication area of Prince Georges County.

Eradication of WHITE GARDEN SNAIL (Theba pisana) continued in CALIFORNIA with regular applications of poison bran baittings at Manhattan Beach, Los Angeles County. The infestation involved 7 city blocks. A few live snails were found on one property in July 1968.

The detection survey for WOOLLY WHITEFLY (Aleurothrixus floccosus) in CALIFORNIA continued most of the year. A combination treatment program for Dialeurodes citri (citrus whitefly) and woolly whitefly was conducted until the citrus whitefly program was terminated. Biocontrol of woolly whitefly is underway with parasite releases. Delimiting survey revealed 374 city blocks infested with woolly whitefly in San Diego, San Diego County, the only known location in California.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) flights in OREGON peaked during late May and early June. Chemical sprays were made in April. First instars were found in mid-June. No new, established infestations were found. Fall surveys detected 373 infested trees, most of which were in the Hermiston and McNary Dam areas of Umatilla County. Infested trees are mostly Scotch and mugho pines.





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**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

GREENBUG damage heavy on small grain in Rolling Plains area of Texas. (p. 107).

WINTER GRAIN MITE activity heavy on winter wheat in Rolling Plains area of Texas. (p. 107).

ALFALFA WEEVIL population expected to be lighter than in previous years in Virginia. (p. 107).

GREEN PEACH APHID increasing on young safflower in Maricopa County, Arizona. (p. 108).

#### Detection

For new county records see page 111.

#### Special Reports

Populations of the Northern Corn Rootworm. (pp. 112-113).

Summary of Insect Conditions in the United States - 1968  
Special Insects of Regional Significance. (pp. 114-122).

Reports in this issue are for week ending February 14 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1969

The Weather Bureau's 30-day outlook for mid-February to mid-March is for temperatures to average above seasonal normals over the southern Plains and southern and central Rocky Mountain States, as well as over portions of the Northeast and Great Lakes. Below normal temperatures are indicated for the Middle and South Atlantic States, while near normal temperatures are expected elsewhere. Precipitation is expected to exceed normal over the Northwest and most of the South. Subnormal totals are indicated for a band extending from the northern Plains through the Great Lakes to northern New England, while near normal amounts are in prospect elsewhere.

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

For Weather of the Week see page 111.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Ranged 2-6 per 10 linear feet in 3 of 6 wheatfields in Noble and Kay Counties. (Okla. Coop. Sur.). KANSAS - None found in wheat checked in Barton, Stafford, Edwards, Ford, Meade, Seward, Stevens, Grant, Kearny, Finney, Wichita, Wallace, Logan, Gove, Thomas, Sheridan, and Graham Counties. (Simpson).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Rain and equipment failure hampered spray efforts. To date 10,883 rangeland acres treated, including 2,330 acres this period. Leafhoppers ranged 15-20 per 10 sweeps in Los Banos Hills, Merced County. Weather hampered survey. Egg development not at peak. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - KANSAS - None found in wheat checked in Barton, Stafford, Edwards, Ford, Meade, Seward, Stevens, Grant, Kearny, Finney, Wichita, Wallace, Logan, Gove, Thomas, Sheridan, and Graham Counties. (Simpson). OKLAHOMA - Ranged 50-125 per linear foot in wheat in Jackson and Tillman Counties. Occasional fields showing damage. Averaged 5 per linear foot in Perkins area, Payne County. (Okla. Coop. Sur.). TEXAS - Spotted, heavy activity in South Plains, Rolling Plains, and central areas. Heavy damage in Wilbarger, Foard, Wichita, and Motley Counties. Damage lighter in Knox, Haskell, Cottle, King, and Jones Counties. Survey of Hill, Bosque, McLennan, and Limestone Counties revealed spotted, heavy damage in Groesbeck and Mart area on 3 to 6-inch wheat. Ranged 100-200 per row foot in fields near Groesbeck and Mart. Very light in other fields in area. Ranged 5-25 per row foot in Bosque County. Very light, 0-5 per row foot, in other counties. Damage widespread in Lampasas County; control underway in many areas. (Richardson et al.). NEW MEXICO - Ranged 10-20 per row foot in Artesia area, Eddy County, and Roswell, Chaves County. Few fields in Chaves County with 100+ aphids per linear foot. (Mathews).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Generally light and spotty in Eddy and Chaves County alfalfa, but occasional heavy infestation found. Few growers treating in Artesia area, Eddy County. (Mathews).

## SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light, up to 4 per linear foot, in most wheatfields in Noble and Kay Counties. (Okla. Coop. Sur.). TEXAS - Heavy in Wilbarger and Archer Counties. Moderate in Baylor County. (Boring, Feb. 7). Activity heavy on wheat in Wilbarger, Archer, and Baylor Counties. Light in McLennan County; up to 50 per row foot. (Boring, Green).

## TURF, PASTURES, RANGELAND

AN ARMORED SCALE (Aonidomytilus bilobis) - CALIFORNIA - Medium on Atriplex sp. in Kettleman City, Kings County. First specimens for California Department of Agriculture collection, but not new record. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Larvae per 20 stems and adults per 10 square feet by county: Oktibbeha 1, 6; Pontotoc 1, 4; Marshall 1, 3. (Dinkins). VIRGINIA - Samples of overwintering eggs indicate low larval populations in early spring. Overwintering adults low on the Blue Ridge and in the Shenandoah Valley, indicating low spring populations. Overwintering adults numerous in central area. Controls anticipated in eastern areas this spring. Infestations may be later and lighter than in previous years. (Woodside, Hendrick).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Heavy, up to 27 first to fifth instars per plant in 40-acre field of alfalfa on Yuma Mesa, Yuma County; heavy in Somerton area. (Ariz. Coop. Sur., Feb. 5). CALIFORNIA - Probably this species heavy in 40-acre field of alfalfa in Holtville, Imperial County. (Cal. Coop. Rpt.).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MISSOURI - Collected from hop clover at Steeleville, Crawford County, by R.E. Munson and L.R. Hanning June 18, 1968. This is a new county record. (Munson).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy on alfalfa in Holtville, Imperial County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon psium) - NEW MEXICO - Very light in alfalfa in Chaves and Eddy Counties. (Mathews).

PALE WESTERN CUTWORM (Agrotis orthogonia) - KANSAS - None found in wheat checked in Barton, Stafford, Edwards, Ford, Meade, Seward, Stevens, Grant, Kearny, Finney, Wichita, Wallace, Logan, Gove, Thomas, Sheridan, and Graham Counties. (Simpson).

#### SUGARBEETS

BET WORM (Spodoptera exigua) - ARIZONA - Larvae very light in most Salt River Valley fields in Maricopa County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Winged adults very light in most Salt River Valley fields in Maricopa County. (Ariz. Coop. Sur.).

#### MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Building up on young safflower in Ocotillo area, Maricopa County. (Ariz. Coop. Sur.).

#### DECIDUOUS FRUITS AND NUTS

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - CALIFORNIA - Medium in Bing cherry trees in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Heavy on root systems of 1 to 3-year-old dwarf apple trees in Lee County. (Barwood).

#### CITRUS

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - This species and Eotetranychus yumensis (Yuma spider mite) found in groves in Yuma area of Yuma County. Controls recommended. (Ariz. Coop. Sur., Feb. 5).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Heavy on lemon trees in groves on Yuma Mesa, Yuma County. Controls recommended. (Ariz. Coop. Sur., Feb. 5).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Moderate in grove at Yuma, Yuma County. Controlled by natural buildup of Rodolia cardinalis (vedalia). (Ariz. Coop. Sur., Feb. 5).



## ORNAMENTALS

A PIT SCALE (Cerococcus dekleyi) - FLORIDA - All stages moderate on 2,900 hibiscus plants at a nursery in South Miami, Dade County. (Dillon, Feb. 4). Light on 1,215 hibiscus at a nursery in Miami. (Dillon, Feb. 5).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - ALABAMA - Very heavy on Chinese privet in Lee, Dallas, Colbert and other counties. (Leeper, Feb. 7).

A MEALYBUG (Antonina pretiosa) - CALIFORNIA - This species and Odonaspis penicillata (an armored scale) heavy on bamboo nursery stock in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

## FOREST AND SHADE TREES

PALES WEEVIL (Hylobius pales) - ALABAMA - Adults feeding on 1 to 2-year-old pines in 10 to 15-acre planting in northwest Chambers County. (Barwood).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Larvae damaging pine trees in Pacific Grove, Monterey County. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. February 9-15 as follows: TEXAS - Bee County. Total of 148 cases reported in portion of Barrier Zone in Republic of Mexico February 3-8 as follows: Sonora 67, Chihuahua 2, Coahuila 5, Nuevo Leon 6, Tamaulipas 68. Total of 2 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 2,168,000; Mexico 49,600,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - ALABAMA - Emergence expected in February and March. Infestation ranged 10-15 percent in one Sumter County range herd; grubs 4-10 per cow. Grubs ranged 2-4 per head in 2 percent of breeding stock at Lee County sale. (Anderson). OKLAHOMA - Averaged 4 per head on cattle in Payne County. Light in Mayes County. (Okla. Coop. Sur.). ILLINOIS - Found 105 grubs on native cattle in west-southwest district. In third to fifth instar. (Ill. Ins. Rpt.).

MOSQUITOES - MISSISSIPPI - Culiseta inornata, Anopheles crucians, Culex salinarius, C. restuans, C. territans, Aedes sollicitans, and A. mitchellae collected in Hancock County. Culiseta inornata most numerous. (Dinkins). ALABAMA - Culex pipiens quinquefasciatus (southern house mosquito) active as result of warming trend past 15-20 days; egg laying occurred. Larvae light near homes. (Barwood).

CATTLE LICE - OKLAHOMA - Haematopinus eurysternus (short-nosed cattle louse) moderate, up to 1 per hair part, on cattle in Payne and Noble Counties. Bovicola bovis (cattle biting louse) present in Noble County. (Okla. Coop. Sur.).

MISSISSIPPI - Linognathus vituli (long-nosed cattle louse) heavy on 60 head of beef cattle in Oktibbeha County. (Dinkins).

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

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Moderate to heavy on elk at Wichita Mountains Wildlife Refuge, Comanche County. (Okla. Coop. Sur.).

## HOUSEHOLDS AND STRUCTURES

EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Found in Ishpeming, Marquette County. (Janes). This is a new county record. (PPC).

## STORED PRODUCTS

RICE WEEVIL (Sitophilus oryzae) - CALIFORNIA - This weevil, Tribolium castaneum (red flour beetle), and Rhyzopertha dominica (lesser grain borer) heavy in stored grain in Bakersfield, Kern County. (Cal. Coop. Rpt.).

A DERMESTID BEETLE (Trogoderma parabile) - CALIFORNIA - Larvae heavy in tomato and barley seed in Brawley, Imperial County. (Cal. Coop. Rpt.).

CONFUSED FLOUR BEETLE (Tribolium confusum) - NEW MEXICO - This species and Oryzaephilus surinamensis (saw-toothed grain beetle) light in stored grain products and feeds in Hidalgo County. (Hare).

## BENEFICIAL INSECTS

A DAMSEL BUG (Nabis ferus) - ARIZONA - This and Chrysopa spp. (green lacewings) averaged 10 per 100 Sweeps on alfalfa in Salt River Valley. (Ariz. Coop. Sur.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Winged forms in all mounds in central and southern areas. Males observed in flight past 15 days. (Andrews, Barwood).

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## HAWAII INSECT REPORT

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) buildup on snap beans and eggplants at Waianae, Oahu; severe in many snap bean fields. Light on snap beans at Waimanalo. (Nakao, Funasaki). SWEETPOTATO VINE BORER (Omphisa anastomosalis) larvae heavy, damage severe to 3-month-old sweetpotato vines in 2.75-acre field at Waimanalo, Oahu. (Sato, Funasaki). GREEN PEACH APHID (Myzus persicae) severe on eggplant at Punaluu, Oahu. Rains hampered sprays. Many adults parasitized by a braconid. (Funasaki). BEAN FLY (Melanagromyza phaseoli) larvae medium, damaged 25 percent of snap bean seedlings at Pukalani, Maui. Negligible to trace in most snap bean fields on Oahu; medium, caused stunting of one-month-old plants in field at Waimanalo. (Miyahira, Funasaki). IMPORTED CABBAGEWORM (Pieris rapae) eggs and adults light on head cabbage at Pulehu, Maui. All stages light on head cabbage at Kaaawa and Kipapa, on broccoli at Pupukea, on mustard cabbage at Waimanalo and Waianae, Oahu. (Miyahira et al.). ONION THRIPS (Thrips tabaci) adults light on onions at Pulehu and Omapio, Maui. (Miyahira).

Beneficial Insects - SOUTH AFRICAN EMEX WEEVIL (Apion antiquum) larvae and adults light on young emex plants at Pulehu and Omapio, Maui. (Miyahira).

Miscellaneous Insects - Nymphs and adults of a RHOPALID BUG (Jadera haematoloma) remain light to moderate on balloonvine on southwest and west Oahu. (Nakao). Nymphs and adults of a GRASSHOPPER (Oedaleus abruptus) light and reinfesting 30 percent of previously treated areas at Hickam Air Force Base, Honolulu, Oahu. (Olson).

## INSECT DETECTION

### New County Records

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - MARYLAND - Collected in black-light trap at Friendship Airport, Anne Arundel County, August 14, 1968. Determined by J.L. Hellman. This is a new county record. (U. Md., Ent. Dept.).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MISSOURI - Crawford County. (p. 108).

EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Marquette County. (p. 110).

## CORRECTIONS

CEIR 19(5):66 - Distribution of Old-house Borer - As record for Wisconsin is in error it should be deleted.

CEIR 19(7):101 - IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Third line from bottom of paragraph should read ... 604 thousand in Louisiana, ...

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 2/7-13, BL - Armyworm (Pseudaletia unipuncta) 1, black cutworm (Agrotis ipsilon) 2, granulate cutworm (Feltia subterranea) 15; 2/9-13, BL - Armyworm 3, black cutworm 8, granulate cutworm 23.

## WEATHER OF THE WEEK ENDING FEBRUARY 17

HIGHLIGHTS: A warming trend occurred over the West and a cooling trend over the East. A wide variety of severe weather occurred from the central and southern Great Plains to the southern Appalachians.

PRECIPITATION: One of the fiercest storms in a decade tapered off Monday afternoon, February 10, after leaving 1-2 feet of snow over parts of the Northeast. A less intense storm produced light snow over Michigan and nearby States in the first part of the week. A Pacific storm dumped heavy rain along the coast and in some of the interior valleys with heavy snow in the Cascades and northern Sierras with light snow flurries across the northern States to the western Great Plains. Shortly after midweek, warm moist air from the western end of the Gulf of Mexico spread northward into a low pressure area in the West producing generous rain over southern Texas, freezing rain and snow from northern Texas to Kansas, and heavy snow in the central and southern Rocky Mountains. The snow moved eastward late Thursday to Nebraska, Kansas, Iowa, and northern Missouri. By Friday showers and thunderstorms occurred over much of the Southeast while snow continued in the northern Great Plains, spreading to the Dakotas and western Minnesota. Snow continued in the northern and central Great Plains over the weekend with accumulations in central Nebraska and central Kansas ranging up to 14 inches in some places. Snow depths at the end of the week ranged 2-4 feet in eastern South Dakota and west-central Minnesota. Freezing rain fell from north-central Texas to Georgia while moderate to heavy snow fell from Kansas to the southern Appalachians. By Sunday morning snow depths reached 8 inches or more in spots in Kansas, southern Missouri, northern Arkansas, Kentucky, and western North Carolina. Freezing rain occurred in the Piedmont in the Carolinas.

TEMPERATURE: A warming trend brought temperature above normal over most of the West. Most of Wyoming averaged 6°-9° above normal after a relatively cold week. Northerly winds brought lower temperatures to most of the East with large areas in the Southeast averaging 6° to 10° cooler than normal. A vigorous cold front dropped the temperatures sharply in Texas ending a mild spell in that State. (Summary supplied by Environmental Data Service, ESSA.)

POPULATIONS OF THE NORTHERN CORN ROOTWORM, Diabrotica longicornis (Say)

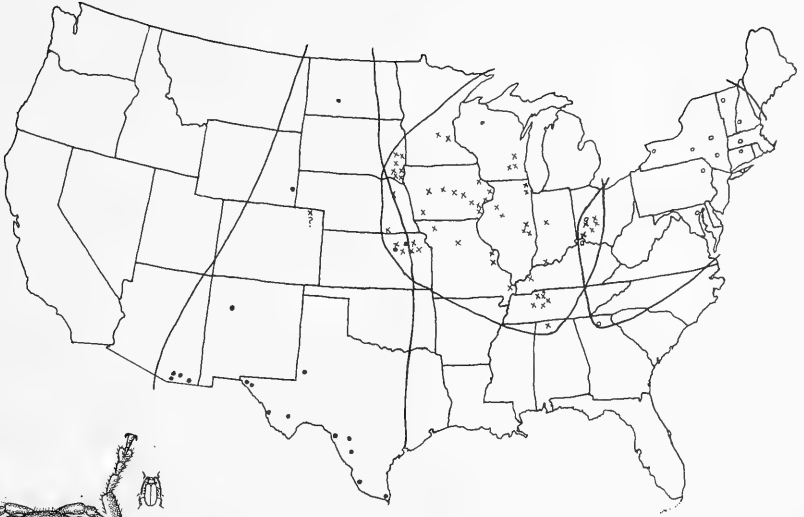
The northern corn rootworm is a serious pest of growing corn in many areas. The most important damage is caused by the narrow, elongate, whitish larva which feeds in or on the surface of the roots, thus weakening the root support and reducing the vigor of the plant. Larvae feed on roots from early June through August, but the most important damage occurs from mid-June until mid-July. As far as is known, the larvae feed on corn roots only, and if corn is not present when the larvae hatch they will die. The adult, about one-fourth inch in length, is a dull greenish or dull yellowish beetle. It feeds on corn silks and pollen, or often leaves cornfields and feeds on pollen of various plants such as alfalfa, sweetclover, milo, and weeds. The beetles sometimes congregate and feed on fresh corn silks, resulting in ears with few kernels. Eggs of this beetle are deposited in the soil throughout the summer until frost; one female may deposit about 300 eggs. The egg is the overwintering stage.

This species in the United States consists of three separate populations distinguishable as adults by the color differences and distribution given below. The western population, Diabrotica longicornis longicornis (Say), ranges from North Dakota south to Texas and to Arizona (see map). The midwestern population, D. longicornis barberi Smith and Lawrence, is found from the Plains States to Eastern United States. The color of the appendages of this population is lighter than that of the other two. The eastern population of D. longicornis (not yet given a name) is found from northern Georgia northeast to New England. This population is similar in color to D. l. longicornis. Specimens collected from areas in which two populations overlap are often difficult to name with certainty. An approximation of the distribution of the three populations is given on the map; the collection records are from specimens in the U. S. National Museum.

Key to Populations of Diabrotica longicornis

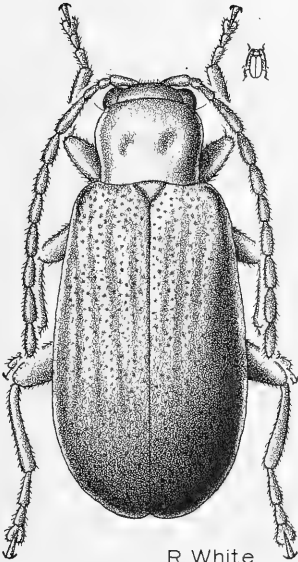
1. Tibiae, tarsi, antennae, and clypeus light or but slightly darker than rest of body; South Dakota to Kansas east to Tennessee and Ohio.....longicornis barberi
- Tibiae, tarsi, antennae (except basal segments), and clypeus brownish to black; Plains States to Texas and Arizona, or Northeastern States.....2
2. Occurring west of the Mississippi River; often with head black and elytra striped.....longicornis longicornis
- Occurring east of the Mississippi River; head never black, elytra never striped.....longicornis, eastern population

Illustration and map on following page.



DISTRIBUTION OF POPULATIONS

- = *D. l. longicornis* (Say)
- × = *D. l. barberi* S. & L.
- = *D. l.*, eastern population



R. White

*Diabrotica longicornis*  
*barberi* Smith & Lawrence  
(small figure actual size)

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SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968  
(continued from page 104)

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Highlights:

GREENBUG occurred in outbreak proportions in several Midwest and Southwest States during 1968. Over one million acres of sorghum were heavily damaged in Kansas with the total loss placed at about \$12,000,000. The loss in Nebraska was about \$3,500,000 and approximately 3 million acres were involved in the outbreak on the High Plains of Texas. This aphid also damaged small grains in several States. Greenbug was found for the first time in Nevada during 1968. CORN LEAF APHID populations were heavier in Illinois than in 1967 but not as severe as in 1966. This aphid was heavy in several other States with some damage reported. A SPOTTED ALFALFA APHID outbreak developed on alfalfa in west-central Utah in mid-July where damage was greater than in 1967 but less than in 1966. Some damage was reported in other States. POTATO LEAFHOPPER damaged soybeans statewide in Maryland and alfalfa in highland areas of Virginia. Populations were higher than normal in Minnesota but damage was low. BEET LEAFHOPPER was severe in some isolated sugarbeet areas of California and killed tomatoes in southern Utah. This pest caused some local problems in western Idaho. ARMYWORM adult flights early in the season in Indiana were the heaviest in 5 years. CORN EARWORM caused serious damage to sweet corn in northeastern Oregon and was severe on corn statewide in California. Population buildup in corn was heavy in eastern and southern Nebraska in August, and much heavier in Kansas than last year. Corn earworm was the major pest of soybeans in Arkansas and southern Alabama and a serious pest of tobacco in Alabama. TOBACCO BUDWORM was a major pest of tobacco in Florida and Alabama. ARMY CUTWORM populations were the heaviest and most widespread in Nevada since 1961 and damaged several crops in Idaho. This pest was economic on wheat and alfalfa in northeastern Wyoming and damaged small grains in Texas and wheat in northwestern Kansas and southwestern Nebraska.

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GREENBUG (*Schizaphis graminum*) was severe on sorghum in Colusa, Glenn, Tulare, Fresno, and Imperial Counties, CALIFORNIA. Late in the season it infested barley in Fresno County. In Nye County, NEVADA, one alate was collected on corn in June 1968 and reported as a new State record in 1969; one apterous specimen was collected from sorghum in November, and light numbers developed on barley in October in the same county. Heavy numbers developed on barley in Clark County; this was a new county record. This pest occurred in outbreak numbers on 800 acres of sorghum in Washington County, UTAH. Small grain was lightly infested. Numbers in ARIZONA ranged light to heavy on sorghum in Cochise County during August and September. Injury was severe in many fields; controls were applied. Counts ranged from zero to over 2,000 per row foot on wheat in Curry and Roosevelt Counties, NEW MEXICO, during early spring. Numbers were especially heavy at the Rogers and Causey area, Roosevelt County. This aphid damaged approximately 250,000 acres of grain sorghum in the State. Yield losses ranged from less than 100 to over 2,000 pounds per acre. A major outbreak occurred in eastern COLORADO in late July and early August. Losses were very light in the northeastern area, but ranged moderate to heavy in the Arkansas Valley. Extensive controls were applied in the Arkansas Valley and as far north as southern Yuma County. The greenbug moved into and killed wheat emerging before September 1. After that date, populations remained light on emerging wheat in the Arkansas Valley. Numbers in WYOMING were low during spring with no damage to wheat. Parasites and predators were heavy.

Greenbug was the major economic insect on sorghum and related crops in SOUTH DAKOTA in 1968. In the first week of August damage was noted on sorghum, Sudan, and sorghum-Sudan crosses in one east-central and 3 southeastern counties. From 4,500 to 5,000 aphids per plant infested some sorghum. Predators were light. During the last week of August, populations were economic on sorghum in areas of

1 northeastern and 2 south-central counties. Controls were applied. In mid-October greenbug killed several acres of winter wheat in eastern Haakon County. Later in the month, the pest increased in eastern Meade and Haakon Counties, but remained noneconomic. It increased to economic levels in eastern Pennington County, where over 900 acres of wheat were treated. By the end of the first week of November, economic numbers and severe damage had been reported from 2 west-central and 6 central South Dakota counties. Aerial sprays continued through most of November. Winter loss of untreated wheat may total several thousand acres. If the 1968 trend of infestations continues into 1969, damaging numbers are likely on sorghum and small grains in summer and fall of 1969. Migrants entered MINNESOTA in early April; numbers were moderate with no observed damage to field crops. Numbers in IOWA remained low on wheat in the spring. Damage was minor on small grains and also on sorghum in localized southwestern and western areas. Light numbers were present in the spring and fall on early planted wheat in MISSOURI. A few fall wheat fields were treated in the northwestern area where greenbug had infested sorghum during summer. In south-central NEBRASKA overwintering greenbugs were not detected early in the year on wheat which had been heavily infested in the fall of 1967. On May 20 the first damage to seedling sorghum was reported. During the period July 12-26 increase was heavy on most sorghum; 2,000-3,500 per leaf were reported. Damage to grain sorghum was estimated at \$3,500,000 in Nebraska. In August numbers declined sharply in the eastern area and had nearly disappeared in the southwestern and panhandle areas. This decline was due mostly to parasites and predators. In August and September some rye was damaged in central Nebraska. In late September greenbug was first observed on winter wheat in the southeastern area; some controls were needed in the northwestern panhandle on winter wheat and on small grains in the northern panhandle. Heavy numbers were found in northeastern KANSAS in mid-July on sorghum and in most western areas within 2 weeks. The southeastern area and a north to south strip through the center of the State escaped severe damage. Over one million acres were severely infested and 600,000 acres were treated. Total sorghum loss was placed at about \$12,000,000. By late August parasites and predators reduced populations in most areas to trace amounts. Light numbers in most wheatfields during fall did not reach economic levels.

Greenbug increased on wheat during March and the first half of April over most of OKLAHOMA. The highest numbers (200-500 per row foot) occurred in the southwestern and panhandle districts and in scattered areas of the northwestern, west-central, and north-central districts. In late July greenbug was first noted on sorghum in the southwestern and south-central areas. During August up to 1,500 per leaf infested broomcorn and killed sorghum in south-central, southwestern, west-central, northwestern, and panhandle areas. Parasites and predators were mainly responsible for decreases. In early November and in mid-December occasional wheatfields in southwestern, northwestern, and north-central areas carried 50-80 per foot. In most areas of TEXAS cold weather reduced greenbug activity on small grains during early January. During late March moderate to heavy numbers were noted in some Rolling Plains counties. Up to 2,000 per foot infested small grains in Foard, Hale, and Hemphill Counties. Some counties in the panhandle had to apply controls. This pest was heaviest on small grains in areas of Armstrong and Carson Counties. The first economic buildup of greenbug on grain sorghum in Texas involved approximately 3 million acres on the High Plains during July and August. About half of this acreage was sprayed. Greenbug was economic in only a few grain fields in ARKANSAS. Numbers were generally light and parasitism was heavy. In ALABAMA greenbug damaged small grains mainly in Mobile and Baldwin Counties.

CORN LEAF APHID (*Rhopalosiphum maidis*) was heavy throughout ALABAMA, especially in the northwestern area; maize dwarf mosaic virus also appeared throughout the northwestern area. Numbers in ARKANSAS on corn and sorghum were lighter in 1968 than in 1967. This pest was heavy on sorghum, corn, and broomcorn in north-eastern OKLAHOMA during late June and July and in the southwestern and panhandle areas during August. Not until early November did heavy numbers infest small grains in a few northwestern and west-central counties. Heavy numbers in southern and south-central TEXAS damaged corn and grain sorghum during mid-April and May; some fields had to be replanted.

Corn leaf aphid was light on barley in the Pecos Valley of New Mexico in January and February and did not appear on corn and grain sorghum until summer. Infestations in ARIZONA ranged moderate to heavy on sorghum in Cochise, Graham, and Yuma Counties from May through October; many fields required treatments. Numbers were heavy on barley from mid-March through April in Yuma County and during mid-May on barley in the boot stage at Kansas Settlement, Cochise County. Damage was heavy in various CALIFORNIA locations on barley and oats. Controls in NEVADA were required in Pershing County in June. In October light to medium populations developed on barley in Clark County and were heavy in southern Nye County. In UTAH corn leaf aphid was heavier than greenbug on 800 acres of barley in Washington County. Infestations of spring barley were noticeable in several counties. Several thousand acres of barley in Millard County were aerially sprayed. Corn in eastern COLORADO required controls. In WYOMING corn leaf aphid was moderate on about 20 percent of the corn in the southeastern area, but light elsewhere. This aphid was first noted on July 30 but began to decline about mid-August. Parasites and predators held it in check.

Corn leaf aphid was common on corn and sorghum in some fields in southeastern SOUTH DAKOTA the last week of July. Predators were present in all fields and kept populations in check. The buildup on sorghum in NEBRASKA began in mid-June in the eastern district and peaked in the second week of July. Some damage occurred and then populations declined. On corn numbers peaked and declined in the last half of July with little damage. On winter wheat populations of *Rhopalosiphum maidis* and *R. fitchii* (apple grain aphid) up to 350 per row foot in September and October caused little damage; *R. fitchii* was predominant. In KANSAS corn leaf aphid was heavy on corn and sorghum in late June and early July with some damage to young plants. In central IOWA it was active in some barley without causing damage. Populations in ILLINOIS were much higher than in 1967 but not as severe as in 1966. During the last of July and first of August, the State average rating was 3 (1 is no aphids; 10, heavily infested); the central district had the highest rating with 5. Adequate rainfall prevented severe damage in most areas. A survey of 22 severely infested fields revealed 8 percent of plants heavily infested, 8 percent moderate, 33 percent light, and 51 percent clean. The first corn leaf aphid adults in WISCONSIN were noted on sweet corn by July 5. Colonies of 500 or more per plant were rare. Weather, lady beetles, syrphid flies, and *Orius insidiosus* (a flower bug) controlled this pest. Corn leaf aphid increased noticeably where controls had been applied for *Ostrinia nubilalis* (European corn borer). The early appearance of *Empusa fungus* kept corn leaf aphid populations in MICHIGAN below the levels of 1967. This aphid was the major corn pest in INDIANA for the second straight year. While remaining light throughout the season in the southern districts, numbers built up in the central and northern districts in mid-July. By early August all corn that had not tasselled was 100 percent infested. Infestations in the northern half of the State were light on 43 percent of the corn, moderate on 10 percent, and heavy on 6 percent. Statewide, there was a 27 percent reduction in total infestations compared with 1967. Corn leaf aphid increased rapidly on corn and sorghum in OHIO from mid-July into August, but numbers on corn were not significant and few infestations were reported.

Corn leaf aphid ranged light to heavy in VIRGINIA during July and August, but damage was light in most areas. The first significant buildup on corn in MARYLAND occurred during mid-July. By early August this aphid had infested 20-100 percent of most fields. Some fields on the lower Eastern Shore required controls, but numbers generally ranged light to moderate. Warm, humid weather during late July in PENNSYLVANIA favored an injurious buildup in a few cornfields, especially in the eastern half of the State. Heavy numbers infested 20-50 percent of the stalks in many fields. In NEW HAMPSHIRE moderate to heavy numbers infested field and sweet corn from late July; sooty fungus infested husks.

SPOTTED ALFALFA APHID (*Therioaphis maculata*) was not found until mid-September in OREGON when counts in alfalfa ranged up to 50 per sweep. No damage was evident. Populations in CALIFORNIA also built up late in the year but were lower than normal. Although light in southern NEVADA, this aphid required controls in



southern Nye County in March. High numbers in ARIZONA infested several fields of alfalfa in Yuma County in March, July, August, November, and December. From October to December alfalfa was badly damaged in the Mesa and Perryville areas in the Salt River Valley. An outbreak on alfalfa developed in UTAH north of Delta on about July 20 and spread rapidly throughout western Millard County; damage was greater than in 1967 but less than in the outbreak of 1966 when control was difficult. Otherwise, the infestation was light statewide. Activity in IDAHO was observed on seedling alfalfa in a field near Parma County, October 2; counts of 1-2 per true leaf had killed 10 percent and severely weakened 40 percent of the plants. In WYOMING spotted alfalfa aphid was collected in Big Horn County for a new county record. The highest counts, 150 per 100 sweeps, were noted in Goshen County. Populations ranged light to moderate in the Arkansas Valley of COLORADO.

Spotted alfalfa aphid was light to heavy on alfalfa in Foard and Ward Counties, TEXAS. Counts ranged light to medium over most of OKLAHOMA from late March through November. Over 200 per 10 sweeps were reported from the southwestern area in mid-April and early August, the west-central area in mid-August, the central area in late August, and the north-central area in mid-November. The buildup in ARKANSAS began in early February. Highest counts reached 500 in 100 sweeps from July to October. Populations declined in October. Few infestations were economic.

Spotted alfalfa aphid remained low on alfalfa in KANSAS throughout summer and fall with little damage. In NEBRASKA the pest first appeared April 19 in Otoe County. In late August counts reached 880 per square foot in some alfalfa. Seedling alfalfa was seriously injured in Dawson County. By mid-September numbers declined. The first damaging populations in SOUTH DAKOTA occurred east of Yankton, Yankton County, in mid-August. During the first week of October 150-200 aphids per 100 sweeps infested small areas of green alfalfa 7-9 inches high east of Spearfish, Lawrence County. Day, Grant, Roberts, Edmunds, Hyde, and Faulk Counties were reported as new county records in mid-September. This aphid was not collected in IOWA in 1968. No buildups occurred in INDIANA, reflecting the abundant moisture present throughout the growing season. In VIRGINIA spotted alfalfa aphid was damaging in only a few widely scattered fields of alfalfa.

POTATO LEAFHOPPER (*Empoasca fabae*) adults infested potatoes in RHODE ISLAND by August 26. In PENNSYLVANIA the damaging numbers of 1967 did not develop on forage. Most damage occurred in the western area during summer. This leafhopper was present on lima beans in DELAWARE during June and was abundant in most areas by July and August. The buildup on alfalfa in MARYLAND began the second week of July and rapidly peaked the first week of August. Peaks ranged 7-30 per sweep on the Eastern Shore and 4-75 per sweep in the central area. Statewide, populations ranged light to moderate. Several hundred acres of alfalfa showed typical "hopperburn" or yellowing. This leafhopper caused moderate to heavy damage to 150 acres of snap beans and to soybeans statewide. Light numbers infested potatoes and occasionally yellowed forage severely in the highlands of VIRGINIA.

Potato leafhopper was migrating into OHIO in mid-May. By late July yellowing of second-growth alfalfa was evident statewide. Counts ranged up to 52 per sweep, but generally averaged 10 or less. Through July and into August adequate rains apparently prevented much of the widespread damage of 1967. Populations on alfalfa in INDIANA were relatively high throughout the season. Growing conditions prevented yellowing of alfalfa except in the south-central district during mid-June. Counts reached highs of 1-8 per sweep during mid-May, 3-23 per sweep during late June, and 3-29 per sweep during early August statewide. Problems on forage in MICHIGAN did not warrant extensive controls. Adults of potato leafhopper increased on alfalfa and potatoes about June 28 in WISCONSIN. In the first half of July nymphs appeared on potatoes and alfalfa, and adults became apparent on snap and lima beans. Numbers rarely exceeded 10 per sweep. In October, 25 per sweep was common in some alfalfa in southern Wisconsin. Migrants entered MINNESOTA earlier than normal and were found in the southeastern district on April 30. Numbers throughout the season were higher than normal, but little

damage was noted on potatoes or alfalfa. In southern ILLINOIS potato leafhopper was first found the week of May 3. Lower than normal, counts ranged from less than 100 to a maximum of 1,200 per sweep; the State average was 313 per 100 sweeps. Numbers built up in June with no severe damage. Throughout MISSOURI, populations of this leafhopper were moderate to high (10-90 per 10 sweeps) on alfalfa. Infestations were reported in late June and during July. Damage could be found over most of Missouri.

BEEF LEAFHOPPER (*Circulifer tenellus*) controls were applied in spring, fall, and winter to rangelands and Russian-thistle stands in CALIFORNIA. It was very severe in a few isolated sugarbeet areas; many fields required treatment. Curly top virus was very low and sugar content above average. In San Diego County beet leafhopper damaged cucumbers and squash. Virus infection in tomatoes and melons was less than 1 percent. Beet leafhopper was heavy in many fields at Casa Grande in Pinal County, ARIZONA, in mid-June and ranged moderate to heavy in Cochise County from late June through mid-July and in mid-October. In UTAH numbers and curly top damage on sugarbeets ranged light to moderate. In the southern area this pest and the virus killed 20-90 percent of the tomatoes and reduced yields of table beets, spinach, cucumbers, and beans. Losses due to this leafhopper ranged light to moderate on sugarbeets on the Western Slope of COLORADO. In WYOMING curly top damage on beets was light. Weed host areas in the Worland Valley of Big Horn and Washakie Counties carried 0.35 leafhoppers per square foot April 9-10. Approximately 6,800 acres of wasteland were treated. On May 9, weed hosts carried 0.09 per square foot. In central IDAHO overwintering adults averaged 42 per 100 samples (22 per 100 samples in 1967) in range breeding areas during March and April. Movement in the western area caused some localized trouble. On April 27 the first adults of the season were observed in the Saylor Creek and Shoshone Falls area, but they may have been blown in. Because of a dry April, hatching was rapid in spite of intermittent freezing temperatures. Prior to treatment, nymphs ranged 35-60 per square foot and more were appearing. On May 17 spraying was initiated on 13,500 acres of rangeland in Idaho. The initial movement of beet leafhopper from rangeland had started by May 19.

ASTER LEAFHOPPER (*Macrosteles fascifrons*) infested celery in San Luis Obispo County, CALIFORNIA. Losses on lettuce were light in COLORADO except in Pueblo County where losses ranged moderate to heavy due to aster yellows virus. Numbers in IOWA were not economic on forage legumes. Migrants entered MINNESOTA in early April. Moderate numbers caused no observed damage to field crops. Aster yellows was at a low level during the season in flax and potatoes. Aster leafhopper entered WISCONSIN by April 19 when up to 5 per 100 sweeps were detected on rye in Sauk, Trempealeau, and Marquette Counties. Late in May, 3-6 per 100 sweeps were common in oats; late in June, 10 per 100 sweeps was average. In mid-June aster yellows became apparent in lettuce. Routine controls minimized virus problems in Wisconsin.

POTATO PSYLLID (*Paratrioza cockerelli*) was mostly a greenhouse pest of potatoes in CALIFORNIA, with a few infestations in San Diego County pepper fields. Low numbers infested potatoes and tomatoes in UTAH and caused light to moderate losses to potatoes in COLORADO. Most potatoes in WYOMING which were treated at planting time with systemic insecticides and with timely applications of contact insecticides showed only slight damage from psyllid yellows disease. Adults were first found on Lycium sp. June 24 in Goshen County.

ARMYWORM (*Pseudaletia unipuncta*) recurred as a lawn pest in CALIFORNIA. Larvae caused damage in TEXAS. In OKLAHOMA damage on wheat was heavy during late May in Cotton County. Numbers on small grains were lighter in ARKANSAS in 1968 than in 1967. A few fields were treated in the northeastern area where counts up to 10 per square foot occurred in late May. In TENNESSEE larvae ranged 15-20 per square foot on small grains in 4 far western counties during early May. Armyworm was not a problem in KANSAS. In southeastern MISSOURI most heavy infestations occurred in dense stands of wheat and barley. Adults in light traps in IOWA were light throughout the season. In MINNESOTA economic numbers of 5 or more larvae

per row foot infested a limited area of 5 south-westcentral counties in July. Barley, especially lodged fields, had the highest counts; wheat, oats, rye, and corn were also damaged. Some spraying was needed in all infested counties. Rapidly maturing small grain made controls impractical. Adults appeared in blacklight traps by May 1 in Dane and Waushara Counties, WISCONSIN. Flights were constant until late July when a mild peak occurred. Damage to corn and oats was minor. Numbers were relatively low in ILLINOIS, but were highest in the south-western district. Larvae averaged 2.4 per foot in thick stands of wheat in one county. High temperatures and parasites controlled migrations to a few grassy cornfields. In INDIANA the early season flight was the heaviest in 5 years. Flights peaked May 1-7 when 1,301 moths were caught in a blacklight trap in Gibson County. Very cool, moist conditions during May produced lush grass and inhibited armyworm development. Moths appeared April 28 in southern MICHIGAN. By May 14-15, warm temperatures produced counts of 178 adults; however, larval outbreaks were relatively light. Generally, problems in wheat and other cereal crops were less than in the past 2-3 years. Weekly counts in late June and mid-July averaged about 150 per light trap. Adults were still active in early November. Armyworm was severe in many locations of the VIRGINIA highlands, mainly on sod-planted corn. Numbers in MARYLAND were well below normal on small grains and corn. Very little treatment was made.

CORN EARWORM (*Heliothis zea*) moths were about twice as numerous as in 1967 in the Wapato area of Yakima County, WASHINGTON; one light trap averaged 191 moths per night from July 30 to August 5. Damage in OREGON was serious on sweet corn in Umatilla County. In early June larvae destroyed tassels and leaves of young corn. Larvae damaged more than the usual amount of ears later in the season. In CALIFORNIA larvae were severe on corn statewide from May through December. Widespread on many vegetables, larvae damaged field beans and lima beans in San Diego County. Larvae were light on corn during June and moderate on corn and sorghum during August in Graham County, ARIZONA. In late June a cornfield was 20 percent infested at Yuma, Yuma County. In early October larvae were heavy on field corn at Chino Valley, Yavapai County. Larvae were light to moderate on canning, market, and garden corn in the central and northern areas of UTAH and heavier in the southern area. In eastern COLORADO larvae of *H. zea* and *Diabrotica virgifera* (western corn rootworm) ranged moderate to heavy on corn; loss was moderate. Larvae infested nearly all ears of early sweet corn in Canyon County, IDAHO. Larvae were damaging in Custer County and were reported in Yellowstone and Rosebud Counties, MONTANA.

In Cass County, NORTH DAKOTA, one corn earworm per plant damaged about half of the sweet corn plants. In a field near Yankton, Yankton County, SOUTH DAKOTA, larvae infested 2 percent of the corn ears. Low counts on field corn in MINNESOTA were found after late July. Canning companies had spotty problems in August and September in some sweet corn fields. Adults were first detected in WISCONSIN at Arlington, Columbia County, August 16. Flight was heavy in the sweet corn growing area during mid-August. Larvae of *H. zea* and *Ostrinia nubilalis* (European corn borer) were numerous in sweet corn ears in early September and controls were intensified. Flights into southern MICHIGAN were nearly normal. On August 21 and 22, the first moths were detected in Lenawee County. About a month later, 327 adults were collected at the Berrien County blacklight trap in a single night. Controls were adequate. Populations on field corn remained light in INDIANA. Infestation averaged 4.56 percent for the State, a slight increase over 1967. Corn in the southern quarter of the State had an average infestation of 14 percent and a yield loss of 1 percent. Numbers in central and southern ILLINOIS were very light on sweet corn but were moderate in the processing corn area of the northeastern section. Numbers over most of IOWA remained low and damage remained light in western areas.

Corn earworm was apparent in corn whorls and alfalfa in eastern and southeastern NEBRASKA from mid-June to mid-July. A heavy buildup in August infested 10-80 percent of the ears in these areas. Moderate numbers infested 10-35 percent of the corn in the central and southern districts. Corn earworm was light in less than 1 percent of the corn in the panhandle counties of Nebraska. This pest was

much heavier in corn in KANSAS during 1968 than during 1964 and 1967. Larvae were heavy on most corn and many sorghum fields in the east-central and south-eastern districts. Corn earworm ranged moderate to heavy on corn over most of OKLAHOMA from mid-June to early October. In late August counts as high as 10 per ear were found in Craig County. In early September up to 5 per grain sorghum head occurred in occasional fields in the northwestern and north-central areas. Numbers were generally light on soybeans and peanuts. Damage was economic on corn and grain sorghum in TEXAS. This major pest of soybeans in ARKANSAS was light compared with some years; relatively few fields were treated. Damage to sorghum heads and sunflowers was not economic. In ALABAMA the first generation infested mostly crimson clover and vetch. Larvae were widespread and damaging to pretassel corn and sorghum and to ear corn in the milk and dough stages. Corn and grain sorghum supported the generations which produced damaging numbers on peanuts, soybeans, cotton, tomatoes, and other crops. Corn earworm was a major pest of soybeans in southern Alabama, but less so in central and northern areas. Damage was less than in 1966 but about the same as in 1967. Mixed populations of Heliothis zea and H. virescens (tobacco budworm) were the most serious tobacco pests; only intensive controls were successful in Alabama. In FLORIDA larvae of H. zea and mostly Spodoptera exigua (fall armyworm) threatened corn throughout the year in the Everglades area, Palm Beach County. During May and early June, 90 percent of ears of untreated sweet corn in Seminole County were free of H. zea. Infestation was lower than in past years. Corn earworm was heavy in fall corn.

Corn earworm infested half of the treated sweet corn ears on the Eastern Shore of VIRGINIA during late August and early September. Larvae ranged light to medium on field corn statewide. Numbers were generally light throughout the soybean belt with a few locally severe pockets. Larvae appeared late in MARYLAND. The first flight was recorded at Centreville, Queen Annes County, on August 15. Damage to corn was below normal with only light infestations on the Eastern Shore and in the central counties. Corn earworm was moderate on corn in RHODE ISLAND and below average in NEW HAMPSHIRE.

TOBACCO BUDWORM (Heliothis virescens) was the major pest on flue-cured and cigar-wrapper tobacco in FLORIDA. Numbers on cigar-wrapper tobacco were lighter than in 1967. Damage ranged moderate to heavy on both types. H. virescens accounted for 5.6 percent of the \$1,488,340 insect loss of flue-cured tobacco and for 3.4 percent of the \$784,686 insect loss on cigar-wrapper tobacco. In ALABAMA mixed populations of H. virescens and H. zea (corn earworm) were the most serious tobacco pests; only intensive controls were effective. Damaging numbers of both species also infested crimson clover, vetch, peanuts, and soybeans. These crops produced the damaging populations which moved to cotton, corn, sorghum, field peas, and snap beans.

ARMY CUTWORM (Chorizagrotis auxiliaris) damage in NEVADA was heavy on alfalfa in Lincoln County in April and heavy on alfalfa, lawns, and in vegetable gardens in Humboldt and Washoe Counties in May. Larvae were annoying in buildings in some areas in April and May. Numbers were the heaviest and most widespread since 1961. Damage in UTAH was generally light on small grains and scattered in pastures and range forage. During spring, damage was severe on several thousand acres of alfalfa in Wayne County, but was light to moderate elsewhere. This pest was general throughout IDAHO. Up to 24 per square foot infested 100,000 acres of rangeland in Lincoln, Blaine, and Minidoka Counties. Up to 12,000 heavily infested acres required control. Alfalfa, clover, mint, sugarbeets, turnips, and other crops were damaged. Damage was observed in some areas as late as June 20. Army cutworm was abundant in MONTANA east of the Continental Divide. Winter wheat was the major host, but alfalfa, gardens, corn, and beets were also infested. This cutworm was economic on wheat and alfalfa in 2 northeastern WYOMING counties. Spotty infestations on alfalfa in Washakie, Park, Fremont, and Laramie Counties caused some losses. Larvae per square foot averaged 3-4 on wheat and 5-7 on alfalfa in the most heavily infested fields. Adults became numerous in the eastern area about mid-June and were annoying in homes and buildings until the end of June. Army cutworm and Agrotis orthogonia (pale western

cutworm) larvae ranged up to 25-30 per foot in some fields in eastern COLORADO. Losses were very high; some fields were replanted. Army cutworm damaged small grains in TEXAS. Infestations on wheat in OKLAHOMA were scattered in the north-western, west-central, central, and north-central areas from early February to mid-April. Damage was light in most cases. Larvae damaged wheat extensively in the western two-thirds of KANSAS. The heaviest and most extensive infestations occurred in the northwestern area. Larvae damaged alfalfa in many western and south-central areas during spring. Adults were heavier in light traps in south-western Kansas than for the past few years in September and October.

In southwestern NEBRASKA up to 20 larvae per row foot fed on wheat in late March; damage was moderate and peaked from about mid-April to early May. Damage to alfalfa ranged light to moderate in central, southern, southwestern, and north-western areas and occurred mostly during March and April. Moth populations in September were higher than in 1967. Army cutworm is expected to increase in Nebraska in 1969. Larvae seriously damaged or destroyed winter wheat throughout western SOUTH DAKOTA. Damage was noticeable by late March and continued to mid-May. Larvae ranged from less than one to seven per row foot. Economic numbers occurred in 11 western counties. Treatment was applied to about 40,000 acres of winter wheat. Controls helped severely damaged fields to recover completely. Larvae seriously damaged alfalfa west of Belle Fourche, Butte County, near Whitewood, Lawrence County, and near Sturgis, Meade County, in late April and early May. Larvae and damage in NORTH DAKOTA appeared in small grains during late April and continued well into June. Cool, damp weather delayed development and pupation. Severe damage, up to 100 percent in some fields, occurred in 4 southwestern counties; infestations were also present in Wells and Bottineau Counties. Damaged fields recovered when controls were applied in time.

PAINTED LADY (*Vanessa cardui*) flights in ARIZONA were heavy through the Tucson area of Pima County. On April 5, larvae fed heavily on little mallow in north-western Phoenix, Maricopa County. On April 13-14, flights were heavy at Congress, Hillside, and Bagdad in Yavapai County and at Signal and Wikieup in Mohave County. On May 1-2, flights were heavy in the northern area between House Rock and Marble Canyon State Alternate Highway 89 and south of Flagstaff, Coconino County. Larvae damaged bean plantings locally in CALIFORNIA. They also damaged a wide variety of shrubs. Larvae were more abundant on Canada thistle in Polk County, OREGON, than in 1967. Parasitism appeared lower. Numbers were also abundant on Canada thistle in Umatilla County. Heavy flights were noted in southeastern WYOMING in late May. By June 14, larvae were causing extensive damage to Canada thistle.

Larvae of painted lady damaged isolated fields of soybeans in northeastern KANSAS in late June. Flights through eastern and northeastern NEBRASKA were heavy on May 2. Larvae were unusually abundant on thistles from late May through June. Damage to soybeans was light and scattered. Larvae defoliated thistles in soybean fields in southeastern SOUTH DAKOTA and then moved to the soybeans during the second week of June. Controls were applied in some cases. Larvae were occasionally numerous on Canada thistle in MINNESOTA, and damaged thistle-infested soybeans. In June infestations were scattered throughout the southern area and later in the season could be found northward in the west-central, central, and east-central districts. Canning peas were damaged in some areas. Some soybeans and canning peas were treated. Generally, damage was scattered and confined to individual fields in Minnesota. Larvae of painted lady were pests statewide in IOWA through most of June. After rapidly devouring thistles and cocklebur, larvae moved on to many other hosts including soybeans. Larvae fed on soybeans throughout northern MISSOURI. Small numbers of larvae occurred on sunflower in eastern ARKANSAS in September. In northern INDIANA larval counts ranged 2-8 per plant on half of the thistles checked from mid-May to early June. During the first half of June, migrating larvae damaged soybeans, pastures, and small grains. In most instances damage was restricted to small areas in fields, but some cases of defoliation in up to 6 acres of soybeans occurred.

TOBACCO HORNWORM (Manduca sexta) larvae infested tomatoes in RHODE ISLAND. Some larvae were covered with cocoons of parasitic braconids. In central TENNESSEE a few early instars appeared in tobacco early in June. During summer damage was moderate in most fields because of closely followed spray schedules. Numbers were lower on flue-cured and cigar-wrapper tobacco in FLORIDA. Damage was moderate on flue-cured tobacco and unimportant on cigar-wrapper tobacco. Light trap catches showed a 26-percent decrease compared with 1967. Tomatoes in ARIZONA required treatment in early May at Yuma, Yuma County.

TOMATO HORNWORM (Manduca quinquemaculata) was unusually common on garden tomatoes in Jackson County, OREGON, during summer. Numbers in KANSAS were below normal with little damage.

MELONWORM (Diaphania hyalinata) was serious on cucumbers, cantaloups, and pumpkins in ALABAMA. Larvae partially defoliated a limited planting of Cuban squash at Belle Glade, Palm Beach County, FLORIDA, during October.









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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*



**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM appearing on alfalfa in Nebraska. (p. 125).

GREENBUG activity heavy in the Rolling Plains, Panhandle, Central, and South Texas. (p. 125).

WINTER GRAIN MITE activity decreasing in Young and Archer Counties, heavy in Wilbarger County, Texas. (p. 125).

Adults of PEAR PSYLLA active in orchards in Jackson County, Oregon. (p. 126).

Detection

For new county records see page 129.

Predictions

EUROPEAN CORN BORER may be economic in east-central South Dakota. (p. 130).  
CORN ROOTWORMS expected to be problem in corn-growing areas of South Dakota (p. 133) and economic in southeastern and southwestern Minnesota (p. 135).  
Severe PALE WESTERN CUTWORM outbreak predicted in southwestern and southern panhandle areas of Nebraska. (p. 139).

Special Reports

Summary of Insect Conditions in the United States - 1968

Corn, Sorghum, Sugarcane (pp. 130-139).

Small Grains (pp. 139-142).

Turf, Pastures, Rangeland (pp. 142-144).

Distribution maps

Northern corn rootworm (p. 134).

Southern corn rootworm (p. 136).

Western corn rootworm (p. 137).

Reports in this issue are for week ending February 21 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING FEBRUARY 25

HIGHLIGHTS: Major storms pounded the Far West and the Northeast. Bitter cold weather continued in Montana while a warming trend occurred in the East.

PRECIPITATION: Copious rains soaked central and southern California early in the week with snow in the mountains. The huge storm spread eastward piling heavy snow in the mountains of Arizona above 4,000 feet while showers and thunderstorms occurred in the valleys. By Wednesday evening 15 inches of snow covered the ground in the Flagstaff vicinity. Heavy snow also fell in the central and southern Rockies with lighter snow in the northern Rockies and nearby Great Plains. Heavy rain and snow in the Far West continued over the weekend. The snow pack increased to 16 feet in the Sierras and exceeded 20 feet in the Cascades. The blowing and drifting snow clogged some of the major highways in California on Monday, February 24. In the Far Northwest, light precipitation, rain in the lower levels, and snow in the mountains fell early and late in the week. Totals were generally less than 1 inch. The storm which dumped 1 to 1.5 feet of snow over western North Carolina on February 15 and 16 moved far out into the Atlantic Ocean, stalled about 600 miles east of the Virginia coast, and continued to furnish rain, freezing rain, freezing drizzle, and snow to the Middle Atlantic States and Northeast. One to 3 inches of snow fell from Washington, D.C., to New York City on Thursday morning. Snow fell Sunday and Monday in the Northeast and by Tuesday morning, February 25, had covered parts of New England with a foot or more of new snow. Eastern Texas and nearby parts of Arkansas and Louisiana received generous rains starting after midweek.

Weather continued on page 129.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - NEBRASKA - Averaged 2-5 per alfalfa crown in 2 fields in Keith and Lincoln Counties February 5-6. (Andersen).

CORN LEAF APHID (*Rhopalosiphum maidis*) - FLORIDA - Light on 18 to 24-inch sorghum, up to 10 per leaf, at Homestead, Dade County. Collected by D.O. Wolfenbarger. Determined by R.J. Nielsson. (Fla. Coop. Sur., Feb. 11).

GREENBUG (*Schizaphis graminum*) - TEXAS - Populations during week of February 3-7 by county as follows: Floyd - heavy over entire county; Crosby - medium to heavy; Dawson - spotted, heavy; Lynn - light to medium. Cold weather prevented additional buildup in the panhandle. Currently medium to heavy in Briscoe County; some control in progress. (Almand). Heavy in Motley, Foard, Wilbarger, Wichita, Cottle, King, and Knox Counties. Damage light in some fields in Jones and Young Counties. (Boring). Very spotted populations reported from central area. Heavy in small grain along the Brazos River bottom in Falls County near Marlin. Controls applied. (Turney, Wood). Heavy and widespread in Uvalde County. Counts 100+ per row foot in irrigated wheat 6-7 inches high. One field sprayed. (Tapscott). ARKANSAS - Negative in wheat in northeast and southeast areas. (Ark. Ins. Sur.).

### CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) - MISSOURI - Total of 100 girdled stalks from field in Butler County dissected. Live larvae in 4 stalks; dead larvae in 21 stalks; empty tunnels in 75 stalks. (Munson).

### SMALL GRAINS

WINTER GRAIN MITE (*Penthaleus major*) - TEXAS - Heavy in Wilbarger County. Damage decreasing in Young and Archer Counties. (Texas Coop. Rpt.).

### FORAGE LEGUMES

PEA APHID (*Acyrtosiphon pisum*) - ARKANSAS - Ranged 12-15 per square foot in southwest area; counts higher than in northern area. (Ark. Ins. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - ARKANSAS - No egg hatch detected in alfalfa in Miller County. (Ark. Ins. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - CALIFORNIA - Light larval populations appearing on 20 acres of alfalfa in Clovis, Fresno County. (Cal. Coop. Rpt.).

### GENERAL VEGETABLES

GREEN PEACH APHID (*Myzus persicae*) - FLORIDA - Light, up to 2 per leaf on tomato and up to 4 per leaf on potato at Homestead, Dade County; colonies forming. Determined by R.J. Nielsson. (Nielsson, Wolfenbarger, Feb. 11).

### DECIDUOUS FRUITS AND NUTS

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) - FLORIDA - Overwintering females began egg laying on peach trees in Gainesville area, Alachua County, February 5; compares to February 2 in 1967, and February 3 in 1968. Most female scales gravid. No nymphs observed February 19. No eggs or nymphs observed on peach trees in Monticello area, Jefferson County, February 20. (Whitcomb).

PEAR PSYLLA (*Psylla pyricola*) - OREGON - Overwintering adults active in orchards in Willamette Valley. No oviposition observed, one female with fully developed eggs. (Every). In Medford area of Jackson County, adults up to 5 per trap, mostly 1-2 per trap. Higher than normal percentage of females with eggs. No oviposition observed. Highest temperature 55°F. (Berry).

#### CITRUS

Citrus Insect Situation in Florida - Mid-February - CITRUS RUST MITE (*Phyllocoptura oleivora*) infested 69 (norm 61) percent of groves; 48 (norm 42) percent economic. Population above normal and in high range. Further increase expected. Infestations similar on leaves and fruit. Highest districts south, west, north, and east. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 27 (norm 31) percent of groves; 15 (norm 11) percent economic. Population increased slightly but still in low range and about normal. Additional increase and few heavy infestations expected. Highest districts central and north. CITRUS RED MITE (*Panonychus citri*) infested 27 (norm 36) percent of groves; 9 (norm 18) percent economic. Population decreased and expected to remain below normal and near current low level. Highest district east. SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) infested 6 percent of groves; none economic. Slight increase expected. GLOVER SCALE (*Lepidosaphes gloverii*) infested 70 (norm 78) percent of groves; 4 percent (norm 17 percent) economic. PURPLE SCALE (*L. beckii*) infested 51 (norm 73) percent of groves; less than 1 percent economic (norm 13 percent). BLACK SCALE (*Saissetia oleae*) infested 23 (norm 36) percent of groves; 3 (norm 15) percent economic. YELLOW SCALE (*Aonidiella citrina*) infested 66 (norm 62) percent of groves; 4 (norm 15) percent economic. CHAFF SCALE (*Parlatoria pergandii*) infested 40 (norm 64) percent of groves; less than 1 percent economic (norm 9 percent). All scales below normal for February. All in low to moderate range in all districts and not expected to increase within next month. Slight increase indicated for Glover and yellow scale. An ARMORED SCALE (*Unaspis citri*) continues present in 16 percent of groves but temporarily inactive. APHIDS expected to be less numerous than normal until mid-March, then increase rapidly. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

#### ORNAMENTALS

BLACK VINE WEEVIL (*Brachyrhinus sulcatus*) - OREGON - Severe on two large beds of ornamental maple rootstock in Portland, Multnomah County. Trees in small pots; grubs averaged 4-5 per pot. (Larson, Wescott).

A NOCTUID MOTH (*Orthosia hibisci*) - MARYLAND - Larvae lightly damaged rose buds at University Park and Greenbelt in Prince Georges County in May 1968. Collected by T.L. Bissell. Determined by D.M. Weisman. This is a new county record. (U. Md., Ent. Dept.).

FORBES SCALE (*Aspidiotus forbesi*) - FLORIDA - Found on dogwood, *Cornus florida*, at Williston, Levy County, February 7, 1969. Collected by A.E. Graham. This is new Florida Department of Plant Industry county and host record. (Fla. Coop. Sur.).

AN ARMORED SCALE (*Diaspis boisduvalii*) - CALIFORNIA - Heavy on orchid plants in nursery in Fillmore, Ventura County. (Cal. Coop. Rpt.).

A SPIDER MITE (*Eotetranychus libocedri*) - CALIFORNIA - Medium on Italian cypress trees in Palm Springs, Riverside County. (Cal. Coop. Rpt.).



## FOREST AND SHADE TREES

AN ARMORED SCALE (Lindingaspis rossi) - CALIFORNIA - Medium on redwood trees, Sequoia sp., locally in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 2 cases reported in Bee County, TEXAS, February 16-22. Total of 122 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 39, Chihuahua 13, Coahuila 10, Nuevo Leon 7, Tamaulipas 53. Total of 15 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 25,768,000; Mexico 33,300,000. (Anim. Health Div.).

CATTLE LICE - NEBRASKA - Bovicola bovis (cattle biting louse) light on 12 animals at 1 site in Lancaster County. Haematopinus eurytarnus (short-nosed cattle louse) light on 3 herds: 15 head in Gage, 12 in Lancaster, and 10 in Cass Counties. (Campbell, Feb. 12). OKLAHOMA - Mostly H. eurytarnus heavy on cattle in Mayes and Pushmataha Counties. (Okla. Coop. Sur.). ALABAMA - Biting and sucking lice more widespread on poorly protected cattle in Shelby, Lee, Bibb, and other counties. Populations less serious than in most years. Some herds and individual animals being treated. (Odom et al.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Reported on cattle in Pushmataha County. (Okla. Coop. Sur.).

## STORED PRODUCTS

INDIAN-MEAL MOTH (Plodia interpunctella) - IOWA - Infested shelled corn at Winterset, Madison County. (Iowa Ins. Sur.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Weekly checks made of 225 traps in control zone during January. One weevil trapped in Garza County week ending January 25; in Stonewall County, 17 weevils taken in one trap same week. In High Plains area, 13 weevils (5 males, 8 females) taken on pheromone stickyboard traps between December 11, 1968, and January 11, 1969. Captures occurred during last half of December. (PPC South. Reg.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MAINE - To date, single webs found at several locations in Portland area. This area contiguous to more heavily infested area at Falmouth. Approximately 61,800 acres surveyed by end of January. NEW HAMPSHIRE - Single web found at old infestation site in Henniker. Approximately 43,200 acres surveyed in State to January 31. (PPC East. Reg.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Surveys in Bee, Cameron, Dimmit, La Salle, Live Oak, Maverick, Nueces, Webb, Zapata, and Zavala Counties negative. (PPC South. Reg., Dec. Rpt.).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - Three areas of infestation near defoliation level found in Monmouth County. These in section of county where treatments made. About 100 acres involved at each site. Egg masses located at 3 sites in nonregulated areas of Hopewell Township, Mercer County. Two sites 0.5 mile apart and 0.5 mile south of positive trap; third site 1 mile southwest of these sites. PENNSYLVANIA - Infestations found at 3 trap sites in Luzerne County, 1 in Susquehanna County. One egg cluster found along Appalachian Trail about 4 miles west of Auburn infestation; 1 egg mass found in Greenwich Township, Berks County, near Lehigh County line and on edge of regulated area. Three egg clusters found in sterile release block in Bucks County. (PPC East. Reg., Jan. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - A sterile A. ludens trapped in San Diego 12 miles north of release points in Tijuana, Baja California, Mexico. Six weeks since last fly trapped and latest date that a sterile A. ludens trapped after termination of releases. Releases terminated at Tijuana, November 27, 1968. (Cal. Coop. Rpt.).

WINTER MOTH (Operophtera brumata) - MAINE - All catches in blacklight traps and stocking-type traps negative for this pest. (PPC East. Reg., Jan. Rpt.).

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#### HAWAII INSECT REPORT

Turf and Pasture - A GRASS WEBWORM (Herpetogramma licarsisalis) subsided in lawns and pastures throughout State. Damage light in scattered areas on Oahu, Kauai, and Hawaii. Damage light to medium on Maui, mostly pastures in northeastern sections. (Yoshioka, Miyahira, et al.).

General Vegetables - SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults light to medium on small yard-long bean plantings at Ewa and 0.25-acre planting at Koko Head, Oahu. Negligible on snap and yard-long beans in Waianae and Waimanalo. SWEETPOTATO HORNWORM (Agrius cingulatus) larvae and damage heavy in sweetpotato planting at Maalaea, Maui. (Miyahira).

Fruits - MANGO FLOWER BEETLE (Protaetia fusca) adults medium on mango blossoms in Waimanalo and Waianae, Oahu. Adults common on mango as most trees in flower. LARGE MANGO TIP BORER (Bombotelia jocosatrix) larvae and damage negligible to trace on mango foliage in Ewa, Makaha, Honolulu, Kaneohe, and Kahuku, Oahu. Light on terminals of several trees in Waimanalo. (Funasaki).

Forest - A CONIFER APHID (Cinara carolina) nymphs and adults light and widespread in 200 acres of slash pine (Pinus elliotii) at Makaha and Kokee in Waimea District, Kauai. (Sugawa). RED WAX SCALE (Ceroplastes rubens) heavy on small volunteer ohia-lehua trees (Metrosideros collina polymorpha) at Makaha and Kokee, Waimea District, Kauai. As many as 26 per leaf; 90 percent of leaves infested. (Sugawa).

Miscellaneous Insects - VAGRANT GRASSHOPPER (Schistocerca vaga) buildup heavy near airport in Waianae District, Oahu, in areas with dense growth of slender mimosa (Desmanthus virgatus). Flushed from crops in Waianae during spray or harvesting operations but no damage reported. (Nakao).

## INSECT DETECTION

### New County Records

A NOCTUID MOTH (Orthosia hibisci) - MARYLAND - Prince Georges County. (p. 126).  
FORBES SCALE (Aspidiotus forbesi) - FLORIDA - Levy County. (p. 126).

### CORRECTIONS

CEIR 19(7):103 - WHITE-FRINGED BEETLES - In line 4, delete OKLAHOMA. Sentence should read: Local spread occurred in that State, as well as in ALABAMA, FLORIDA, and GEORGIA.

CEIR 19(8):120 - Line 19 - Spodoptera exigua should read Spodoptera frugiperda.

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 2/14-20, BL - Armyworm (Pseudaletia unipuncta) 1, black cutworm (Agrotis ipsilon) 5, granulate cutworm (Feltia subterranea) 9.

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Weather of the week continued from page 124.

TEMPERATURE: Temperatures averaged a few degrees below normal over most of the Far West and across the South, much below normal in Montana, and above normal from the northern Great Plains to the Northeast. Mild, sunny, pleasant weather prevailed from the northern Great Plains to New England and as far south as the Ohio River. The warm weather melted some of the snow in the Dakotas, Minnesota, Wisconsin, and southward where the ground was not frozen. The water from the snow percolated into the ground with little runoff. By the end of the week, most of the snow in Kentucky and Tennessee had melted. Melting snow in Washington also percolated into the ground with little runoff. However, deep snow still covered the foothills and mountains in that State. Gradual warming over the East brought weekly temperatures above normal in the Northeast and closer to normal over the Southeast during the previous week. (Summary supplied by Environmental Data Service, ESSA.)

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968  
(Continued from page 122)

CORN, SORGHUM, SUGARCANE

Highlights:

EUROPEAN CORN BORER was generally more abundant in the fall of 1968. Populations increased in 9 major corn-growing States. SOUTHWESTERN CORN BORER was serious on corn in northern Alabama, increased in southern Illinois, and damaged corn in several areas of Oklahoma. FALL ARMYWORM was economic on corn and sorghum in Texas and a threat to corn throughout the year in Florida. WESTERN BEAN CUTWORM damaged corn in northeastern Colorado and was heavy in southwestern Nebraska. LESSER CORNSTALK BORER was severe on late field corn and moderate on sugarcane in Florida. CORN ROOTWORMS were damaging in several States and required controls in some areas. Fall populations were sufficiently high in the corn-growing area of South Dakota so that problems are expected in 1969. SORGHUM MIDGE was heavy on sorghum in areas of Texas and caused some heavy damage in Oklahoma.

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EUROPEAN CORN BORER (*Ostrinia nubilalis*) infestations ranged 12-100 percent in a 10-square-mile area in the Prospect Valley area of Weld County, COLORADO. Counts were slightly higher on corn in 1968 than in 1967 in northeastern KANSAS. Infestations ranged 4-15 percent on some sorghum in the southeastern and east-central areas in the fall of 1968. Winter survival was less than 6 percent in Hall and Cuming Counties, NEBRASKA. Borers averaged about 500 per acre with less than 33 percent pupation in the last half of May. Flights peaked June 9-11. High counts occurred in Cuming County with an average of 1,132 borers per acre on 16 percent of the corn. During fall counts increased to 27,306 per acre on 81.6 percent of the corn. In Hall County borers averaged 18,648 per acre on 69.2 percent of the corn. These figures are near or slightly above normal. Winter survival in SOUTH DAKOTA averaged 80-100 percent in 5 southeastern counties the first week of May. First adults were taken in a light trap at Brookings, Brookings County, on June 28, the same date as in 1967, which is 2 weeks later than normal. Total damage was light in the southeastern area. Damage was not light in Union County or in the far northeastern counties. Borer numbers and damage increased in 1968 and may become economic in 1969 in the east-central counties. Winter survival in NORTH DAKOTA was 81 percent, slightly more than in 1967. By mid-June, however, fewer pupae were present than in 1967. First moths appeared in light traps June 17. On July 19, first instars were present. By the end of August first-generation borers were full grown. In September, second-generation borers did not appear in economic numbers and did not develop sufficiently to overwinter. The fall survey in 5 southeastern North Dakota counties revealed 112 borers per 100 plants on 40 percent of the corn compared with 101 per 100 plants on 49 percent of the corn in 1967. Very little stalk breakage was evident.

Although European corn borer increased in southern, central, and east-central MINNESOTA, counts were not high. Counts decreased in the northwestern district but remained at the high level of 99 borers per 100 plants. Counts in the west-central district remained moderate with 58 borers per 100 plants. Economic damage to field corn was restricted mostly to the northwestern district. The outlook for 1969 in Minnesota is much the same as it was in 1968. European corn borer winter survival in IOWA was 86 percent, slightly more than in 1967. During mid-May moths appeared in a light trap at Ames, Story County. During late July an average of 19.2 borers per 100 plants infested 15.7 percent of the corn. By October, borers averaged 171 per 100 plants on 72 percent of the corn compared with 55 per 100 plants on 53 percent in 1967. Loss was estimated at 46.3 million bushels. The first moth of the season in MISSOURI was trapped May 10 at Portageville, New Madrid County. First-generation counts were low. Fall overwintering populations in all districts were higher than in 1967. In ARKANSAS heavier populations (2,448 borers per acre) than in 1967 infested 25 percent of

the stalks. Numbers in northern ALABAMA on corn and grain sorghum were much lower than during 1960-1966. European corn borer was reported for the first time in Baldwin County, about 180 miles south of any previously known infestation in the State. Larvae were heavy in field corn in central TENNESSEE. Infestation was 98 percent in some instances.

European corn borer averaged 4.6 first-generation borers per 100 stalks (8 borers in 1967) in 22 counties surveyed in ILLINOIS. Second-generation borers were the highest since 1955 with a State average of 211 per 100 stalks. Counts for the 36 counties surveyed since 1942 averaged 205 borers per 100 stalks (61 in 1967). The highest averages were 282 borers per 100 plants in the southwestern district and 540 borers per 100 stalks in Livingston County. Winter survival in WISCONSIN was about 76 percent. By May 31 moth emergence was underway. By June 21 leaf feeding ranged 1-10 percent. Adults began to appear by July 26. Second-generation borers were numerous in field and sweet corn in all areas. All larval stages were common into October. Adults were caught in blacklight traps until after October 4. European corn borer was not a threat to field corn in MICHIGAN. Damage was well below the control level. First-generation infestations throughout INDIANA were scarce due to the lateness of corn. Second-generation infestations were the heaviest since 1957. Counts averaged 82 per 100 plants on 50 percent of the corn in the State. The most heavily infested fields had from 7 to 13 borers per stalk, with up to 20 percent ear droppage. Drying conditions, which allowed corn to be harvested by early November, minimized stalk breakage. Pupa-tion had begun by late May in most areas of OHIO. By late June damaged corn was evident. The first generation generally remained below the control level. Large numbers of moths appeared in blacklight traps during early August. During the last half of August second-generation borers were heavy and widespread. The fall survey in Ohio revealed an average of 152.6 borers per 100 plants compared with 18.4 per 100 plants in 1967 and 41.5 in 1966. Loss to the corn crop was estimated at 7,745,732 bushels.

European corn borer infested up to 80 percent of some corn stands in the mountain and northern areas of VIRGINIA. The first major flights in MARYLAND occurred in mid-May on the Eastern Shore. Heavy flights started again in late July and continued into September. With exceptionally heavy numbers statewide, controls were applied to most of the State's 24,000 acres of sweet corn but to very little field corn. Heavily infested fields in the southern and Eastern Shore areas of Maryland had 18-21 borers per stalk in September. Overwintering populations are more than twice those of 1967. In DELAWARE populations during fall were the highest ever recorded. The State average of 444 borers per 100 corn plants was more than twice that of 1967. The first generation in PENNSYLVANIA was about twice that of 1967. In late June about 75 percent of the corn in some fields had feeding holes. Larval numbers approached but did not reach the injury threshold level. The fall average, 98 borers per 100 plants, was above the 20-year average for the State. Larvae infested corn during the first week of June in RHODE ISLAND. In NEW HAMPSHIRE a cool, wet June extended egg laying well into July. During early August pupation was rapid. The second generation was about the same as in 1967. In VERMONT 21.38 larvae per 100 corn plants infested an average of 15.75 percent of the plants in 13 of 14 counties. Counts were higher than the 1967 level of infestation. Grand Isle, Chittenden, Windsor, and Franklin Counties were the most heavily infested. For the status of European corn borer in the fall of 1968 see CEIR 19(4):47-53.

SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) was serious on corn in northwestern and north-central ALABAMA. New records were reported for 4 northeastern counties. Infested counties now total 38. Populations increased in extreme southern ILLINOIS. Larvae averaged 50 per 100 stalks in one late-planted field. In the most heavily infested area, Pulaski and Alexander Counties had an average of 22 percent of plants infested. A new record was reported for one southeastern county. In MISSOURI populations during fall were similar to those for 1967. New records were reported in 2 southeastern counties. Percent lodging in ARKANSAS was comparable to 1967, but percent of infestation was heavier for early corn. In TEXAS infestations in corn were heaviest in 4 southern panhandle counties. Southwestern corn borer damaged corn in a few northwestern,

east-central, and southeastern OKLAHOMA counties during October. By November 1, diapause in the east-central area was complete. This pest was reported for the first time in one north-central county. Infestations in south-central KANSAS ranged 5-12 percent for the first generation and 25-50 percent for the second generation. First-generation moths first appeared July 27. In the fall infestations in southeastern and south-central Kansas ranged 5-70 percent. In ARIZONA southwestern corn borer was moderate in sorghum in 2 southwestern counties from June through September. From August through November the heaviest infestation for many years occurred on corn and sorghum in Maricopa County.

SUGARCANE BORER (*Diatraea saccharalis*) was light on corn during early June in Cameron County, TEXAS, but was heavy and damaged grain sorghum in the Rio Grande Valley. In mid-August medium numbers were widespread on grain sorghum in Calhoun County where damage ranged up to 25 percent in some fields. During September this pest infested late-planted grain sorghum in 2 southwestern counties. Sugarcane borer continued as the principal pest of sugarcane in FLORIDA during 1968.

FALL ARMYWORM (*Spodoptera frugiperda*) larvae damaged corn in Imperial County, CALIFORNIA. Populations were light on late-planted field and sweet corn in eastern NEBRASKA in August and September. A very light flight was followed by unusually light infestations on corn and sorghum in KANSAS. This pest was not very common in OKLAHOMA and caused little damage. In TEXAS damage was economic to corn and grain sorghum, but numbers in ARKANSAS were much lighter in 1968 than in 1967. Fall armyworm was light and scattered on late corn and sorghum throughout ALABAMA. Fall armyworm and *Heliothis zea* (corn earworm) larvae were a threat to corn throughout 1968 in the Everglades area of Palm Beach County, FLORIDA. During spring *S. frugiperda* accounted for 94 percent of the budworms and 62 percent of the larvae in ears of sweet corn. One or both species infested 95 percent of the leaves and stalks and 94.5 percent of the ears in untreated checks. Fall armyworm was the major species that damaged 79 percent of the stalks. A mixed population of these 2 species infested the buds of field corn and damaged 23-43 percent of the stalks. Fall armyworm was heavy and severely damaged some corn during June and some grain sorghum during August in the Sanford area, Seminole County. Treatments were required on grain sorghum. Most spring corn received 1-3 applications.

SORGHUM WEBWORM (*Celama sorghiella*) damage to grain sorghum was noneconomic in ALABAMA, but the pest necessitated treatment of some fields in ARKANSAS. Light numbers damaged some grain sorghum in 6 east-central counties of TEXAS. Sorghum webworm was active from mid-August to early October in OKLAHOMA, with up to 150 per head in several south-central counties. Counts ranged up to 65 per head in some grain sorghum in the north-central, northeastern, central, east-central, and southwestern areas. Larvae damaged a few late sorghum fields in east-central and southeastern KANSAS in September.

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) increased in northeastern COLORADO where loss to corn ranged light to moderate. This cutworm was reported for the first time from 22 NEBRASKA counties and is now known to occur in 47 counties in the State. Flights peaked July 16-21 in the central and southwestern areas. The heaviest infestations were concentrated in the southwestern district and from Ogallala to Central City along the Platte River Valley. Spotted heavy infestations occurred in the panhandle area along or near the North Platte River. By mid-September most larvae had pupated. Larval numbers increased considerably in Dawson County but decreased in Lincoln County. Statewide populations appeared to remain at or increase slightly above 1967 levels. Two adults were taken in a light trap near Yankton, Yankton County, SOUTH DAKOTA. Western bean cutworm could become a major economic pest of corn in the State.

BLACK CUTWORM (*Agrotis ipsilon*) damaged sorghum in 2 south-central SOUTH DAKOTA counties during May and early June and damage to corn in WISCONSIN ranged 5-10 percent in some central area fields. In IOWA controls were applied to 116,700 acres of cropland. Larvae caused little damage to corn in KANSAS and injury to corn in MARYLAND was light and well below normal.

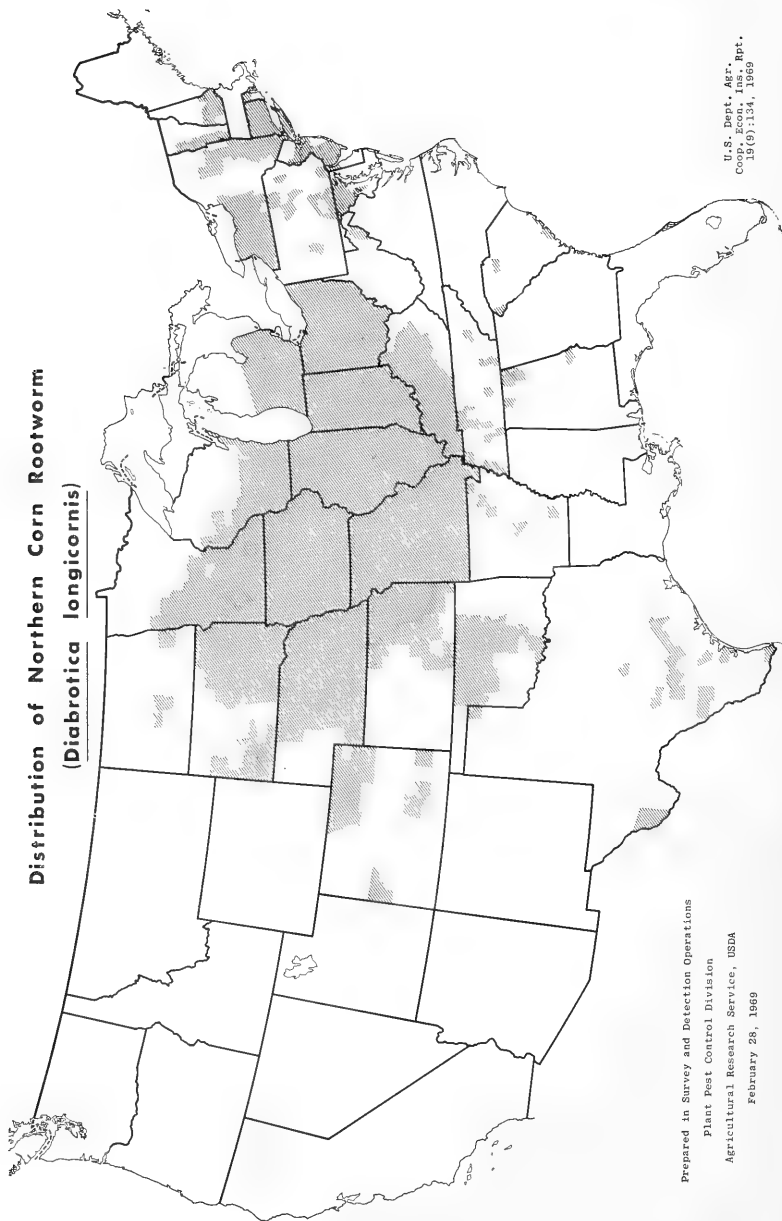
STALK BORER (Papaipema nebris) was heavy on ragweed in the eastern third of NEBRASKA. Some larvae migrated to corn from weedy field margins, but few controls were necessary. Parasitism appeared to be very low. Larvae damaged border rows in a few cornfields with infestations ranging up to 25 percent in some of these fields. BET ARMYWORM (Spodoptera exigua) damaged young corn plantings in CALIFORNIA. First instars were light in boots of young sorghum at Glendale, Maricopa County, ARIZONA, during mid-April. In early June controls were necessary on sorghum at Kansas Settlement in Cochise County. VARIEGATED CUTWORM (Peridroma saucia) was heavy in north-central TEXAS on May 10 and many thousands of acres were sprayed.

CUTWORMS were very damaging to corn and some milo in CALIFORNIA throughout the 1968 season. These pests caused severe local problems on grain sorghum early in May in central and southern areas of TEXAS, but were light and caused little damage on corn throughout MINNESOTA. W-MARKED CUTWORM (Spaelotis clandestina) infested corn in WISCONSIN by late May and required some treatment in the Wood County area. Damage by GLASSY CUTWORM (Crymodes devastator) caused the replanting of some early corn in MICHIGAN. DARK-SIDED CUTWORM (Euxoa messoria) and Euxoa detersa larvae damaged corn seedlings in 2 northeastern counties of NEBRASKA and PALE WESTERN CUTWORM (Agrotis orthogonia) larvae damaged corn and sorghum in west-central and southwestern KANSAS in May.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) larvae in north-central FLORIDA were severe on late-planted field corn in sandy soils. In the Belle Glade area of Palm Beach County, this phycitid moth was moderate on "rattoon" sugarcane (second-year cane) in the muck region of the same area. Lesser cornstalk borer was not very common in OKLAHOMA and caused little damage. In ARIZONA populations ranged moderate to heavy on corn and sorghum in Yuma County from late June through early October; some fields were treated.

WESTERN CORN ROOTWORM (Diabrotica virgifera) adults were collected from field corn in Yavapai County, ARIZONA, for a new county record. D. virgifera and SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi) adults were first observed in southeastern WYOMING in mid-July. The heaviest adult counts averaged 6-10 per plant. Controls were applied for adults and larvae. The southern species was not important. In MONTANA western corn rootworm occurred in Yellowstone and Rosebud Counties. D. virgifera adults were light on corn in Richland County, NORTH DAKOTA, on August 23. No new fields or counties have been found infested since the first findings during 1967. D. undecimpunctata howardi was reported in a west-central county for a new record. Western corn rootworm and northern corn rootworm infestations in SOUTH DAKOTA were down sharply from those of 1967. Similar to 1967, a late hatch was apparently extended over a long period. Early summer infestations were erratic. By August 9, adults averaged 6 per cornstalk in some fields near Beresford. Western corn rootworm was the dominant species until the last week of August, when northern corn rootworm made up 90 percent of a rootworm population in a field in northern Yankton County. Numbers were at the lowest level of the last 5 years. During fall corn rootworms were heavy enough in the corn-growing area so that problems are expected in 1969. Western corn rootworm was reported for the first time in 2 counties. In southern and southeastern NEBRASKA southern corn rootworm adults were unusually abundant in May and June and common on alfalfa and sweetclover throughout the season, but no damage was noted. In the eastern and northeastern areas the usual numbers of western corn rootworm and northern corn rootworm heavily lodged some fields. Corn rootworms remained active on corn until mid-October in Nebraska. In KANSAS infestations of D. undecimpunctata howardi, D. longicornis, and D. virgifera were about the same as in 1967. Rootworms and drought damaged many fields in the northeastern area; in July and August many fields were treated for adults. In August ratios for the 3 species remained unchanged in the northeastern and north-central areas. New records were reported in a southeastern county for western corn rootworm and in a south-central and 2 north-central counties for D. longicornis. Western corn rootworm damaged large acreages of corn in Texas County, OKLAHOMA, during July and early August. In mid-July larvae ranged up to 45 per plant. In early August adults ranged up to 50 per row foot. Southern corn rootworm was medium to heavy

**Distribution of Northern Corn Rootworm  
(*Diabrotica longicornis*)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
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CP-19(9)134, 1969



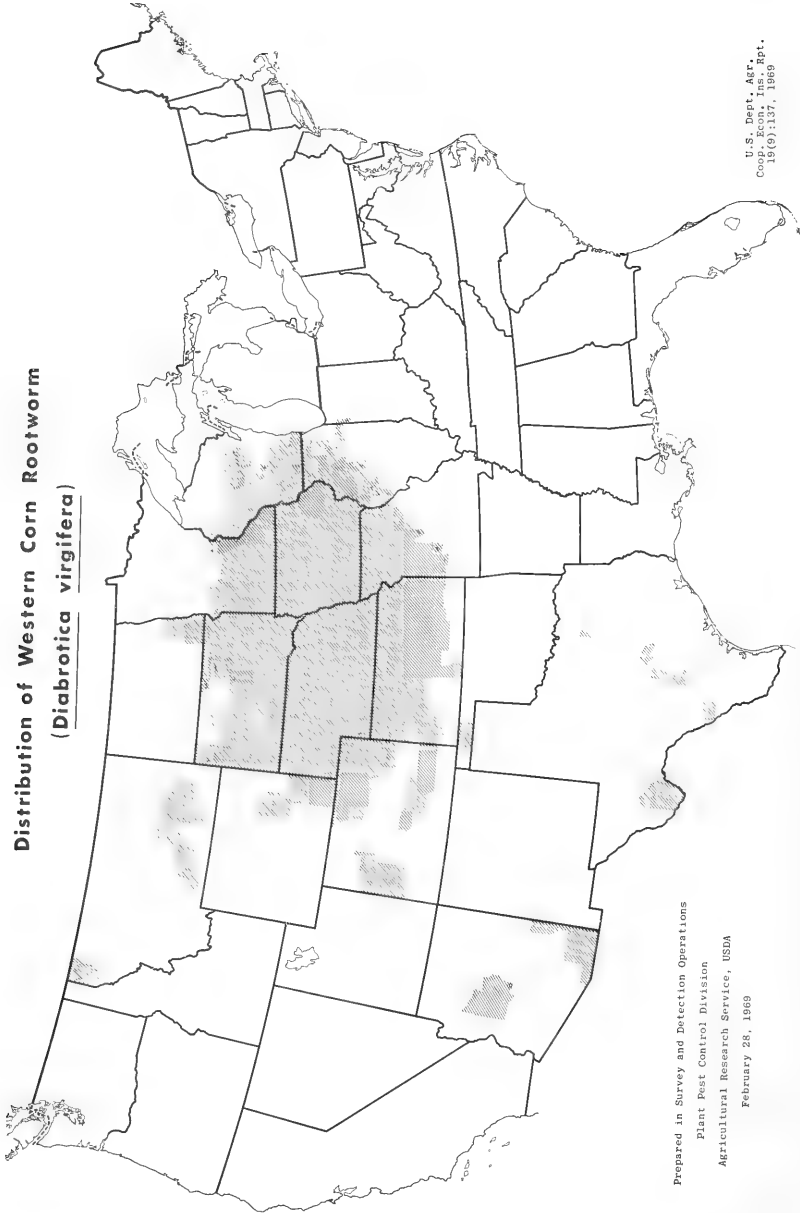
on sorghum in a southeastern county of TEXAS during mid-April and later on corn and sorghum in the east-central area. Northern corn rootworm was first found in 4 ALABAMA counties during 1967 but no new infestations were reported in 1968.

The first western corn rootworm larvae of the season in MISSOURI were reported June 11 from Atchison County. The first adult was seen July 3 in Knox County. This rootworm was the major corn pest in the northern area. Heavy damage occurred in Bates County, much farther south than any previous problems. Western corn rootworm was reported in 4 west-central counties for new records. The first larvae of the season in IOWA were observed during late June. Lodging averaged 6.2 percent, compared with 8.1 percent of the plants in 1967. About 5 million acres of corn in Iowa were treated for corn rootworms. Loss was estimated at \$49 million. Northern corn rootworm and western corn rootworm were again a major problem on corn in MINNESOTA. A general hatch began on June 20, about the same time as in 1967. In early July lodged corn was evident. Rainfall helped plants to recover from moderate root damage. In August adults averaged 25,925 per acre in the southeastern district and 23,728 per acre in the southwestern district. Middle averages of 13,000+ per acre occurred in south-central and central Minnesota. Adults averaged 8,714 and 5,377 per acre in the east-central and west-central districts, respectively. Northern corn rootworm continued to be predominant. Western corn rootworm increased in the west-central district. Only 1.5 percent of the adults were found in first-year cornfields. Economic infestations in 1969 will occur in southeastern and southwestern Minnesota. In WISCONSIN root damage was severe in a few untreated fields but light to moderate generally by July 12. By July 26, silk feeding was noticeable. A cool spring, which had prolonged hatch, probably prolonged adult emergence. Diabrotica longicornis outnumbered D. virgifera by about 50 to 1. Corn rootworm populations in MICHIGAN appeared to decline as they did in 1967. Neither damage nor adults were observed on corn silks.

Corn rootworm larval counts of 30 per corn plant were average for western corn rootworm and common for D. longicornis in the northern half of ILLINOIS in late June but were as high as 75 per hill in the western area for D. longicornis. By early July D. longicornis had severely damaged corn roots. By mid-August, 4 percent of the fields had 5 or more D. longicornis adults per plant and 62 percent had 1 or less. Most economic damage by western corn rootworm occurred in the western and northwestern sections. D. virgifera was reported in 17 new counties on the perimeter of the generally infested area, bringing the total known infested counties to 37. Southern corn rootworm was heavy in the southern half of Illinois, but damage was isolated. D. longicornis counts throughout INDIANA were generally light with little damage. During mid-August adults ranged 15-30 per 25 ears in the most heavily infested fields. One western corn rootworm adult was reported in Newton County for a new State record in Indiana. Corn lodged by D. longicornis in OHIO was not a problem. By mid-August adults were near their seasonal peak on corn silks in the central area. During the last half of August adults in 53 major corn-producing counties of Ohio averaged 25,802 per acre with 1.44 per plant, similar to 1967. Averages of more than 50,000 per acre were found in 6 southwestern Ohio counties.

Northern corn rootworm adults continued to increase in PENNSYLVANIA. The highest number was reported from the southeastern corner of the State. Averages as high as 1 adult per 5 plants infested some fields in Bucks and Lehigh Counties. The injury threshold level has not been reached yet in any area. Southern corn rootworm and northern corn rootworm lodged 2-10 percent of the cornstalks in many fields in central MARYLAND. Northern corn rootworm adults were most numerous in Frederick and Carroll Counties. Adults ranged 1-4 per silk in the heavily infested fields of Carroll County. Northern corn rootworm was reported in 3 new counties and is expected to continue its southward and eastward expansion within Maryland. Northern corn rootworm was not economic in NEW HAMPSHIRE. Adults were reported in 4 new counties.

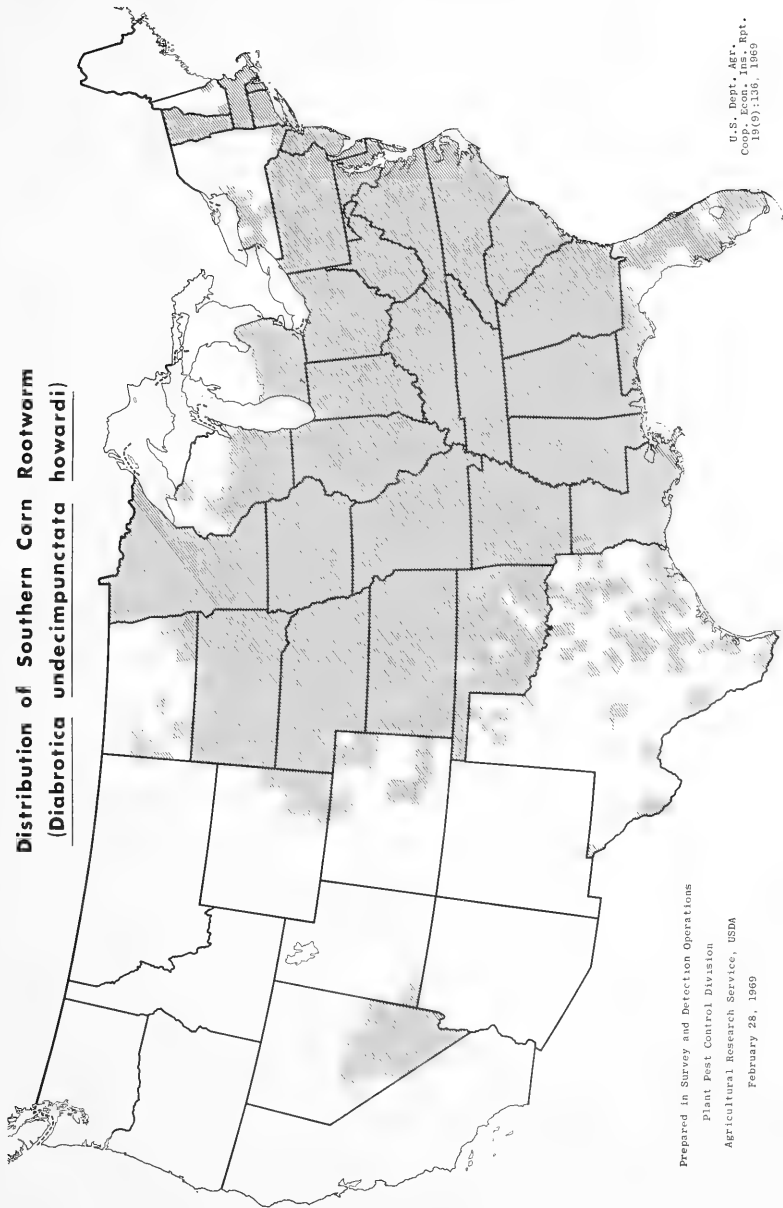
**Distribution of Western Corn Rootworm  
(Diabrotica virgifera)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service, USDA  
February 28, 1969

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Coop. Econ. Ins. Rpt.  
19(9):137, 1969

**Distribution of Southern Corn Rootworm  
(*Diabrotica undecimpunctata howardi*)**



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Plant Pest Control Division  
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February 28, 1969

U. S. Dept. Agr., Ent.  
Co. 19(9):136, 1969

CORN FLEA BEETLE (Chaetocnema pulicaria) was very heavy on corn in most of central MARYLAND. Early in the season adults averaged 5 per 12 plants in Frederick County. Populations on the Eastern Shore and in the southern area remained light. Although very few in VIRGINIA, some infestations caused an average of 60-70 percent injury to corn during June. Corn flea beetle adults ranged 1-4 per corn seedling from May 20 through June 7 in southern and central INDIANA. Damage was generally light but a few fields did require controls. Populations in ILLINOIS were highest in the western area; some fields of early corn had 10 per plant. In ALABAMA this flea beetle was largely a pest of seedling corn until plants were 2 feet high. Adults occurred throughout the State.

SEED-CORN BEETLE (Agonoderus lecontei) and a GROUND BEETLE (Clivina impressifrons) damaged corn seed that germinated slowly due to cool, wet periods during April and May in NEBRASKA. Some replanting was necessary in the State. Adults of both species were taken in light traps in IOWA during early May. Damage by Clivina impressifrons was reported from many counties. The loss due to replanting in Iowa was estimated at \$20,240. Seed-corn beetle and C. impressifrons damaged many cornfields in northern ILLINOIS during germination. Severe infestations resulted in as many as 5,000 corn plants per acre being killed with a probable average loss of 500 to 1,000 plants per acre.

CHINCH BUG (Blissus leucopterus) populations were generally lower in NEBRASKA than during 1967. Nymphs moved into corn and sorghum adjacent to ripening small grains in Jefferson County on July 3, but no damage was reported. Overwintered populations were low in most of eastern KANSAS in February. Populations were light in a few central area fields and field borders were treated in a few instances. Chinch bug was not very common in OKLAHOMA and caused little damage. Populations in TEXAS ranged light to heavy on grain sorghum and corn in Lee and Waller Counties from April through June. Chinch bug was lighter than usual in ALABAMA during the 1968 season.

FALSE CHINCH BUG (Nysius ericae) was heavy and widespread on grain sorghum in several southwestern counties of TEXAS during July. Controls for this pest were necessary in isolated areas of the Trans-Pecos region of the State. In some northwestern counties this pest ranged medium to very heavy.

SORGHUM MIDGE (Contarinia sorghicola) was light on early grain sorghum in the Rio Grande Valley of TEXAS about mid-May. Populations were heavy on this crop in Live Oak, Maverick, Uvalde, Bexar, Wilson, Hays, and Comal Counties. Light numbers were detected in the Rolling Plains, the Trans-Pecos area, the South Plains, and in most central area counties. Yields were not significantly reduced in these areas of Texas except in late-planted grain sorghum. Sorghum midge caused heavy damage to sorghum in Garvin and Custer Counties, OKLAHOMA, but caused no problems on this crop in KANSAS. Sorghum midge required fewer treatments and caused less loss to sorghum in ARKANSAS during 1968 than in 1967. Treatment was required on some early sorghum in the southwestern area in June and July, but late sorghum was not affected. The pest was found in the extreme northeastern area of Arkansas in 1968.

GRASS THRIPS (Anaphothrips obscurus) was heavier on field corn in DELAWARE than in previous years. Injury was heavy in Kent and Sussex Counties during late May and early June. This pest averaged up to 50 per corn plant in southeastern PENNSYLVANIA during late June. Populations soon decreased, however, and no serious damage was evident.

BANKS GRASS MITE (Oligonychus pratensis) infested lower leaves of field corn in Twin Falls and Lincoln Counties, IDAHO, in early August. Populations on corn in eastern COLORADO required controls and controls were applied to corn in the Mitchell Valley in the panhandle area of NEBRASKA where several fields were damaged. Banks grass mite and other spider mites were medium and widespread on grain sorghum in the lower Rio Grande Valley of TEXAS in mid-August. Light to heavy populations of O. pratensis were detected in some southwestern counties during August and some controls were applied in the Trans-Pecos area of Texas.

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) was prevalent and damaging to some corn plantings in CALIFORNIA. Oligonychus sp. and/or Tetranychus sp. populations became noticeable on silage corn in NEVADA in mid-July, built up rapidly in early August, and ranged medium to heavy in August and September in Churchill and Pershing Counties. Treatments were required, but infestations and damage were below those of past years. Light populations of spider mites were first noted on corn in southeastern WYOMING on July 25. Numbers increased until mid-August and then declined. Some controls were applied. In NEBRASKA Tetranychus spp. were noneconomic with a few locally serious infestations on corn in northeastern, eastern, and central areas.

GARDEN SYMPHYLAN (Scutigerella immaculata) was first reported on field corn in OHIO the second week of May and incidences were reported through July. This pest caused more damage to row crops in the Willamette Valley of OREGON than had been observed the past few years.

GRAY GARDEN SLUG (Deroceras reticulatum) damaged corn in Marion County, OREGON. Damage to field corn by Deroceras spp. was first reported in central OHIO the third week of May. Damage by these slugs continued severe on young field corn through early July. From mid-June until July slugs were the most prominent and damaging pests of corn in the State. Most damage occurred where sod had been plowed under and where tillage was minimal. Much damage to sweet corn by these pests was reported. Continued damp soil conditions during spring and early summer in Ohio favored heavy slug populations. Slugs were severe in many sod-planted fields of corn in the VIRGINIA highlands and several fields were replanted.

#### SMALL GRAINS

##### Highlights:

PALE WESTERN CUTWORM caused severe damage to wheat in several grain-producing States. Fall flights were heavy in southwestern Kansas and the heaviest ever recorded in western Nebraska. A severe outbreak is predicted in 1969 for the southwestern area and southern panhandle counties of Nebraska. ENGLISH GRAIN APHID damaged small grains in Alabama and Texas. SAY STINK BUG was heavy on small grains locally in Nevada and caused moderate damage in western Colorado. WIREWORMS damaged small grains in some areas. GREAT BASIN WIREWORM was more abundant than in many years in Oregon. HESSIAN FLY was moderate in Ohio and infestations were the lowest in 13 years in Illinois and generally lighter than in 1967 in Kansas. BROWN WHEAT MITE was damaging to small grains in Texas, Oklahoma, and Utah and heavy populations developed in western and central Kansas in spring. WINTER GRAIN MITE required some controls in central Texas in early January.

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PALE WESTERN CUTWORM (Agrotis orthogonia) severely damaged dryland wheat in Texas County, OKLAHOMA, in April and early May. Larvae severely damaged many wheat fields in west-central and southwestern KANSAS in April and May. Several fields were abandoned because of cutworm damage and drought. Thousands of moths were collected in light traps in Finney and Stevens Counties in September and October. Damaging numbers infested wheat in southwestern NEBRASKA as well as southwestern panhandle counties in that State. On April 3-4, half-grown larvae ranged 1-10 per row foot in Dundy, Chase, and Perkins Counties; the heaviest counts, 1-13 per row foot, occurred in the panhandle. Damage continued until the end of May. Fall flights were the largest ever recorded. A severe outbreak is predicted in 1969 for the southwestern tier of counties and the southern panhandle. Larvae damaged winter wheat over extensive areas of SOUTH DAKOTA in the spring and infested grain in Wibaux, Lewis and Clark, Yellowstone, Daniels, Teton, Phillips, Pondera, Valley, Liberty, Judith Basin, and Toole Counties, MONTANA. In WYOMING larvae damaged many wheatfields in the southeastern area during late April and

May. Counts averaged up to 8 per square foot in the more heavily infested fields. Some controls were applied; replanting was required in scattered localities. Injury in UTAH was uncommon.

ENGLISH GRAIN APHID (*Macrosiphum avenae*) occurred in damaging numbers on heads of developing wheat in many fields of Mobile, Baldwin, and other southern ALABAMA counties. This aphid was noneconomic in ARKANSAS but damaged small grains in TEXAS. In OKLAHOMA light numbers (up to 20 per foot) infested wheat from early February to mid-April and during December. Low populations during spring and fall caused no damage in KANSAS. In OHIO English grain aphid did not build up to economic levels on small grains. During May and June, 10-393 per 50 sweeps infested wheat and oats in northwestern and north-central areas. Populations peaked during the first half of June on wheat and oats in central and northern INDIANA; aphids ranged 5-30 per plant. Although populations were noticeably higher than previous years, little damage occurred. Counts in the southern third of ILLINOIS averaged 6.4 per sweep with a high of 50 per sweep in western areas. Damage was not economic. Light numbers caused no damage in IOWA. Migrants entered MINNESOTA in early April. Moderate numbers caused no observed damage to field crops. The principal migration into SOUTH DAKOTA occurred about May 10-12, the same time as in 1967. This aphid was rarely encountered in MONTANA in 1968, compared with the large numbers of 1967. Light numbers infested small grains in UTAH. Light populations were scattered on barley in Mohave and 5 southern counties of ARIZONA from mid-March to mid-April. English grain aphid infested barley and oats at various locations in CALIFORNIA. Overwintering survival in OREGON was very high on cereals, particularly wheat, in the Willamette Valley. In late April *alatae* began migrating to spring barley. Populations were never high and the incidence of barley yellow dwarf virus was low and very spotted.

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) damaged small grains in TEXAS, but populations were low during spring and fall in KANSAS and caused no damage to grains. Infestations were also light on small grains in UTAH. Another APHID (*Rhopalosiphum padi*) infested small grains in OKLAHOMA from mid-January through April. Populations ranged medium to heavy in many fields in the western two-thirds of the State during the last half of April. Populations were again light on small grains in the western third of Oklahoma in November and December. *R. padi* populations were high (10-20 per root system) on winter wheat infested with *Schizaphis graminum* (greenbug) in eastern Pennington County, SOUTH DAKOTA, during November. *R. padi* populations were very high on winter cereals, particularly wheat, in the Willamette Valley of OREGON. *Alatae* migrated to spring barley in late April. Populations were not high and the incidence of barley yellow dwarf virus was low and very spotted.

SAY STINK BUG (*Pitedia sayi*) was heavy and localized in NEVADA on barley in Clark County in May and on wheat in Humboldt County in July. Although populations were generally light in UTAH, this pest damaged about 4,000 acres of wheat. Say stink bug and CONCHUELA (*P. ligata*) caused moderate losses to small grains in Mesa County on the Western Slope of COLORADO before controls could be applied.

BARLEY THRIPS (*Limothrips denticornis*) had migrated into early planted barley and entered leaf sheaths by June 14 in NORTH DAKOTA. Numbers were economic in most eastern counties; in the northeastern area 3 or more per plant infested approximately 30 percent of early barley fields. By July 19, up to 20 percent damage appeared.

WIREWORMS caused the usual damage in UTAH. Wireworms, mostly GREAT BASIN WIREWORM (*Ctenicera pruina*) damaged winter wheat stands in Clearwater, Lewis, and Nez Perce Counties, IDAHO. Great Basin wireworm was more abundant than observed in many years in OREGON and caused significant damage to spring and fall-seeded grains in the Columbia Basin counties. A wireworm probably *Ctenicera* sp. damaged 30 percent of the winter wheat at Uniontown, Whitman County, WASHINGTON, in March. Wireworm infestations in MONTANA damaged much grain in Liberty, Carter, Fallon, Missoula, Choteau, Pondera, Teton, Daniels, Sheridan, and Carbon Counties.

Wireworms were damaging in scattered locations throughout NORTH DAKOTA. Damage ranged as high as 35 percent in some small grain fields. Many fields were replanted. Wireworms damaged small grains in Red Lake, Todd, and eastern Marshall Counties, MINNESOTA. Nearly all problems occurred on soil bank land and on land that had been idle for several years. Reduction of stands ranged from light to heavy.

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) increased in importance and showed some spread in CALIFORNIA. This pest infested all rice-growing areas in ARKANSAS and control was universal and automatic.

HESSIAN FLY (Mayetiola destructor) infested an average of 20.6 percent of the stems in OHIO during July. Loss was estimated at 1,163,580 bushels of wheat. In MICHIGAN it was of minor importance on wheat. Weather and close observation of the Hessian fly free planting date contributed toward holding the pest in check. In INDIANA average infestations by Race B in Monon, Redcoat, Reed, Riley, and Riley 67 wheat varieties were less than in 1967. These wheat varieties had an average infestation of 1.5 percent while the Race B resistant wheat varieties Knox 62 and Benhur had an average infestation of 0.3 percent. Infestations continued to be heaviest in the southwestern district. Hessian fly populations of 2 per 100 tillers were the lowest in ILLINOIS in 13 years except for 1965 when the average was also 2 per 100 tillers. The 1967 count showed 5 per 100 tillers. This pest was generally lighter in 1968 than in 1967 in KANSAS. Resistant wheat varieties in the severely infested areas held populations down. Spring and fall broods caused severe damage only in localized areas. Total loss is placed at about \$350,000. Populations in NEBRASKA were generally low statewide. The highest levels were found in the eastern (4.3 percent of stems infested) and south-central (1.9 percent of stems infested) areas. Total crop loss was estimated at 171,050 bushels. In MONTANA light and scattered Hessian fly infestations were reported in 8 counties.

WHEAT STEM MAGGOT (Meromyza americana) damaged small grains in TEXAS. White heads of wheat, oats, barley, and rye were very common throughout MINNESOTA. Highest infestations were found in the central and west-central districts and ranged from 2 to 5 percent.

WHEAT STEM SAWFLY (Cephus cinctus) cut up to 19.8 (average 1.3) percent of the stems in 70 percent of the small grain fields in 19 western counties of NORTH DAKOTA. Cutting was most severe (average 4.6 percent) in McHenry County. Larvae infested wheat in 24 MONTANA counties. Infestations were reported in all northern counties, except Lincoln and Flathead, and in all the most eastern counties. Infestations were also reported in McCone, Dawson, Mineral, Pondera, Teton, Choteau, Golden Valley, Musselshell, Treasure, and Rosebud Counties.

BROWN WHEAT MITE (Petrobia latens) was heavy on dryland wheat in Hansford and Sherman Counties, TEXAS, in mid-April. This pest appeared on small grains in OKLAHOMA in early March and caused some damage in the north-central area in early April and in the northwestern area in early May. Light fall populations were present in the northwestern area in early November. Because of a mild dry spring in KANSAS, heavy brown wheat mite populations built up in many western and central areas in March and April. Mites combined with drought caused much damage in isolated fields. In COLORADO this mite was found in scattered areas and controls were applied. Brown wheat mite damaged several thousand acres of dryland wheat in San Juan County, UTAH. Smaller areas were affected elsewhere in the State. This mite was generally light throughout the season in south-eastern WYOMING. In MONTANA, brown wheat mite was noted in Cascade County and infested grains in Liberty and Hill Counties.

WINTER GRAIN MITE (Penthaleus major) damage was heavy in central TEXAS and in Stephens County during early January. Some control was applied in isolated areas. During mid-January cold weather depressed activity in the north-central area. This pest infested small grains in the western two-thirds of OKLAHOMA from mid-January to late April. During late March and early April the heaviest

numbers occurred in the southwestern and north-central areas. Light to moderate numbers were noted in southwestern, northwestern, and north-central areas during late November and December. Winter grain mite caused little concern in KANSAS. In CALIFORNIA infestations were reported on wheat in Siskiyou County and on barley in Fresno County.

#### TURF, PASTURES, RANGELAND

##### Highlights:

CHINCH BUG was serious on St. Augustine grass lawns in Alabama and SOUTHERN CHINCH BUG was a major problem on this host throughout Florida. TWO-LINED SPITTLEBUG was a problem on Bermuda grass in Alabama and on Pangola grass and St. Augustine grass in Florida. RHODES-GRASS SCALE was a major problem on Tifgreen Bermuda grass in west coast areas of Florida. BILLBUGS and WHITE GRUBS were problems in some areas. BUFFALO GRASS WEBWORM was less damaging generally in Kansas than in 1967. SAGEBRUSH DEFOLIATOR is increasing in southern Idaho. BERMUDAGRASS MITE was more severe in Florida than any time since it was first recognized as a problem 6 years ago.

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CHINCH BUG (*Blissus leucopterus*) was a serious pest of St. Augustine grass lawns in central and southern ALABAMA. Due to the damage caused by this pest and the difficulty with controls, many homeowners in the State are replacing St. Augustine grass with other grasses. Chinch bug damaged some lawns in south-central and southeastern OKLAHOMA and was common on turf in RHODE ISLAND.

SOUTHERN CHINCH BUG (*Blissus insularis*) was a major problem on St. Augustine grass lawns throughout FLORIDA. This pest has become a problem on commercially grown St. Augustine grass during the past 2 or 3 years in the muck soil area of southern Florida. Controls are now necessary 2 or 3 times a year. This pest was heavy in central TEXAS late in the year. Activity early in the year was limited by wet weather. Southern chinch bug was taken for the first time on St. Augustine grass in Los Angeles County, CALIFORNIA.

FALSE CHINCH BUG (*Nysius ericae*) built up on mustards, Russian-thistle, and other plants in range areas of UTAH and caused local but minor damage to pastures. This lygaeid bug caused some damage in TEXAS.

TWO-LINED SPITTLEBUG (*Prosapia bicincta*) was present throughout ALABAMA in early spring. Most problems developed on Coastal Bermuda grass in central and southern areas and on lawn grasses in southeastern and southwestern areas of the State. Populations were much lighter than in 1965 and about the same as in 1966 and 1967. Two-lined spittlebug was numerous on pastures of Pangola grass and St. Augustine grass in FLORIDA, primarily in the Everglades area. Damage was less than in 1967, possibly due to heavier rainfall in 1968. Although this spittlebug damaged these grasses from mid-June to mid-September, infestations occurred from April 24 to December 3.

SAY STINK BUG (*Pitiedia sayi*) was very heavy on rangeland hosts in northwestern and southeastern NEVADA during April and early May, but heavy infestations did not develop on cultivated crops except in a few areas. Large populations of this stink bug were seldom found on rangeland in UTAH.

YELLOW SUGARCANE APHID (*Sipha flava*) damaged pasture grasses in the Moore Haven, Okeechobee, and Lake Worth areas of FLORIDA in October and November. Unseasonably high populations occurred on experimental plantings of Chloris and Setaria in the Fort Pierce area in October.



RHODES-GRASS SCALE (Antonina graminis) was a major problem on Tifgreen Bermuda grass in the Sarasota, Bradenton, Palmetto, and Tampa areas of FLORIDA. Populations were heavy on several acres of sod in Broward County in early October. This pest occurred on several varieties of Bermuda grass and on St. Augustine grass in lawns from January to September in the Salt River Valley in Maricopa County, ARIZONA. Rhodes-grass scale infested grass in San Diego County and was reported for the first time in Kern County, CALIFORNIA. Nymphs of a MEALYBUG (Chorizococcus rostellum) occurred inside the sheaths of Bermuda grass in Yuma County, ARIZONA, during mid-February and increased in late March. Populations were moderate at Gila and Roll during mid-May and heavy in September. Controls were applied. Also in Arizona, Heterococcus sp. infested Bermuda grass seed fields on little Arizona Island adjacent to the Colorado River in Yuma County during May and September. Treatments gave excellent control. Another MEALYBUG (Heterococcus pulverarius) caused medium damage to timothy in Lyon County, NEVADA, in June. This was a new State record.

A GROUND PEARL (Margarodes meridionalis) was heavy and damaged Tifgreen Bermuda grass lawns in the Las Cruces area of Dona Ana County, NEW MEXICO. Control was very difficult. All stages of this ground pearl infested Bermuda grass lawns in ARIZONA. The pest was most damaging to the Tifgreen variety used on golf courses in Maricopa and Pima Counties, and was most active from February through September. Also in Arizona, an ARMORED SCALE (Chortinaspis subchortina) that infested St. Augustine grass in Maricopa County in November 1967 was reported as a new State record in 1968.

A CICADA (Platypedia putnami) damaged sagebrush in Cassia, Power, and Bannock Counties, IDAHO, from mid-May to mid-June. Adults oviposited on smaller branches of native juniper south of Pocatello. This cicada also damaged some ornamental plantings. Other cicadas, Platypedia areolata and Okanagana spp., were very abundant on rangeland in Baker, Deschutes, Lake, and Wheeler Counties, OREGON.

A WHITEFLY (Aleurocybotus occiduus) necessitated controls on Bermuda grass seed fields in the Yuma area of Yuma County, ARIZONA.

GRASS THRIPS (Anaphothrips obscurus) populations increased to damaging levels in NEVADA and required controls in Lyon County in May and in Douglas County in June. Chirothrips spp. required treatments on Bermuda grass seed fields in the Yuma and Roll areas of Yuma County, ARIZONA, in May, June, and September.

BILLBUGS (Sphenophorus spp.) were of some concern in 1968. S. chittendeni infested Bahia grass at Ruskin in Hillsborough County, FLORIDA. This billbug severely damaged 2,000 acres of Bahia grass near Arcadia, De Soto County. This problem was closely associated with dry weather. S. venatus vestitus caused less damage to zoysia grass in KANSAS, due partly to control efforts in 1967. S. venatus vestitus infested a golf course in San Bernardino County, CALIFORNIA, for a new State record. It was later found in Los Angeles County for a new county record. S. venatus confluens increased in importance as a pest of orchard grasses, particularly Dactylis glomerata, in the Willamette Valley of OREGON, with heaviest populations in Benton County. Damage was most noticeable in fields 3 years old or older. Adults began feeding in March and by April averaged 2-3 per square yard in test plots. Egg laying began in May and the first pupae were found in early August. Adults emerged by mid-August. In October some late larvae were found infected with a fungus Beauveria sp. BLUEGRASS BILLBUG (S. parvulus) damaged turf and lawns in Salt Lake County, UTAH.

WHITE GRUBS were heavy in several pastures in the Belle Glade area of Palm Beach County, FLORIDA. Large grubs ranged up to 12 per square foot and roots were severely damaged. Phyllophaga spp. larvae continued damaging in MICHIGAN on cultivated lands infested with quackgrass. The worst infestations of the grubs occurred near woodlots containing oaks and other tree hosts preferred by the adults. Damage by Phyllophaga spp. larvae to lawns, golf courses, and pastures was reported more frequently in KANSAS. These pests severely damaged pastures and rangeland in northwestern and north-central counties in NEBRASKA. Unspecified

white grubs damaged many home lawns in UTAH, but damage in pastures was scattered. Phyllophaga spp. larvae damaged lawns at 12 scattered locations in MONTANA.

FALL ARMYWORM (Spodoptera frugiperda) was a serious problem on golf greens of Tifgreen Bermuda grass in FLORIDA from March to December. The problem was most serious in the southern part of the State where populations peaked in July and August. Controls were difficult. Fall armyworm was the principal armyworm that damaged turf in northeastern Florida, where many lawns were seriously damaged in late summer.

BUFFALO GRASS WEBWORM (Surratha indentella) larvae caused less damage in most infested areas of KANSAS in 1968. This was partly due to control efforts during 1967. In new areas of infestation, damage by this pest was at least as severe as last year.

BLUEGRASS WEBWORM (Crambus teterrellus) caused more damage in eastern KANSAS than in 1967. Other SOD WEBWORMS (Crambus spp.) damaged lawns in Scotts Bluff, Buffalo, and Washington Counties, NEBRASKA, in mid-April. Population levels in these areas were about the same as last year. Unspecified sod webworms caused minor damage to pastures locally in UTAH. Sod webworms were of some concern in the eastern part of the Nation. Crambus spp. continued to be a problem on turf grasses in FLORIDA. Damage by these pests was scattered in TENNESSEE. Populations were locally heavy in central and eastern areas of the State in June and July. By mid-July, adult flights of Crambus teterrellus, C. trisectus, and C. mutabilis peaked in Knox and Blount Counties. Infestations of unspecified sod webworms in lawns continued to be an increasing problem in DELAWARE, especially in the northern area. Crambus spp. adults were active in RHODE ISLAND by mid-August.

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) was again very heavy on bitterbrush in Klamath County, OREGON. Larvae damaged over 2,000 acres of bitterbrush on the better range areas in the mountains of Sevier County, UTAH. Also in Utah, FOREST TENT CATERPILLAR (M. disstria) caused spotty damage in northern and central area canyons and mountains.

SAGEBRUSH DEFOLIATOR (Aroga websteri) has been low in IDAHO for the past 3 to 4 years. Moth populations are building up in several southern areas of the State. During 1968 larval populations were sufficiently high to defoliate sagebrush near Kimama in Lincoln County and in the Salmon River Canyon between Challis in Custer County and Salmon in Lemhi County in mid-June. WESTERN TUSSOCK MOTH (Hemerocampa vetusta) caused light to heavy damage on bitterbrush in Douglas, Ormsby, and southern Washoe Counties, NEVADA. Damage was heaviest in Douglas and Washoe Counties. A HESPERIID MOTH (Atalopedes campestris) was heavy in Caldwell and De Witt Counties, TEXAS, during mid-July and caused much damage to grasses.

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) kept several thousand acres of rangeland bare in UTAH. CRAZY ANT (Paratrechina longicornis) occurred for the first time on Kikuyu grass in San Diego, CALIFORNIA.

BERMUDAGRASS MITE (Aceria neocynodonis) was more severe in FLORIDA than any time since it was recognized as a problem in the State 6 years ago. This mite was a problem statewide in 1968, but was most severe on sandy soils in the southern area and on coarse-bladed varieties of Bermuda grass. Some grass was killed. Controls had to be applied 3 times on some golf courses. Bermudagrass mite was damaging in TEXAS, but was reported only from Tulsa County, OKLAHOMA, in mid-June. This mite extended its range on Bermuda grass in CALIFORNIA.

CLOVER MITE (Bryobia praetiosa) caused problems on many home lawns in UTAH in 1968. BANKS GRASS MITE (Oligonychus pratensis) and BROWN WHEAT MITE (Petrobia latens) were damaging and required controls in Lyon County, NEVADA, in May.







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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM destroying young alfalfa in Blaine County, Oklahoma. SPOTTED ALFALFA APHID and PEA APHID increasing in alfalfa in Chaves County, New Mexico. EGYPTIAN ALFALFA WEEVIL heavy on alfalfa in southwest Arizona. (p. 147).

SOUTHERN PINE BEETLE recorded for first time in Arkansas since 1913. (p. 149).

SHEEP KED heavy on sheep in Trans-Pecos area of Texas. (p. 149).

EAR TICK numerous on cattle in Sequoyah County, Oklahoma. (p. 150).

CITRUS BLACKFLY found for the first time since 1966 in Matamoros, Mexico. (p. 150).

Detection

● A EULOPHID WASP reported for first time in Hawaii. This is a new Western Hemisphere record but the species is not known to occur in the continental United States. (p. 152).

An APHID reported for first time in Maryland. (p. 151).

For new county records see page 151.

Predictions

ALFALFA WEEVIL expected to be more of a problem in Michigan in 1969. Larval populations may again be lower in Maryland. (p. 153).

Special Reports

Winter Moth Survey in Maine. (p. 151).

Summary of Insect Conditions in the United States - 1968

Forage Legumes (pp. 153-161).

Soybeans (pp. 161-163).

Peanuts (pp. 163-164).

Cotton (pp. 164-167).

Tobacco (pp. 167-168).

Spread of Alfalfa Weevil, 1904-1968 (p. 154).

Distribution of Alfalfa Weevil (p. 156).

Reports in this issue are for week ending February 28 unless otherwise indicated.

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

**MARCH 1969**

The Weather Bureau's 30-day outlook for March 1969 is for temperatures to average below seasonal normals over the southeastern third of the Nation, as well as over the northern Rockies and California. Above normal temperatures are expected over the northern Mississippi Valley, the upper Lakes region, and northern New England. Near normal temperatures are in prospect elsewhere. Precipitation is expected to exceed normal over the Southeast, most of California and the Great Basin, and portions of the northern Plains. Subnormal totals are in prospect over the northern Mississippi Valley and Great Lakes, as well as the western part of the southern Plains. Near normal totals are indicated in unspecified areas.

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

Weather continued on page 168.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMY CUTWORM (Chorizagrotis auxiliaris)** - KANSAS - None found in wheat in McPherson, Reno, Kingman, and Harvey Counties. No activity of this or Agrotis orthogonia (pale western cutworm) reported from western area. (DePew). OKLAHOMA - Destroying young alfalfa in Canton area, Blaine County. Counts up to 7 per 10 linear feet continue in wheat in favorable areas of Payne County. (Okla. Coop. Sur.).

**GREENBUG (Schizaphis graminum)** - TENNESSEE - Light, averaged 5 per 100 sweeps, in Chester County wheat. (Turpen). ARKANSAS - Populations low, but higher than any time this winter in northwest area. Ranged 10-15 per 100 sweeps in oats in Washington County. (Boyer). KANSAS - None found in wheat in McPherson, Reno, Kingman, and Harvey Counties. No activity from western area. (DePew). OKLAHOMA - Ranged 0-14 per linear foot in wheat in Kiowa County. In Jackson County, remains up to 100 per linear foot. (Okla. Coop. Sur.). TEXAS - Activity about same level as previous week in northern panhandle area. Very heavy in scattered areas in counties south and east of Amarillo. In Rolling Plains area small grains growing, damage declining. Decline accredited to increased growth of small grain. (Almand, Daniels, et al.). NEW MEXICO - Ranged 5-25 per linear row foot in barley in Chaves County; averaged 100+ per linear row foot in 2 fields. (Mathews, Feb. 21).

**SPOTTED ALFALFA APHID (Therioaphis maculata)** - ARIZONA - Generally light in alfalfa in Salt River Valley, Maricopa County. One field at Yuma required treatment. (Ariz. Coop. Sur.). NEW MEXICO - This species and Acyrtosiphon pisum (pea aphid) increasing in Chaves County alfalfa. T. maculata averaged 10-65 per square foot previous week. (Mathews).

## CORN, SORGHUM, SUGARCANE

**SOUTHWESTERN CORN BORER (Diatraea grandiosella)** - MISSOURI - Larval counts from cornstalks in 2 fields in New Madrid County: 75 live, 77 dead in first field; 45 live, 24 dead in second field. None found in 363 girdled stalks from 6 fields in southwest area. (Munson).

## SMALL GRAINS

**ENGLISH GRAIN APHID (Macrosiphum avenae)** - ARKANSAS - Increasing in oats in Washington County; ranged 40-50 per sweep. (Boyer).

**CORN LEAF APHID (Rhopalosiphum maidis)** - ARIZONA - Averaged 12 per barley plant in most nontreated fields in Yuma, Yuma County. (Ariz. Coop. Sur.).

## FORAGE LEGUMES

**EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis)** - ARIZONA - Ranged 50-250 larvae per 100 sweeps in alfalfa in Salt River Valley, Maricopa County. Treatments applied to some fields. Heavy in uncut hay on Yuma Mesa and averaged 120 per 100 sweeps in Gila Valley, Yuma County. (Ariz. Coop. Sur.).

**PEA APHID (Acyrtosiphon pisum)** - ARIZONA - Averaged 3,000 per 100 sweeps in alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 5-25 per square foot in Chaves County alfalfa. Some control being undertaken. (Mathews, Feb. 21). ARKANSAS - No increase noted in northwest area. Ranged 2-5 per square foot in vetch. No growth in alfalfa to date. (Boyer).

**LYGUS BUGS (Lygus spp.)** - ARIZONA - Averaged 15 adults per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

## COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Damage moderate in untreated cabbage in experimental plots at Sanford, Seminole County; infestation about 25 percent. No apparent damage in treated commercial fields. Determined by G.L. Greene. (Greene, Feb. 24).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Extremely low on cabbage in Sanford area, Seminole County; 1 larva on 200 plants in unsprayed experimental plots. No apparent damage in commercial plantings. Determined by G.L. Greene. (Greene, Feb. 24).

CABBAGE APHID (Brevicoryne brassicae) - FLORIDA - Damage moderate to untreated cabbage in experimental plots at Sanford, Seminole County; about 25 percent infested. No apparent damage to commercial cabbage, except in one field. Determined by G.L. Greene. (Greene, Feb. 24).

## GENERAL VEGETABLES

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Caused spotted damage on seedling lettuce plants in Dona Ana County. Some fields treated. (Campbell).

## DECIDUOUS FRUITS AND NUTS

PEACH TREE BORER (Sanninoidea exitiosa) - TEXAS - Detected in Tarrant and Parker Counties. One of most damaging pests of peach in eastern part of State. (Turney, Boring).

BROWN STINK BUG (Euschistus servus) - ARIZONA - Adults appearing on deciduous fruit trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

PEAR PSYLLA (Psylla pyricola) - OREGON - Overwintering adults first noted in Hood River Valley, Hood River County, February 22. No oviposition to date; eggs from dissected females undeveloped. (Zwick).

## CITRUS

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Medium on orange trees in Bakersfield, Kern County. (Black).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Treatments to begin in groves at Yuma, Yuma County. (Ariz. Coop. Sur.).

## SMALL FRUITS

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on 10 acres of grapevines in Empire, Stanislaus County. (Cal. Coop. Rpt.).

## ORNAMENTALS

AN ARMORED SCALE (Parlatoria proteus) - FLORIDA - All stages localized on 1 of 5 viburnum plants at nursery in Mt. Dora, Lake County. Collected by W.P. Henderson, February 6, 1969. This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

PINEAPPLE SCALE (Diaspis bromeliae) - CALIFORNIA - Medium on pineapple plants in a nursery in Kenwood, Sonoma County. (Cal. Coop. Rpt.).

GRAPE SCALE (Diaspidiotus uvae) - VIRGINIA - This species and Chionaspis parkii (an armored scale) infested about 10-15 percent of sycamore trees in nursery at Portsmouth, Norfolk County. (Pierce, Weidhaas, Feb. 14).

## FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ARKANSAS - Detection flights made in Ashley County, February 24, 1969. Sixteen spots of dead timber observed. First record of this species in State since 1913. (Warren).

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Larvae medium on oak nursery stock in Salinas, Monterey County. (Cal. Coop. Rpt.).

AN APHID (Cinara pilicornis) - MARYLAND - Found on hemlock near Glen Burnie, Anne Arundel County, May 22, 1968. This is a new State record. Heavy on spruce at a home in Baltimore, Baltimore County, May 23, 1968. This is a new county record. Both collections by C.W. McComb. Determinations by J.P. Pepper. (U. Md., Ent. Dept.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Four cases reported in U.S. February 23-March 1 as follows: TEXAS - Bee 3, Maverick 1. Total of 72 cases reported in portion of Barrier Zone in Republic of Mexico February 17-22, as follows: Territorio sur de Baja California 13, Sonora 23, Chihuahua 2, Coahuila 1, Nuevo Leon 7, Tamaulipas 26. Total of 6 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 22,668,000; Mexico 56,360,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 0-8 per head (averaged 1.5) on cattle in Payne County. (Okla. Coop. Sur.).

A NOSE BOT FLY (Cephenemyia jellisoni) - OKLAHOMA - Adult noted on deer in Cherokee County. (Okla. Coop. Sur.).

A CUTEREBRID FLY (Cuterebra sp.) - GEORGIA - Larva removed from man's leg at Carnesville, Franklin County, August 22, 1968. Collected by R. Sullivan. Determined by C.W. Sabrosky. (Coleman, Feb. 29).

SHEEP KED (Melophagus ovinus) - TEXAS - Heavy on sheep in many Trans-Pecos area counties. (Neeb).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Light on cattle in Choctaw and Sequoyah Counties and on dogs in Cherokee County. About 100 on a red fox in Mayes County. (Okla. Coop. Sur.).

EAR TICK (Otobius megnini) - OKLAHOMA - Infested 750-1,000 cattle on 6 farms in Vian area, Sequoyah County. Ranged 10-45 per ear on 4 yearlings. (Okla. Coop. Sur.).

#### STORED PRODUCTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - IOWA - Infested bulk ground feed at Bancroft, Kossuth County. (Iowa Ins. Sur.).

A TINEID MOTH (Paraneura simulella) - CALIFORNIA - Larvae in alfalfa seed at Brawley, Imperial County. (Cal. Coop. Rpt., Feb. 21).

#### BENEFICIAL INSECTS

BIG-EYED BUGS (Geocoris spp.) - ARIZONA - Averaged 10 per 100 sweeps of alfalfa in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Inspections made of 54,971 trees on 862 acres in municipios Villagran, Mainero, Padilla, Hidalgo, and Victoria, Tamaulipas; 1,169 trees on 162 acres found infested in municipios Villagran, Mainero, and Hidalgo. Chemical Control Zone - Inspections made of 47,449 trees on 747 acres in 9 municipios in State of Nuevo Leon and 1,846 trees on 29 acres in 5 municipios in Tamaulipas. Total of 203 trees on 122 acres found infested in municipios Linares, Hualahuises, Montemorelos, and Monterrey, Nuevo Leon. Infestations found in Matamoros, Tamaulipas, for first time since 1966 and included 15 properties and 18 trees on approximately one acre. Delimiting survey still underway in Matamoros. Inspections made of 453 trees on 207 properties in 3 municipios in Baja California and 2,811 trees on 522 properties in Sonora with negative results. (PPC Mex. Reg., Jan. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - All mounds inspected in Lee County extremely active with numerous winged forms near top of mounds. (Leeper et al.). TENNESSEE - Surveys negative in Warren, Giles, Lawrence, and Lincoln Counties. (Green, Watson).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Total of 3,132 traps operated during January. No C. capitata taken. (PPC Mex. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - In Tijuana, 350 traps inspected 1,007 times; 5 marked flies recaptured. Total of 28 native flies (13 males, 15 females) trapped in Tijuana during 1968. Sixty traps in Tecate, Baja California, inspected 180 times with negative results. No native flies trapped during 1968. In Ensenada, Baja California, 150 traps inspected 576 times with negative results. Only one native fly (male) trapped in Ensenada during 1968. (PPC Mex. Reg., Jan. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - TENNESSEE - None found in Giles County. (Watson).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - MEXICO - Seven infestations found in municipio Ensenada, Baja California, during January. (PPC Mex. Reg.).

### WINTER MOTH SURVEY IN MAINE

During late fall 1968, an intensive survey for winter moth (Operophtera brumata) was conducted throughout the coastal areas of Maine from Bar Harbor to Calais. Results of the survey were negative for winter moth. Much of the material collected consisted of males and females of fall cankerworm (Alsophila pometaria) and Bruce spanworm (Operophtera bruceata). Blacklight traps attracted the greatest number of male moths; however, a new Stocking-type (vacona) trap was effective in capturing wingless females. Although the survey was negative for winter moth, indications are that the stocking-type trap provides, for the first time, a tool for volume trapping over extensive areas.

Material collected during the survey was determined by A.E. Brower and included the following species: Agrotis epsilon (black cutworm), Alsophila pometaria (fall cankerworm), Lithophane fagina, Lithophane spp., Operophtera bruceata (Bruce spanworm), Peridroma saucia (variegated cutworm), Plathypena scabra (green cloverworm), and Pseudaletia unipuncta (armyworm). (PPC East. Reg.).

### INSECT DETECTION

#### New State Records

A EULOPHID WASP (Bestiola mira Nikol'skaya) - HAWAII - Reared from an armored scale (Odonaspis greeni) infesting small bamboo plant in Honolulu, Oahu, in January 1969. Determined by C. Yoshimoto. This is first record for Western Hemisphere. B. mira is not known to occur in the continental United States. (p. 152).

AN APHID (Cinara pilicornis) - MARYLAND - Collected from hemlock near Glen Burnie, Anne Arundel County, May 22, 1968. (p. 149).

#### New County Records

AN APHID (Cinara pilicornis) - MARYLAND - Baltimore County. (p. 149).

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Clallam County. (p. 153).

### CORRECTIONS

CEIR 19(9):126 - PEAR PSYLLA (Psylla pyricola) - OREGON - Lines 3 and 4 should read ..., adults up to 5 per tap, mostly 1-2 per tap...

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 2/22-25, BL - Black cutworm (Agrotis epsilon) 3, granulate cutworm (Feltia subterranea) 5, yellow-striped armyworm (Prodenia ornithogalli) 1.

HAWAII INSECT REPORT

New State Record - Specimens of a EULOPHID WASP (Bestiola mira Nikol'skaya) reared from an armored scale (Odonaspis greeni) infesting small bamboo plant in Honolulu, Oahu, in January 1969. Determined by C. Yoshimoto. This species is known to occur in Japan and USSR. (Beardsley). This is the first record of B. mira for the Western Hemisphere, but the species is not known to occur in the continental United States. (PPC).

General Vegetables - TROPICAL GARDEN SYMPHYLID (Hanseniella unguiculata) heavy on roots of young zucchini squash and causing severe stunting of plants in Hilo, Hawaii. (Yoshioka).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) light to medium on several coconut trees in Kaaawa and Pupukea, Oahu. Not known to infest coconut trees in southwestern, western, eastern, and northeastern coastal areas of island. Not known to occur in central Oahu, Honolulu proper, or on neighboring islands. Light scattered infestations found for first time on several papaya trees adjacent to previously heavily infested banana trees at Pearl City. Most heavily infested banana foliage removed. (Funasaki, Bianchi). Recurring medium to heavy larval infestations of a NOCTUID MOTH (Phlegetonia delatrix) heavily damaging terminal leaves of backyard mountain-apple at Kaneohe and Pauoa, Oahu. On Hawaii, severely damaging terminal leaves of young ohia-lehua trees (Metrosideros collina polymorpha) in several areas. This is new host record. Damage heavy on mountain-apple and Java-plum foliage in Hilo. (Funasaki, Yoshioka).

Ornamentals, Forest, and Shade Trees - A BARK BEETLE (Xylosandrus compactus) caused much damage to forest planting of cedar (Toona ciliata) at Waiakea, Hawaii. (Davis). Eggs and adults of a PLATASPID BUG (Coptosoma xanthogramma) heavy and confined to terminals of 7 sesban trees in Kaneohe, Oahu. Adults ranged 30-100 on terminals compared with 5-10 several months ago. All stages heavy on jade vine flowers in scattered areas on Oahu. Heavy populations reported on pigeon-pea in several areas. Population of a scelionid wasp (Trissolcus sp.), an egg parasite, at low level; only one percent of C. xanthogramma eggs parasitized. (Funasaki, Bianchi, Au).

Beneficial Insects - LANTANA CERAMBYCID (Plagiohammus spinipennis) and LANTANA LEAF BEETLE (Octotoma scabripennis) heavy on lantana on Puu Lehua, Central Kona District, Hawaii, at 3,000 feet elevation. This is new locality record for both species and represents large spread from release point. (Davis).

Miscellaneous Insects - An adult of a LONGHORN GRASSHOPPER (Euconocephalus nasutus), the third specimen to date, found in yard at Aiea, Oahu, on February 26. First discovered in vacant lot at Waipahu in January 1968; second specimen found in yard in Kaimuki area of Honolulu in November 1968. (Au). One adult of another GRASSHOPPER (Oedaleus abruptus) found in grass at borderline between Fort Kamehameha and Hickam Air Force Base, Oahu. Rains and high winds hampering spray operations in known infested areas at Hickam. (Olson).



SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968  
(Continued from page 144)

FORAGE LEGUMES

Highlights:

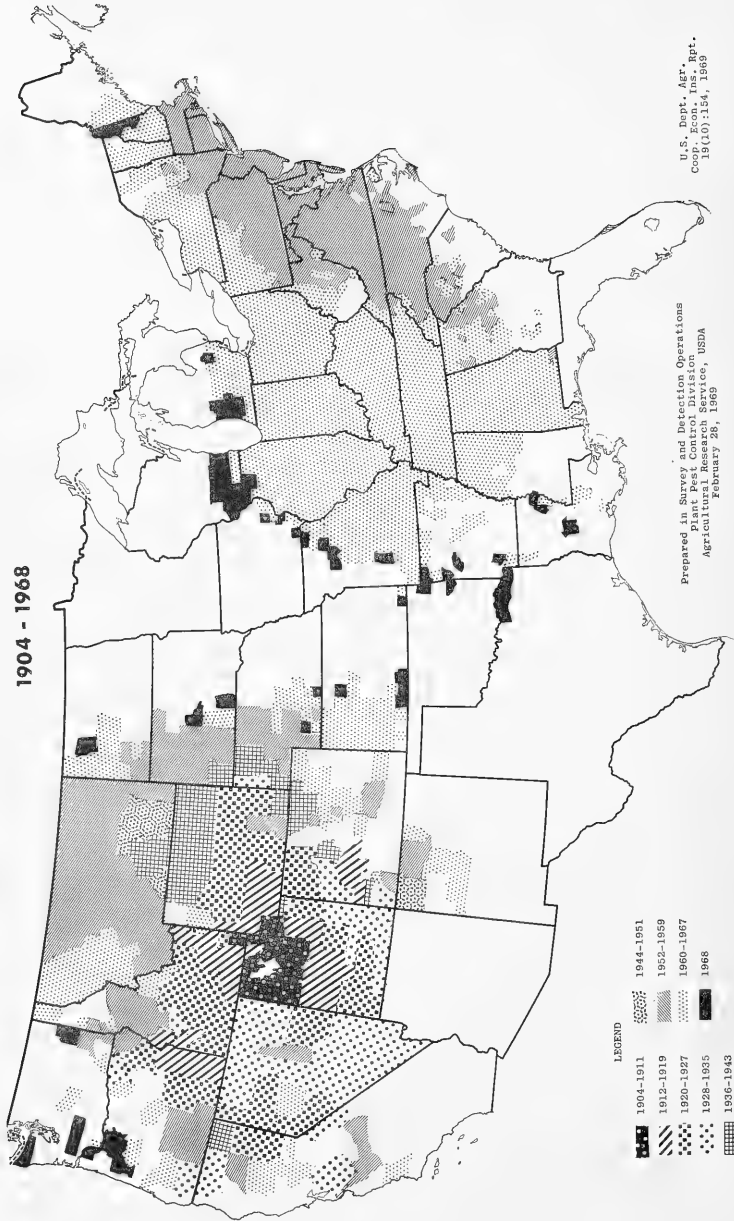
ALFALFA WEEVIL continued to be the most important pest of alfalfa in the Nation. It was reported for the first time in Texas and Oklahoma. Damage to alfalfa ranged light to heavy in many areas but was lighter than in 1967 in some sections. CLOVER HEAD WEEVIL was a serious pest of crimson clover seed production in Alabama. PEA APHID required controls in several areas. Populations on alfalfa were heavy in Arizona early in the year, damaging in Nebraska in mid-May, and severe in Kansas in April and May. Parasites and predators were effective in some areas. MEADOW SPITTLEBUG was more abundant in Illinois, Indiana, and Ohio than in recent years. LYGUS BUGS were of some concern on alfalfa in several Western States. THREE-CORNERED ALFALFA HOPPER was unusually abundant on alfalfa in the Virden Valley of New Mexico. VARIEGATED CUTWORM damaged alfalfa in scattered areas.

The ALFALFA WEEVIL (*Hypera postica*) infestation near Ellensburg in Kittitas County, WASHINGTON, increased from one square mile in 1967 to 32 square miles this year. Damage ranged light to moderate. In Clark County larvae ranged 2-10 per sweep in 7 representative alfalfa fields. Lewis and Spokane Counties were reported as new records; Clallam County is a new county record. Adults were found in Linn County, OREGON, in late February. New larvae were found May 24 in Klamath County. Larvae ranged 85-110 per sweep in untreated plots in Crook and Klamath Counties in late June and early July. Leaf loss averaged up to 63 percent. Numbers were lower in other areas. Alfalfa weevil continued to spread in the Willamette Valley. It was reported in 6 new counties. Counts were low, the highest average being 2.4 larvae per sweep in one Clackamas County field. Alfalfa weevil was much reduced in most CALIFORNIA areas. Damage in NEVADA was heavy for the third straight year. As in 1966 and 1967, weather retarded alfalfa growth and staggered hatch and larval development. In contrast to 1967, explosive populations developed with the return of favorable weather. Larval populations and damage peaked near mid to late June. Heavy adult damage to new growth of the second crop occurred for the second consecutive year, but was restricted to Lyon County.

Alfalfa weevil adults were active and mating during the first week of March at Aberdeen in Bingham County, IDAHO. Fully developed eggs were observed at Marsing, Owyhee County, the last of April. Larval damage was evident on 50-100 percent of alfalfa terminals by May 25 in Owyhee County and by June 15 in the Magic Valley area. Larvae averaged 24 per sweep by mid-June in experimental plots at Aberdeen. Pupation occurred about the time of first-crop cutting. Weevils were light in northern Idaho. In MONTANA alfalfa weevil was less destructive than in the previous 2 years, but damage was still extensive. Alfalfa weevil was the most damaging crop pest in WYOMING. Adults were first found in Washakie County on April 10. On May 20, larvae were first noted in Hot Springs County. In mid-June the population peaked in the Big Horn Basin. For the rest of the season a few larvae were present. Most damage was in the northern area and the Big Horn Basin. Damage in UTAH evolved later than usual in the spring. Damage in 1968 was greater than in 1967. The most severe outbreak experienced since the advent of modern insecticides occurred at Hurricane, Washington County, and in alfalfa seed areas of Millard County. In northeastern COLORADO alfalfa weevil ranged moderate to heavy. Larvae were light to moderate in the Arkansas Valley and on the Western Slope. Loss and quality reduction of alfalfa were light to moderate throughout most of the State, but ranged moderate to heavy in Logan and Morgan Counties. In NEW MEXICO alfalfa weevil was heavy and damaged the first and second cuttings of alfalfa in Bernalillo, San Juan, Rio Arriba, and Santa Fe Counties.

# Spread of Alfalfa Weevil in the United States

1904 - 1968

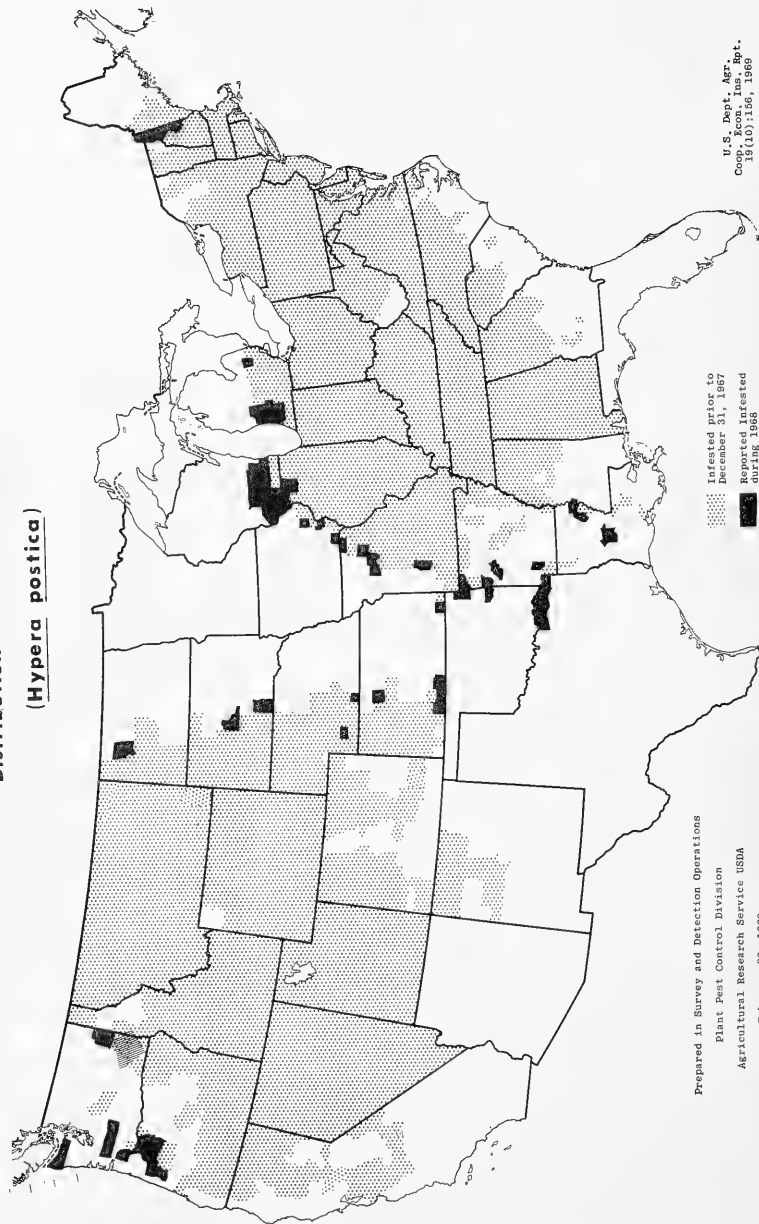


Alfalfa weevil was detected for the first time in TEXAS in Bowie, Red River, Lamar, and Fannin Counties during May and June. Larvae were collected in Delaware and Sequoyah Counties, OKLAHOMA, in May for a new State record. In most areas of KANSAS populations were extremely light. Two fields in Finney County were treated. No weevils were found in alfalfa fields in which they had been collected in 1967 in Cherokee County. New county records were reported in Barber, Clark, Comanche, Rooks, and Labette Counties for a total of 36 infested counties in Kansas in 1968. Alfalfa weevil was first noted on May 8 in Dawson County, NEBRASKA, when 3 adults and 3 larvae were taken in 2,000 sweeps. This pest was first observed in the panhandle area on May 22. By mid-June larval numbers peaked in Dawson County and were last detected October 4. Harlan and Hayes Counties were reported as new county records. In the northern Black Hills of SOUTH DAKOTA the first alfalfa weevil adults were taken March 21 to April 22 on stickyboard traps around alfalfa fields near Spearfish, Lawrence County. By May 31, adults ranged 8-64 per 100 sweeps and egg laying had begun. Larval populations of 12 per 100 sweeps infested 3 to 8-inch alfalfa. A week later, adults had increased to 122 per 100 sweeps. In mid-June when damage was evident in many fields in southern Butte, Lawrence, and Meade Counties, and the first cutting of alfalfa was beginning, larvae ranged up to 2,200 per 100 sweeps and adults had decreased to 40 per 100 sweeps. Populations peaked the last of June with over 6,000 larvae per 100 sweeps but soon decreased. Adults, one per 100 sweeps, remained on alfalfa near Spearfish as late as the first of October. Economic populations and damage were confined to the immediate vicinity of the northern Black Hills of South Dakota. Larval populations were high in the infestation area, but alfalfa was cut before much damage occurred. Chemical controls were applied to some fields. Larval collections in mid-July established Stanley and Tripp Counties as new county records. Alfalfa weevil adults were active on alfalfa by April 19 in NORTH DAKOTA and larvae were heavy by June 17. Larvae ranged up to 5,640 (averaged 1,077) per 100 plants and adults up to 150 (averaged 40) per 100 sweeps. Percent of tips infested ranged up to 100 (average 64) percent. Foliar damage ranged up to 5 (average 1) percent on irrigated alfalfa in McKenzie County. Controls were applied where the first crop was used for seed production. Larvae were collected for the first time in Mountrail County, bringing the total to 15 infested counties.

Alfalfa weevil caused light damage to alfalfa in IOWA and was found in 3 new counties. Larvae were first active in southeastern MISSOURI during mid-March. Damage was heavy in untreated fields in the southern and eastern areas. This weevil was reported for the first time in 7 new counties of Missouri and is now known to occur in 81 counties in the State. This was the most serious alfalfa pest in Missouri in 1968. Alfalfa weevil was reported for the first time from Benton, Crawford, Hempstead, and Logan Counties, ARKANSAS, in 1968 and now occurs in every alfalfa-growing area in the State. Treatment is universal in the north-eastern and southwestern areas while infestations remain low in the northwestern area. Alfalfa weevil was heavy on the declining alfalfa acreage in ALABAMA. Damage occurred on white clover, vetches, and other legumes. Larvae ranged from 3-40 per sweep in western TENNESSEE to 10-30 per sweep in the eastern area. Counts were locally higher in western fields in April. Cool weather delayed pupation in eastern area fields.

Alfalfa weevil larvae and adults were collected by May 24 in Kenosha, Racine, and Walworth Counties, WISCONSIN. By June 7, larvae were nearly full grown and ranged up to 15 per 50 sweeps in Kenosha County. Pupation was underway by June 12 and damage to second-crop alfalfa was light. Adults were emerging in Kenosha County by July 5. *Bathyplectes* sp. (an ichneumon wasp) was found in Kenosha County on June 19. Alfalfa weevil adults were collected throughout the summer, indicating that a true summer dormancy does not exist in the State. This weevil was collected for the first time in 12 counties in Wisconsin. Alfalfa weevil increased and spread in the southern half of MICHIGAN and is now present in 28 counties. About 6,000 acres were treated in Monroe and other southernmost counties. It was found in 7 new counties. This weevil is expected to be more of a problem in the State in 1969 than in 1968.

# Distribution of Alfalfa Weevil (Hypera postica)



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service USDA  
February 28, 1969

Infested prior to  
December 31, 1967  
Repeatedly Infested  
during 1968

U. S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
19(10):156, 1969

Alfalfa weevil was collected for the first time in Jo Daviess, Stephenson, Winnebago, and Ogle Counties, ILLINOIS, in 1968 and now occurs Statewide. The weevil spread through the State in only 4 years. Economic infestations occurred in the southern third and portions of the south-central section of the State. This weevil was less troublesome than expected in 1968, probably due to a cool March and April, the advanced height of the alfalfa, and late hatch. During the week of May 13, larvae averaged 3,666 per 100 sweeps in the southeast district, 3,800 in the southwest district, 937 in the east-southeast, and 1,500 in the west-southwest. Tip feeding was 100 percent in nearly every alfalfa field in the southern third of Illinois in May and 80 percent in the south-central section. Parasitism by Bathyplectes curculionis (an ichneumon wasp) averaged 46.6 percent in the east-southeast area in May. Occasional fields were sprayed as far north as Effingham. Alfalfa weevil development was 2-3 weeks behind 1967 in southern INDIANA due to cool, wet conditions. Populations were economic in southern areas in late April when larvae ranged up to 9 per stem on 40-100 percent of the alfalfa. Larvae were heaviest in the south-central and southeast districts about mid-May. Adult emergence peaked about June 1 in southern Indiana. Larvae ranged 1-5 per stem during the week of May 24 in central districts with 30-100 percent light to moderate feeding. Larvae ranged 0.5-3 per stem in northern districts in late May and early June. Damaging numbers were restricted to the southern counties of the north-central and northeast districts plus the extreme northeast corner of Indiana. Bathyplectes curculionis (an ichneumon wasp) was found in many areas and was heavy in southwestern Indiana. First egg hatch in southern OHIO occurred the first week of April. Larval feeding began in some northeastern counties the third week of April. During the last half of April larval populations began to increase, and damaging numbers were present by end of May. Control operations began in southern Ohio the third week of April and about mid-May farther north. Larval damage was variable and unpredictable. Populations varied from field to field. An apparent delay of major oviposition from the fall of 1967 until spring of 1968 may have delayed major damage in the southern counties through much of May. During May cool, wet weather affected larval abundance and spray programs. However, by the time first cutting had begun in late May and early June, most damage to the first growth had occurred. By mid-June most unsprayed alfalfa was lost or heavily damaged. Generally, larvae were damaging in any unsprayed field. Populations ranged up to 160 per sweep in late May and early June. By mid-June, stubble treatment to protect the second growth was of primary concern. Damaging larval populations persisted in some central and northern fields through late June.

Alfalfa weevil was the most important insect on alfalfa in VIRGINIA although infestation levels were lower than in 1967. Larvae were detected as early as March 21. Larvae were lighter in 1968 than in previous years in MARYLAND. Alfalfa which was sprayed too early or not sprayed at all was seriously damaged. First adults were found March 15. By early April larval increases were significant on the Eastern Shore and by mid-April in the central section. Larval populations failed to peak. Larvae continued light to heavy through May. By early June new adults were active. Fall surveys showed fewer overwintering adults than in previous years. This may indicate lower larval populations again in 1969. Larvae caused less damage to first-growth alfalfa in 1968 than in previous years in DELAWARE. Most fields had only moderate injury. Controls were not needed in many fields. Injury to second-growth alfalfa was light in most areas.

Alfalfa weevil populations on forage in PENNSYLVANIA were reduced for the third consecutive year. Cold, wet weather in May delayed larval activity enough to permit harvesting without much damage. Over half of the acreage harvested had not been treated. Larval activity was evident in September but very light compared with the fall of 1967. Adults were first active and laying eggs May 23 in RHODE ISLAND. Infestations were heavy in some fields by June 27. Alfalfa weevil was collected in Carroll and Coos Counties, NEW HAMPSHIRE, and is now statewide in distribution. Tip damage first occurred May 16 at Kingston, Rockingham County, and ranged 10-90 percent in the southern area. The first pupa was seen on June 13. By June 26 the population passed the peak in the southern area. Alfalfa weevil now occurs throughout VERMONT. Larval feeding

caused 20-25 percent loss to untreated alfalfa. A wet spring and lush growth minimized losses in most areas.

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) infestations were much reduced in most areas of CALIFORNIA. Larvae damaged alfalfa terminals in many fields in Maricopa, Pinal, and Yuma Counties, ARIZONA, during February through April. Damage ranged 5-100 percent. Treatments were required in many fields, especially in Yuma County.

CLOVER LEAF WEEVIL (Hypera punctata) larvae damaged alfalfa in several scattered localities of UTAH. A specimen collected in an alfalfa field near Roswell, Chaves County, NEW MEXICO, was reported as a new county record. Clover leaf weevil caused light damage in scattered areas of OKLAHOMA from early March to early June. This weevil caused light damage to alfalfa in southeastern KANSAS in the spring. In other areas populations were light with little damage. Clover leaf weevil was low in ILLINOIS compared with 1967. A high of 20 per square foot occurred in the western and west-southwestern districts the week of April 22. Populations were controlled by a fungus the last of April. Larvae ranged 1-5 per square foot on alfalfa and clover in southern INDIANA in early April. Trace numbers were present in other areas. Populations were below 1967 levels. Clover leaf weevil caused light to moderate damage in scattered fields of red clover in VIRGINIA. CLOVER HEAD WEEVIL (Hypera meles) was again a serious pest of crimson clover seed production in ALABAMA. This weevil infested crimson clover in Rusk, Bowie, and Red River Counties, TEXAS, during April and May.

PEA LEAF WEEVIL (Sitona lineatus) was reported for the first time in Klamath County, OREGON, for the first record east of the Cascades in the State. In Yamhill County, this weevil defoliated large areas in a field of vetch and then moved into alfalfa. CLOVER ROOT CURCULIO (Sitona hispidulus) was light on alfalfa in north-central KANSAS in May and caused little damage. CLOVER SEED WEEVIL (Miccotrogus picirostris) adults averaged 12 per sweep on seed white clover in Boundary County, IDAHO, on June 18.

CLOVER ROOT BORER (Hylastinus obscurus) was reported for the first time in Franklin County, WASHINGTON, where it caused heavy damage to a stand of alfalfa. This pest was mostly noneconomic in northwestern ARKANSAS. VETCH BRUCHID (Bruchus brachialis) destroyed several tons of vetch seed at Bellingham, Whatcom County, WASHINGTON, in October. This was the first reported infestation from this area, where vetch pods have been under observation for a number of years. BLACK BLISTER BEETLE (Epicauta pennsylvanica) adults caused economic damage to alfalfa in Beadle and Lake Counties, SOUTH DAKOTA, the first of August. Chemical control was undertaken.

PEA APHID (Acyrtosiphon pisum) was below economic levels over most of OREGON. Counts averaged 25-50 per sweep. A severe outbreak near Hermiston, Umatilla County, was controlled by parasites in 2 weeks. Pea aphid occurred in local areas of CALIFORNIA all year. This aphid required controls on alfalfa from March to August in Nye, Humboldt, Lyon, and Pershing Counties, NEVADA. This aphid averaged less than 1 per sweep on alfalfa May 1 in Canyon and Owyhee Counties, IDAHO, but averaged 100 per sweep to 0.5 cup per sweep by mid to late June in several southern areas. Natural enemies were abundant by this time. In UTAH several thousand acres of alfalfa were sprayed although pea aphid was below normal. Pea aphid appeared on alfalfa in Fremont County, WYOMING, May 6. Populations increased until early July and then declined. Scattered outbreaks throughout the State developed moderate to heavy numbers. Some controls were applied in Washakie County where regrowth of second-cutting alfalfa was damaged. Pea aphid ranged light to moderate on alfalfa in the Arkansas Valley of COLORADO. Pea aphid was heavy in ARIZONA from February through April in Yuma County, in April in Maricopa and Pinal Counties, and from September through October in Cochise County.

Pea aphid increased gradually in southeastern NEBRASKA in April. Damaging levels were reached in mid-May with up to 2,000 per 10 sweeps. Populations remained heavy until May 25-30 when natural enemies caused a decline. A severe pea aphid outbreak occurred on alfalfa in KANSAS from mid-April to mid-May. Infestations were heavy in about 30 central area counties, and damage was severe and general. Populations were not damaging in other areas of Kansas, except in a few local cases. Natural enemies played a major role in reducing populations. Pea aphid infested legumes in OKLAHOMA each month except in September. Counts were light to moderate except in spotty areas in late March, early April, and mid-July in Wagoner County. Pea aphid ranged light to heavy on alfalfa and Austrian Winter field peas in Foard and Hardeman Counties and vetch in Brazos County, TEXAS, in mid-April. Populations began increasing in early February in ARKANSAS. Counts reached 150-200 per 100 sweeps by mid-April with 20 percent winged forms. Populations declined in June.

Pea aphid was sporadic over MICHIGAN and presented no problems. Pea aphid eggs hatched about March 30 in WISCONSIN. Reproduction was well underway by May 3. Winged forms were evident May 10. Adults of Praon peguodorum (a braconid) and parasitized pea aphid nymphs were also common on the same date. Pea aphid alates were noted May 17. Heavy rains in early June and natural enemies caused a decline by June 14. Some fields required controls about midseason. Weather and natural enemies caused another decline in late June. About September 27, pea aphid increased with as many as 60 per sweep in a few fields. Egg laying was underway October 18. Pea aphid counts were very low in IOWA in May but increased in early June. However, infestations remained noneconomic throughout the season. Populations were unusually low on clover and alfalfa in ILLINOIS with a high of 100 per sweep in the southwestern district. Predators and diseases were also low. Pea aphid populations were at low levels in INDIANA during 1968. Highest counts of 80-200 per sweep occurred on first-growth alfalfa in the northern districts in mid-June. Pea aphid was of no significance on alfalfa in OHIO in 1968. Populations increased in late May, but numbers remained low during the summer.

Pea aphid caused little damage in VIRGINIA and was very light on alfalfa during spring in MARYLAND. Populations during late summer and early fall ranged moderate to heavy on the Eastern Shore of Maryland and some controls were necessary.

MEADOW SPITTLEBUG (Philaenus spumarius) was scattered over MICHIGAN, and no damage warranted much treatment. Nymphs were detected on alfalfa by May 3 in southern WISCONSIN. Eggs hatched in Lincoln County May 13. Most nymphs were in the second instar by May 17 and had wing pads on June 7. Adults appeared in southern counties June 12. Numbers varied considerably with the highest populations in southwestern counties and in some sandy locations. Adults were low, averaging 1.2 per sweep, for ILLINOIS during the fall survey. Numbers were higher than they had been for several years, but nymphs caused no economic damage in the spring. Spittle masses were common in most alfalfa and clover fields in IOWA. Counts ranged 0-5 masses per square foot of area with 2-3 nymphs per mass in early May. Adults were first collected in mid-June. Meadow spittlebug was heavier than for the past several years in mid-May in southern and central INDIANA. This pest was heaviest in the southeastern district where 60-90 percent of the plants had 1-4 spittle masses per stem with 2-14 nymphs per mass. In northern Indiana spittle masses ranged 1-3 per stem on 20-40 percent of the alfalfa and clover with 1-4 nymphs per spittle mass in late May. Meadow spittlebug eggs hatched about the third week of April in OHIO. Nymphs began to increase by May 1 and the first adults were collected June 4. By mid-June, adults averaged over 60 per sweep on red clover and alfalfa. Reports and observations indicated that spittlebugs were more abundant than usual in Ohio in 1968.

Meadow spittlebug nymphs ranged light to moderate on alfalfa in MARYLAND. Populations in red clover were the heaviest in several years, but very little acreage was sprayed for this pest alone. Meadow spittlebug caused moderate damage to red clover in the spring in VIRGINIA. Infestations of 30-100 percent of the stems were common. Damage was most severe in the central area. This pest was reported in 11 new counties of Virginia during the 1968 season.

LYGUS BUGS (*Lygus* spp.) were above normal on alfalfa in CALIFORNIA. Populations began increasing in late May, earlier than normal, in the alfalfa seed growing areas of NEVADA, especially in Humboldt and Lander Counties. Infestations were heavier than normal on prebloom alfalfa and continued heavy throughout the season. Lygus bugs were low in OREGON except in eastern Malheur County where counts ranged as high as 28 per sweep in alfalfa seed fields. Lygus bug populations exceeded 4 per sweep in many blooming alfalfa seed fields in Canyon County, IDAHO, on June 28. Counts in untreated seed alfalfa ranged up to 12 per sweep in Washington County August 2. These pests averaged less than 3 per sweep in treated fields. Lygus bugs were heavy on alfalfa in 11 counties in the eastern half of MONTANA and in 2 western counties of the State. These pests infested sainfoin in Carbon, Fergus, and Gallatin Counties. Lygus bug populations were low in WYOMING and remained noneconomic throughout the 1968 season. These pests built up during the spring on an unusual abundance of mustards in UTAH, and populations were generally above normal on alfalfa and other crops in the State. Lygus bugs occurred on alfalfa in cyclic patterns throughout the season in ARIZONA and were heavy from March to November. Populations remained at normal levels and caused little damage in KANSAS. Lygus distinctus infested legumes in TEXAS.

TARNISHED PLANT BUG (*Lygus lineolaris*) was unusually high on alfalfa statewide in DELAWARE during early July. Light numbers caused very little damage in VIRGINIA. Populations ranged light to moderate throughout IOWA all season, but damage was never evident. From mid-April to mid-November tarnished plant bug occasionally damaged alfalfa in OKLAHOMA. Tarnished plant bug was common on alfalfa throughout the season in INDIANA. Populations ranged 1-3 per sweep on first, second, and third-growth alfalfa 12 inches high or higher.

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) was the most common insect on alfalfa in northern INDIANA during late July when counts reached 4-13 per sweep. Infestations were moderate in IOWA and no damage was recorded. Alfalfa plant bug remained at normal levels and caused little damage in KANSAS. Counts of alfalfa plant bug per 100 sweeps averaged 20 in Minnehaha and 200 in Lincoln Counties, SOUTH DAKOTA, in mid-June.

RAPID PLANT BUG (*Adelphocoris rapidus*) was noneconomic in all areas of IOWA and remained at normal levels in KANSAS where little damage occurred.

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) nymphs girdled alfalfa stems in scattered areas of Johnston and Bryan Counties, OKLAHOMA, during late August and September. Unusually heavy populations built up on alfalfa in the Virden Valley of NEW MEXICO in August. Adults ranged 35-85 per sweep in recently cut alfalfa. Lighter counts averaged 5-8 per sweep on alfalfa in the Hatch Valley. Three-cornered alfalfa hopper was light on alfalfa the entire year in ARIZONA. Moderate to heavy numbers were present from July to November in all counties. This pest ranged from normal to lighter than usual in UTAH, being heaviest in Washington County.

VARIEGATED CUTWORM (*Peridroma saucia*) damaged second-crop alfalfa in Lyon County, NEVADA, in July until controls were applied. This cutworm damaged alfalfa locally during the summer in UTAH. Injury was light on alfalfa in eastern NEBRASKA. Variegated cutworm reached economic levels in many fields in northeastern and east-central NEBRASKA in May and June. Almost all alfalfa fields examined in the eastern two-thirds of the State were infested. Larval populations in southeastern MISSOURI were high (up to 65 per square foot) on alfalfa. Counts were highest in mid-May. Controls were applied to most alfalfa in the southeastern delta area of Missouri. Variegated cutworm caused heavy damage to alfalfa in scattered fields across OKLAHOMA in May and early June. Infestations were heaviest, 30-100 per square yard, in the central and south-central areas. Variegated cutworm required controls in a few alfalfa fields in ARKANSAS. Populations ranged 4-5 per square foot in the northwestern area in late May. Variegated cutworm moths were taken in a blacklight trap at Madison, WISCONSIN, by April 25.



GREEN CLOVERWORM (Plathypena scabra) infested legumes in TEXAS and occasionally damaged alfalfa in OKLAHOMA. Green cloverworm reached economic levels in a few fields of alfalfa in east-central and northeastern KANSAS in July and August. Controls were applied. Green cloverworm ranged from 1 per 5 sweeps to 8 per sweep on alfalfa the first 3 weeks of August throughout INDIANA. This pest was more abundant in the State in 1968 than in the past 5 years.

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) was moderate on alfalfa in Pinal County, ARIZONA, in late April and in Yuma County in May and June. Populations were heavy in early October in Maricopa County and from late October through November in Yuma County. Yellow-striped armyworm was lighter than normal and caused little damage in KANSAS. Populations in VIRGINIA were light. WESTERN YELLOW-STRIPED ARMYWORM (P. praeifica) was lighter than normal in UTAH.

BEEF ARMYWORM (Spodoptera exigua) damaged alfalfa in a few locations in CALIFORNIA. Infestations in ARIZONA ranged moderate to heavy in many alfalfa fields from April to November in Yuma County and from September through October in Graham, Maricopa, and Pinal Counties. Normally a minor pest in NEW MEXICO, beef armyworm damaged many seedling alfalfa fields in the Mesilla and Pecos Valleys in May and June. This pest also damaged mature stands of alfalfa and other agricultural crops throughout most of the State. Beet armyworm infested legumes in TEXAS.

ALFALFA CATERPILLAR (Colias eurytheme) was more prevalent in CALIFORNIA in 1968 than in 1967 and 1966. Populations in UTAH were lower than normal. Larvae ranged light to medium in Maricopa, Pinal, and Yuma Counties, ARIZONA, from January through May. Flights were heavy in August and September in Graham, Maricopa, Pinal, and Yuma Counties. Larvae were heavy in October and November in Maricopa and Yuma Counties. Alfalfa caterpillar was lower than normal in UTAH. Adults were abundant and larvae averaged over 2 per sweep in many fields of alfalfa in southern Eddy County, NEW MEXICO, during May. Alfalfa caterpillar caused occasional damage to alfalfa in OKLAHOMA and caused little damage in KANSAS in 1968. This pest was uniformly light throughout the season in VIRGINIA.

CABBAGE LOOPER (Trichoplusia ni) was heavy on alfalfa in Pinal County, ARIZONA, in late August, September, and early December, and in Yuma County in late September and late November. ZEBRA CATERPILLAR (Ceramica picta) was light on alfalfa in Churchill, Douglas, Lyon, and Pershing Counties, NEVADA, beginning in late June. In September and early October, the only heavy damage occurred in Lyon County. W-MARKED CUTWORM (Spaelotis clandestina) was heavy in alfalfa in central WISCONSIN, particularly in older fields with high winter kill.

Larvae of a PSYCHID MOTH (Apterona crenulella) damaged alfalfa in Siskiyou and Modoc Counties, CALIFORNIA, for the first time. GARDEN WEBWORM (Loxostege similalis) infestations were common in ARKANSAS but economic in only a few fields. Infestations of Loxostege spp. did not reach economic levels in most areas of KANSAS and caused no concern. A LEAF ROLLER MOTH (Sparganothis sp.) caused severe damage to birdsfoot-trefoil seed fields in VERMONT. Losses ranged from 15 to 20 percent.

## SOYBEANS

### Highlights:

BEAN LEAF BEETLE was heavy in some Black Belt counties of Alabama and was moderate to heavy in some areas of Oklahoma. MEXICAN BEAN BEETLE was serious in isolated fields in southwestern Alabama; injury was lighter than in 1967 in Virginia but was heavy on the southern Eastern Shore of Maryland. GREEN CLOVERWORM reached outbreak levels in Michigan and was the heaviest ever observed in northern and central Indiana, but damage was not economic. Populations were also the heaviest in Michigan since 1964, but controls were not necessary.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) was very heavy in several Black Belt counties of ALABAMA, especially Greene, Sumter, and Marengo, where 50 percent or more of the leaves were destroyed. Populations ranged moderate to heavy in northeastern, east-central, and southeastern OKLAHOMA from mid-September to early October. In July and August light numbers infested many fields in eastern KANSAS. Leaf feeding was noticeable but not severe in many fields. Bean leaf beetle was light in ILLINOIS but moderate in some fields. Damage was not economic. Bean leaf beetle caused very little damage in VIRGINIA. Adult damage ranged light to heavy throughout southern MARYLAND and light to moderate on the Eastern Shore. Heavy numbers in a few fields late in the season did not affect yields. Damage was heaviest in St. Marys County where half of a 15-acre stand was lost before the plants measured 6 inches. Very little acreage needed sprays specifically for bean leaf beetle.

MEXICAN BEAN BEETLE (*Epilachna varivestis*) was serious in isolated fields in southwestern ALABAMA. Numbers were lighter elsewhere. Controls were required during August in the southern counties of south-central and southeastern INDIANA where defoliation ranged 50-75 percent in a few scattered fields. In these districts populations and damage have gradually increased for the past 3 years. Mexican bean beetle was not noticeable on soybeans in MICHIGAN. Damage by this pest was lighter than in 1967 in VIRGINIA, but pockets of severe injury to untreated soybeans did occur. Damage in MARYLAND was heavy in 2 southern counties on the Eastern Shore, and controls were necessary. Light to moderate damage was noted in other areas of the State.

Larvae of a CERAMBYCID BEETLE (*Dectes spinosus*) infested up to 90 percent of the soybeans in 3 counties in the bootheel area of MISSOURI in October.

GREEN CLOVERWORM (*Plathypena scabra*) caused heavy "ragging" of soybean leaves in ALABAMA, but the extent of damage was questionable. Larval infestations were general on soybeans in Haywood County, TENNESSEE. Damage was variable on leaves and light to small pods. Green cloverworm moths were active from early February to late November in ARKANSAS. The earliest larvae appeared in late March. Infestations were not economic. Larvae of green cloverworm and a NOCTUID MOTH (*Pseudoplusia includens*) damaged soybeans in southeastern and east-central OKLAHOMA during late September and early October. Defoliation ranged as high as 50 percent in many fields in southeastern and east-central KANSAS in August and September. Some moderate defoliation occurred in southeastern NEBRASKA from late August to September. Larvae were first reported in IOWA the week ending July 19. Populations increased the next 2 weeks. Little damage occurred although the upper leaves were ragged. Green cloverworm larvae reached outbreak levels on soybeans in MINNESOTA during August. This was unusual and the first occurrence since 1957. In July the first damaging numbers were found on canning peas in the south-central area. In early August reports of damage were numerous in the 2 southernmost tiers of counties. By mid-August damaging numbers were found in all southern districts and were extending into the central district. Damage was severe in some fields. Counts of 30 larvae per row foot were reported. Most damage occurred on the tops of soybean plants. Soybeans and canning peas were treated in the southern districts, but in many cases the advanced maturity of the soybeans, the numbers of larvae, and the amount of damage did not justify spraying. Fungus disease was found in McLeod County. Green cloverworm is not expected to be a perennial problem on soybeans or peas in Minnesota.

Green cloverworm larvae in ILLINOIS were a concern until controlled by a fungus disease. During the last of July and the first of August, larvae averaged 3 per row foot. The northwestern district had the highest numbers with 12 per row foot in some fields and an average of 4 per row foot. Larvae in the central and northern districts of INDIANA were the heaviest ever observed, but damage remained below economic levels. During the first 3 weeks of August larvae ranged 1 per 5 row feet to 4 per row foot in the northern and central areas, and defoliation ranged 10-15 percent in the most heavily infested fields. The highest counts were obtained in the northwestern area. Although numbers in MICHIGAN were the highest since 1964, the level of damage remained below any control need.

Damage accumulated from each brood. The first adult was detected on May 15 at the Lenawee County blacklight station. Moderately high adult numbers developed during August and September. In VIRGINIA moderate to heavy numbers in late summer caused only light damage.

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) was a pest in many isolated fields in coastal ALABAMA, with the heavier infestations in the extreme southwestern area. Infestations were not serious farther north into Dallas, Montgomery, and Lee Counties.

Mixed populations of CABBAGE LOOPER (Trichoplusia ni) and a NOCTUID MOTH (Pseudoplusia includens) probably damaged soybeans in the coastal counties of ALABAMA. Populations were lighter in the central and northern areas. Pseudoplusia includens was the predominant looper on soybeans throughout Alabama. In ARKANSAS P. includens was heavy for the first time in one area. Populations of 15-20 per Row Foot caused complete defoliation. Virus and fungus diseases reduced larval numbers but did not prevent a buildup.

FALL ARMYWORM (Spodoptera frugiperda) was much lighter than in 1967 in ARKANSAS and was not economic. BETT ARMYWORM (S. exigua) larvae damaged seedlings in Cochise and Yuma Counties, ARIZONA, in late May and early June.

SOUTHERN GREEN STINK BUG (Nezara viridula) was heavy in a few fields in the Northern Neck area of VIRGINIA in late summer. Southern green stink bug and BROWN STINK BUG (Euschistus servus) nymphs and adults became pests after pod development in coastal counties of ALABAMA. Damage was less than in 1966 and about the same as in 1967. GREEN STINK BUG (Acrosternum hilare) remained light throughout the season and caused little concern in KANSAS.

GRASSHOPPERS (Melanoplus spp.) caused light damage around margins of many fields adjacent to roadsides and pastures on the Eastern Shore of MARYLAND. These pests caused 40 percent loss of foliage on 15 acres of soybeans in Queen Annes County. M. femurrubrum and M. differentialis adults ranged 3-9 per square yard on roadsides and in weedy soybean fields in west-central and central INDIANA during early September. Defoliation ranged up to 15 percent in the most heavily infested fields.

STRAWBERRY SPIDER MITE (Tetranychus turkestanii) was heavy on experimental soybeans in Yuma County, ARIZONA, in early July and early September. Controls were successful. Damage by SPIDER MITES (Tetranychus spp.) occurred in some fields in southwestern TENNESSEE, and dry weather in VIRGINIA allowed these pests to build up on soybeans in late summer and fall. Strawberry spider mite ranged light to heavy generally in MARYLAND. Damage appeared heaviest on the Eastern Shore where 60-100 acres were completely defoliated. Yellowed border rows were common in this area. Spider mites, mostly strawberry spider mite, were abundant in DELAWARE by late July and caused much damage through most of Kent and Sussex Counties after late July.

## PEANUTS

GRANULATE CUTWORM (Feltia subterranea) caused light damage in several southeastern counties of ALABAMA in 1968, similar to 1967 but less than in 1966. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) was very light in Alabama and fed on leaves of peanuts in mixed populations with cutworms, corn earworm, and tobacco budworm. In north-central FLORIDA a complex of velvetbean caterpillar, FALL ARMYWORM (Spodoptera frugiperda) and Heliothis spp. was severe on peanuts in June.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) larvae were severe in north-western FLORIDA. The outbreak and damage in the 9-county peanut growing area of ALABAMA was unusual and extensive. Lesser cornstalk borer ranged medium to heavy in one east-central and 2 north-central counties of TEXAS during August and early September.

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) was light in Eastland County, TEXAS, in mid-August. Damage ranged moderate to heavy in south-central and south-western peanut areas of OKLAHOMA in July and August.

BURROWING STINK BUGS (*Pangaeus bilineatus* and *Tominotus cummunis*) damaged peanuts in a few fields of southeastern ALABAMA in 1968. These pests have been present in the State for many years. They were serious in 1966 but were not a problem in 1967. *P. bilineatus* was detected on this crop in Frio County, TEXAS, in 1968 and caused 6-23 percent damage.

TOBACCO THRIPS (*Frankliniella fusca*) was damaging throughout the 9-county peanut area of ALABAMA; controls were generally necessary. *Frankliniella* spp. caused no serious damage in most areas of OKLAHOMA.

Damage by SPIDER MITES (*Tetranychus* spp.) in ALABAMA was of more concern than usual. These pests damaged peanuts in Payne County, OKLAHOMA, in late August.

## COTTON

### Highlights:

BOLL WEEVIL was heavy in Alabama and Tennessee. Large numbers entered hibernation in the fall in Alabama. BOLLWORM and TOBACCO BUDWORM were major pests in Alabama and built up in Missouri. Bollworm was occasionally heavy in areas of Oklahoma. CABBAGE LOOPER was the main problem on cotton in Arizona. BEET ARMYWORM damaged much seedling cotton in New Mexico and was heavy on early cotton in areas of Texas. LYGUS BUGS required controls in some areas. SPIDER MITES were severe in Tennessee and heavier than in the past several years in Alabama.

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BOLL WEEVIL (*Anthonomus grandis*) ranged light to heavy throughout TEXAS with very heavy numbers in the south-central area and noneconomic numbers in the High Plains and Trans-Pecos areas. Damage ranged light to moderate in most areas of OKLAHOMA throughout the season. However, from late July to mid-September occasional heavy damage was reported in a few south-central and southwestern counties. Populations in ARKANSAS were much lighter in 1968 than in 1967. Few fields required treatment before August. Boll weevil was low again in MISSOURI in 1968. The heaviest infestation was located in the extreme southwestern corner of Dunklin County. Lighter infestations were found along the western edge of Dunklin and Stoddard Counties and in scattered areas of Butler County. One control application was made to 799 acres. Weevils began feeding on terminal buds in the lower tier of counties in TENNESSEE in early June, and overwintered adults were numerous by mid-June. Some punctured squares were found by late June. Controls and unfavorable weather kept overwintered adults low. By mid-July punctured squares ranged up to 50 percent (averaged 32 percent in untreated fields) in the southern counties. By August 1 the first generation "hatch out" was completed, egg laying became heavy, and punctured squares averaged 26 percent. In the second week of August, punctured squares ranged 8-95 percent, and in the southern tier of counties averaged 34 percent. Migration northward began from "cut out" fields in mid-August. Punctured squares ranged 10-95 percent. Migration northward and damage to late cotton and small bolls continued throughout the area into September. Boll weevil damage throughout ALABAMA was about equal to that of 1967 and was much worse than in the period 1963-1966. Survival of first-generation eggs, larvae, and pupae was very high throughout the State. Overwintered weevils emerged in large numbers. Weevil "hatch out" in June and July was very heavy in all areas. Although squaring was several weeks late in the northern area, overwintered weevils survived to deposit many eggs in June and July. Very heavy numbers entered hibernation in 1968. For Boll Weevil in the Texas High Plains and Boll Weevil Complex see CEIR 19(7):97.

BOLLWORM (Heliothis zea) was not the overall problem of 1967 in CALIFORNIA although it was very prevalent. Bollworm was low throughout ARIZONA during the entire season. Most larvae were killed by controls used for Pectinophora gossypiella (pink bollworm). Scattered, light to heavy infestations of BOLLWORMS (Heliothis spp.) caused minor to moderate damage on cotton in southern NEW MEXICO. These pests were not serious in 1968. Bollworm and TABACCO BUDWORM (Heliothis virescens) occurred throughout the cotton areas of TEXAS. Phosphate-resistant strains were detected in the Rio Grande Valley. Very light numbers were reported from the High Plains area with heavier numbers generally present in the southern area and the Trans-Pecos region. Bollworm ranged light to moderate on cotton in most areas of OKLAHOMA from late June to late September but was occasionally heavy in the central, south-central, southwestern, and west-central sections of the State. Tobacco budworm comprised 60-75 percent of the populations in 2 central counties in mid-September.

Bollworm and tobacco budworm were much lighter in ARKANSAS in 1968 than in 1967. Because the usual late July outbreaks did not occur, very few treatments were applied before mid-August. H. virescens accounted for 10.2 percent of the 1,099 larvae determined. This percentage is higher than in past years because more samples were taken in the southwestern area where tobacco budworm makes up 67 percent of the population. Tobacco budworm problems are increasing on cotton in this area because of insecticide resistance. Both species began a slow buildup in MISSOURI in mid-July that continued until the first killing frost. By the second week of September, larvae infested 75 percent of the fields. Chemical controls were applied to only 12.2 percent of the 14,431 acres scouted, including acreage requiring more than one application. In TENNESSEE Heliothis spp. eggs and larvae per 100 cotton terminals ranged 1-11 in late June, 1-16 in late July, and 2-20 in mid-August. By late August, egg laying subsided somewhat. Damage remained heavy in late cotton. Bollworm and tobacco budworm became major pests of cotton throughout ALABAMA following a buildup of 2 or more generations on clover, vetch, and corn. The problem was about as serious as in 1967 but less so than in 1965-1966.

CABBAGE LOOPER (Trichoplusia ni) and a NOCTUID MOTH (Pseudoplusia includens) began appearing on cotton in ALABAMA as early as June. By August, larvae were numerous and feeding on leaves. No special controls were applied. Cabbage looper larvae appeared about mid-June in TENNESSEE. Throughout the cotton area, foliar injury was not heavy enough to justify control for this pest alone. By late August, disease reduced populations. P. includens larvae approached economic levels in ARKANSAS in early September, the first time this species has been numerous on cotton in the State. Cabbage looper was not economic in most areas of OKLAHOMA. Both species damaged cotton in some sections of TEXAS. Cabbage looper was the main problem in most cotton fields in ARIZONA from May through mid-October. Special controls were required for this pest. Cabbage looper also required controls in some CALIFORNIA areas.

BEET ARMYWORM (Spodoptera exigua) damaged young cotton in CALIFORNIA. During May larvae were severe (6-12 per plant) on young cotton in Yuma County, ARIZONA, heavy in Cochise and Graham Counties (up to three treatments applied), and moderate in Maricopa and Pinal Counties. Normally a minor pest in NEW MEXICO, beet armyworm larvae damaged many seedling fields in the Mesilla and Pecos Valleys during May and June. Heavy numbers on early cotton in TEXAS required chemical controls in the El Paso, Trans-Pecos, South Plains, and Rolling Plains areas.

EUROPEAN CORN BORER (Ostrinia nubilalis) damaged half of a 60-acre field of early squaring cotton in Autauga County, ALABAMA. This field had been in pasture sod for several years. European corn borer larvae were observed in cotton bolls and stalks in MISSOURI. Heavy boll damage was observed in one field of late-planted cotton in Stoddard County. CUTWORMS, mainly Peridroma saucia (variegated cutworm) caused light to heavy damage to marginal rows of cotton in scattered areas of southeastern Missouri. In most cases migration was traced to volunteer legumes growing along ditchbanks. COTTON LEAF PERFORATOR

(*Bucculatrix thurberiella*) was severe on desert area cotton in CALIFORNIA. Treatment for other pests resulted in outbreaks of this pest.

LYGUS BUGS (*Lygus* spp.) were variable in cotton areas of CALIFORNIA. Controls were required for these pests in NEVADA. However, less acreage was treated in 1968 than in 1967. Predators and parasites kept these pests at low levels. In ARIZONA, populations of a FLEAHOPPER (*Spanogonicus albofasciatus*) from May through July and lygus bugs from June through mid-July ranged moderate to heavy in all cotton counties. From mid-July through August lygus bugs were high in untreated fields. Damage by *S. albofasciatus* and COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*) in NEW MEXICO appeared somewhat lighter in 1968 than in past years. Nevertheless, controls were applied. Cotton fleahopper damaged cotton in some sections of TEXAS. *P. seriatus* infested cotton in west-central, south-western, and south-central OKLAHOMA from mid-June through July. The heaviest populations (10-60 per 100 feet) occurred in the southwestern area during late June. TARNISHED PLANT BUG (*Lygus lineolaris*) and *Neurocolpus nubilis* became economic on cotton in northeastern ARKANSAS in August. Loss of and damage to the small bolls, not the squares, were the problems. Tarnished plant bug infested most fields in TENNESSEE with increasing damage to pinhead squares during late June. Early July infestations reached control levels in many fields. Through mid-August damage, especially in rank cotton, continued about the same level. In MISSOURI a complex of cotton fleahopper, tarnished plant bug, and RAPID PLANT BUG (*Adelphocoris rapidus*) infested as much as 97.4 percent of the 14,431 acres scouted. Plant bugs reached economic levels in very few fields. Controls were applied to only 100 acres.

COTTON APHID (*Aphis gossypii*) ranged moderate to heavy on young cotton in Cochise, Graham, Maricopa, Pima, and Pinal Counties, ARIZONA, from mid-April through mid-May. This aphid damaged cotton in some sections of TEXAS. Populations in southwestern OKLAHOMA were heavy in scattered fields in late June. Only isolated infestations occurred on cotton seedlings in MISSOURI. Beneficial insects kept cotton aphid under control in Missouri and only 100 acres were treated. Throughout ALABAMA early counts of 1-25 per plant infested 2 to 4-leaf cotton. Large numbers of *Hippodamia convergens* (convergent lady beetle) controlled these cotton aphid populations in 10-20 days.

WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) curled leaves on young untreated cotton plants in Graham, Maricopa, Pima, Pinal, and Yuma Counties, ARIZONA, from mid-April to mid-May. *Frankliniella* spp. populations were not economic in most areas of OKLAHOMA. Although lighter in 1968 than in 1967, thrips were heavier than normal in ARKANSAS. The problem occurred mainly on late cotton. In MISSOURI infestations of TOBACCO THRIPS (*F. fusca*), FLOWER THRIPS (*F. tritici*), and *Sericothrips variabilis* were again fairly widespread but much lighter than in 1967. Chemical controls were applied to 7,070 of the 14,431 acres scouted. The treated acreage included 2,580 acres to which systemic insecticides were applied at planting time. Thrips, mostly tobacco thrips and flower thrips, infested cotton throughout ALABAMA, especially the 2 to 6-leaf stage. Control efforts were general in the northern area and extended into much of the central area.

SPIDER MITES were not so damaging as in 1967 in CALIFORNIA; chemical controls for other pests were responsible for buildups. While controls were required for spider mites in NEVADA, less acreage was treated in 1968 than in 1967. Predators and parasites kept these pests at low levels. Spider mites, mainly STRAWBERRY SPIDER MITE (*Tetranychus turkestanii*), infested 7.04 percent of the scouted cotton acreage in MISSOURI. Spot and strip treatments were effective. Spider mite damage in TENNESSEE became more noticeable in untreated fields by mid-July. By late July, injury was severe throughout the cotton area. During mid-August, infestations continued to increase and the worst conditions in several years occurred in some areas. In late August untreated fields were completely defoliated. TWO-SPOTTED SPIDER MITE (*T. urticae*) and other mites were confined mainly to central and northern ALABAMA. Although not so severe as in 1957-1962, problems during the dry season of 1968 were worse than in the past 4-5 years,

especially in the central area. Widespread use of preplant systemic insecticides contributed to early and midseason suppression.

## TOBACCO

### Highlights:

Several CUTWORMS were troublesome on tobacco in Florida, but POTATO TUBERWORM infestations decreased. TOBACCO FLEA BEETLE was heavy in areas of Maryland, but GREEN PEACH APHID was the major tobacco pest in the State.

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Several CUTWORMS were troublesome on tobacco in FLORIDA. Light to moderate numbers of BLACK CUTWORM (*Agrotis ipsilon*), VARIEGATED CUTWORM (*Peridroma saucia*), and GRANULATE CUTWORM (*Feltia subterranea*) damaged young transplants of flue-cured tobacco. These pests accounted for 1.0 percent of the \$1,488,240 insect loss to this crop in Florida. These 3 species caused moderate to severe damage to young transplants of cigar-wrapper tobacco. Populations were heavy, but good controls checked the amount of damage. Loss amounted to 0.5 percent of the \$784,686 insect loss. CABBAGE LOOPER (*Trichoplusia ni*) was light on cigar-wrapper tobacco in Florida with most damage occurring early in the season. Loss was 0.3 percent.

BUDWORMS (*Heliothis* spp.) caused light damage to tobacco in MARYLAND, but no controls were needed. HORNWORMS (*Manduca* spp.) ranged 0-6 per 50 plants in MARYLAND. In an unusually heavy infestation in St. Marys County, larvae ranged 30-45 per 50 plants. Very few controls were applied specifically for hornworms except in St. Marys County. In VIRGINIA, *Manduca* sp was generally light on tobacco with increases early and late in the season.

POTATO TUBERWORM (*Phthorimaea operculella*) was light on cigar-wrapper tobacco in FLORIDA. Populations decreased from those of 1967. This pest accounted for 0.1 percent of the loss to this crop. Infestations on flue-cured tobacco were also lighter than in 1967, and light damage resulted. Loss to this crop by potato tuberworm amounted to 0.4 percent. Populations did not increase in 1968 as expected.

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) caused light losses to cigar-wrapper tobacco in FLORIDA. Loss was 0.3 percent. Losses to flue-cured tobacco were negligible. This flea beetle caused heavy damage to new transplants in VIRGINIA, but damage to the marketable crop was very light. Second-generation adults appeared in August. Tobacco flea beetle was heavy on tobacco in St. Marys, Charles, and Anne Arundel Counties, MARYLAND. In some fields where feeding was heavy, 5-10 percent of newly set plants had to be replaced. Late season injury remained light to moderate. No controls were applied to mature tobacco in Maryland. Tobacco flea beetle adults ranged 1-7 per tobacco leaf by mid-July in southern INDIANA and 4-21 per leaf by late August. Controls were warranted in a few plantings in the southeastern area.

SOUTHERN POTATO WIREWORM (*Conoderus falli*) was a problem on cigar-wrapper tobacco in FLORIDA where no controls were made or applications were inadequate. The number of wireworm problems was about the same as in 1967. This pest accounted for 0.1 percent of the loss to this crop. Southern potato wireworm and TOBACCO WIREWORM (*C. vespertinus*) were heavy in some fields of flue-cured tobacco in the State. These pests accounted for 0.6 percent of the loss to this crop.

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) caused light damage to cigar-wrapper tobacco in the plant beds in FLORIDA. Damage to flue-cured tobacco was negligible.

A FALSE CHINCH BUG (Nysius raphanus) increased slightly and was noted in about 25 acres of cigar-wrapper tobacco in FLORIDA. Damage was light, but the potential for damage is greater than for Myzus persicae (green peach aphid) at this time. This chinch bug appears to be a dry weather pest of tobacco in Florida. It accounted for 0.1 percent of the loss in 1968.

GREEN PEACH APHID (Myzus persicae) was the major pest of tobacco in MARYLAND in 1968. Infestations varied considerably from field to field. Controls were applied to most of the 36,000 acres in the State. Populations in VIRGINIA increased early in the season but declined in July, probably due to unfavorable weather. Damage was lighter than in 1967. Green peach aphid was numerous in some fields of flue-cured tobacco in FLORIDA; however, spot treatments minimized damage. This aphid accounted for 0.5 percent of the loss to this crop. Green peach aphid caused light damage to some cigar-wrapper tobacco in Florida, accounting for 0.1 percent of the loss to this crop.

RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) and AMERICAN GRASSHOPPER (Schistocerca americana) caused light damage in isolated fields of flue-cured tobacco in FLORIDA. Unspecified grasshoppers caused moderate damage in some fields of tobacco in eastern TENNESSEE due to harvesting of adjacent hayfields.

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Weather continued from page 146.

#### WEATHER OF THE WEEK ENDING FEBRUARY 24

HIGHLIGHTS: Winter storms disrupted power and communication, clogged highways and mountain passes, closed schools, and, in some areas, increased the likelihood of spring floods.

PRECIPITATION: A storm system off the northern Atlantic coast on Monday, February 24, dumped heavy snow over northern New England before tapering off about midweek. By Wednesday, 2 feet of snow had fallen at Boston, Massachusetts, and 3 feet at St. Johnsbury, Vermont. In some areas, the snow fell continuously for more than 100 hours and many schools remained closed the entire week. The storm increased the February snowfall totals at numerous stations sufficiently to set new records for the month of February. Another storm about 300 miles off the Pacific coast of California on Monday soaked coastal sections with heavy rain and dumped heavy snow in the nearby mountains. The snow closed some of the highway passes in the Sierras and the rain sent some of the rivers above flood stage. Some flooding and mud slides occurred in southern California. The 2 to 3-foot increase in snowpack in the Sierras brings it to near record depth and increased the flood potential. Clearing began about midweek in the Far West but snow continued in the Great Basin and began in the central and southern Rocky Mountains and spread to the northern and central Great Plains. By Friday morning, 17 inches of new snow had fallen at Aberdeen, South Dakota, increasing the depth to 25 inches. A mixture of snow, freezing rain, and freezing drizzle south of the snow area iced communication and power lines, interrupting power and communication, and glazed roads and highways making driving hazardous. The weekend brought three more storms. One of these moved northward along the Atlantic coast, unloaded up to a foot or more of new snow to parts of New York and New England and generally lesser amounts to other northeastern States. Another weekend storm deposited 8 to 10 inches or more of new snow in the Texas Panhandle and in nearby portions of Oklahoma and Kansas with rain southeastward to the gulf. The third weekend storm, located off the Pacific coast, brought generous rain to the coast with snow in the mountains of northern and central California.

TEMPERATURE: Bitter cold weather continued in Montana with much of the central part of the State averaging 10° to 18° colder than normal. The southern Great Plains warmed. The northern Great Plains continued pleasant for the fourth consecutive week and it was the third cool week in the Southeast. (Summary supplied by Environmental Data Service, ESSA.)





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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ALFALFA WEEVIL increasing in alfalfa in Oktibbeha County, Mississippi. (p. 172).

GREEN JUNE BEETLE and WHITE GRUBS causing concern in Sand Mountain area of Alabama. (p. 171).

Carryover of EUROPEAN RED MITE winter eggs high throughout Yakima Valley of Oregon. (p. 172).

SHORT-NOSED CATTLE LOUSE heavy in Mayes County, Oklahoma. (p. 174).

Detection

New State records include a TENEBRIONID BEETLE from Washington (p. 175), a PLANT BUG from Delaware (p. 173), and SUNFLOWER MOTH from Arkansas (p. 178).

For new county records see page 175.

Forecasts

BEEF LEAFHOPPER populations in desert breeding areas lower than last year. Movement to cultivated districts in central Arizona and southeastern California, southern Nevada, southern and eastern Utah, and western Colorado expected to be light to moderate. Movement to northern Utah expected to be light. (p. 171).

POTATO TUBERWORM expected to be problem in untreated potato storage bins on Eastern Shore of Virginia. (p. 180).

Special Reports

Summary of Insect Conditions in the United States - 1968

Sugarbeets (p. 177).  
Miscellaneous Field Crops (p. 178).  
Potatoes, Tomatoes, Peppers (pp. 178-181).  
Beans and Peas (pp. 181-182).  
Cole Crops (pp. 182-184).  
Cucurbits (pp. 184-185).  
General Vegetables (pp. 185-187).

European Chafer Quarantine Map. Centerfold.

Distribution of Smaller European Elm Bark Beetle (map). (p. 188).

Some First Occurrences of Season

PEAR PSYLLA adults in Washington and Oregon; EASTERN LUBBER GRASSHOPPER nymphs in Florida; SUBTERRANEAN TERMITE swarms in Delaware.

Reports in this issue are for week ending March 7 unless otherwise indicated.

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### WEATHER OF THE WEEK ENDING MARCH 3

**HIGHLIGHTS:** Cold stormy weather prevailed over most of the Nation. Heavy snow fell in many areas and severe thunderstorms occurred in parts of the Deep South.

**PRECIPITATION:** Heavy snow fell in many areas during the week. On Monday, Worcester, Massachusetts, received 5 inches while 15 inches fell at Mt. Washington, New Hampshire, accompanied by winds gusting to 62 m.p.h. Some areas in New England lay under 5-6 feet of snow. A heavy snow storm moved across the southern Rocky Mountains on Tuesday. It dumped 4 inches of snow at Cedar City, and 3 inches at Bryce Canyon, both in Utah and by Wednesday was bringing snow to the eastern slopes of the Rockies from Wyoming to the Texas Panhandle. About mid-week, a Pacific storm lashed the northwest coast with gales and heavy rain, and spreading snow inland to the Rocky Mountains. At Paradise Ranger Station, Washington, the snowpack reached 255 inches, over 21 feet. Meanwhile, the wet weather continued over mid-America. Substantial rain fell from eastern Texas to Alabama with lighter rain northward to southern Missouri. Severe thunderstorms occurred in southern Louisiana with wind gusts reaching 70 m.p.h. Light snow occurred from the northern Great Plains to the Great Lakes. Thursday brought rain to the southern Appalachians with rain in the higher elevations. On Saturday, a storm produced blizzard conditions from Kansas to the Texas Panhandle with heavy thunderstorms ahead of the front. Strong winds drifted the snow badly, closing some roads in southern Kansas to northwestern Oklahoma. In the afternoon as the storm moved northeastward, it spread snow through the Ohio River Valley to the central Appalachians. Heavy downpours fell in Florida on Sunday. The deep accumulations of snow, record-breaking in some areas and near record in other, are a threat of spring floods, especially in north-central United States along the tributaries of the upper Mississippi River, the Red River of the North, and the lower Missouri River. Weather continued on page 176.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

### Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California, and Central Arizona

Surveys were conducted for beet leafhopper (*Circulifer tenellus*) during the period February 3-13, 1969. If present conditions prevail, spring movement from the southern breeding grounds to cultivated districts of central Arizona and southeastern California, southern Nevada, southern and eastern Utah, and western Colorado is expected to be light to moderate; movement to northern Utah is expected to be light.

The southern breeding grounds, comprising approximately 50,000 square miles of potential weed host area, were considered to have an estimated 43.5-percent host plant cover at the time of the survey. As a result of fall and winter rains, annual host plants were found generally throughout central and southern Arizona. Elsewhere, lack of moisture restricted host plant germination and plants were sparse.

The average number of beet leafhoppers per square foot where host plants were present was 0.028 in 1969, compared with 0.034 in 1968, 0.09 in 1967, 0.013 in 1966, 0.04 in 1965, 0.15 in 1964, 0.02 in 1963, and 0.012 in 1962. It is estimated from the data collected during this survey that overwintering beet leafhoppers in the spring breeding areas totaled 14 billion in 1969 compared with 24.1 billion in 1968, 32.7 billion in 1967, 6.5 billion in 1966, 12 billion in 1965, 112 billion in 1964, 7.7 billion in 1963, and 6.1 billion in 1962.

This report covers only the beet leafhopper situation in the area surveyed. It has no reference to populations that may have overwintered in local breeding areas in northern and eastern Utah, or western Colorado, or western Nevada. (PPC West. Reg.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - CALIFORNIA - Medium on 80 acres of barley in Ontario, San Bernardino County. (Cal. Coop. Rpt.).

GREENBUG (*Schizaphis graminum*) - CALIFORNIA - Medium on 80 acres of barley in Ontario, San Bernardino County. (Cal. Coop. Rpt.). NEW MEXICO - Ranged 15-35 per linear foot in most Curry County wheat. Ranged up to 150 per linear foot in 1 field. Damage evident on lower leaves. (Mathews). OKLAHOMA - Ranged 50-150 per linear foot on wheat in Jackson and Tillman Counties, and scattered fields in Chattanooga area of Comanche County, Duncan area of Stephens County, and Tuttle area of Grady County. Ranged 1-20 per linear foot in Cotton, Kiowa, Noble, Payne, and Washita Counties. (Okla. Coop. Sur.). ARKANSAS - Ranged 20-25 per 100 sweeps in northwest area. (Boyer).

### SMALL GRAINS

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - ARKANSAS - Ranged 15-20 per 100 sweeps in northwest area. (Boyer). CALIFORNIA - Medium on 80 acres of barley in Ontario, San Bernardino County. (Cal. Coop. Rpt.).

### TURF, PASTURES, RANGELAND

GREEN JUNE BEETLE (*Cotinis nitida*) - ALABAMA - This species and *Phyllophaga* spp. (white grubs) ranged 20-25 grubs per square foot in 50+ percent of fescue fields in Cullman County. Grubs much heavier in areas spread with broiler manure and litter. Occurrences light to heavy in Sand Mountain area. (Baswell et al.).

EASTERN LUBBER GRASSHOPPER (*Romalea microptera*) - FLORIDA - First instar nymphs found in Sebring, Highlands County. First report of season. (Shelton).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Larval infestations increasing, about 25-30 per square foot in Oktibbeha County alfalfa. (Dinkins, Feb. 21).

PEA APHID (Acyrtosiphon pisum) - MISSISSIPPI - Moderate in Oktibbeha County alfalfa. Adults and nymphs about 25-30 per foot. (Dinkins, Feb. 21). ARKANSAS - Very low in vetch in northwest area. (Boyer).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - MISSISSIPPI - Adults very light in Oktibbeha County alfalfa. (Dinkins, Feb. 21).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Larvae of this species and Plutella xylostella (diamondback moth) infested 50 untreated cabbage plants nearing maturity at Belle Glade, Palm Beach County. Collected and determined by W.G. Genung. (Fla. Coop. Sur., Feb. 26).

#### DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - WASHINGTON - Overwintering mortality of full-grown larvae 60 percent in sample on pear in Yakima, Yakima County. (Johnson).

EUROPEAN RED MITE (Panonychus ulmi) - WASHINGTON - Carryover of winter eggs high throughout Yakima Valley. Viability unaffected by subfreezing temperatures except where extreme lows occurred. (Johnson).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Eggs hatching on peach twigs February 19 in Yakima County. First stem mother nymphs noted same date. (Johnson).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - High percentage of adults survived severe freezing in December and January. Overwintering adults active in Yakima Valley. Mating observed March 3, but no oviposition noted at Parker Heights, Yakima County. (Johnson). OREGON - First spraying completed in Jackson County. Oviposition February 25, no hatching to date. (Berry). In Hood River County up to 15 percent of females with mature eggs; no oviposition noted. (Zwick).

#### CITRUS

AN ARMORED SCALE (Unaspis citri) - FLORIDA - All stages severe on numerous young citrus trees at 2 nurseries in Orange County February 18-27. (Musgrove, Ware).

#### SMALL FRUITS

GRAPE MEALYBUG (Pseudococcus maritimus) - WASHINGTON - First-stage nymphs and eggs found in egg sacs under rough bark of Concord grapes. No movement of nymphs from egg sacs at Prosser, Benton County. (Cone).



## ORNAMENTALS

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Adults on castorbean (Ricinus communis) at Orlando, Orange County, January 24. Collected by A.C. Crews. This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

TEA SCALE (Fiorinia theae) - ALABAMA - Heavy, 100+ per leaf, on camelia plants in Barbour County. Crawlers present on leaves; some defoliation. (Hagler).

## FOREST AND SHADE TREES

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - IOWA - Adults emerged March 2 in a house in Orange City, Sioux County. (Towa Ins. Sur.).

SPRUCE APHID (Elatobium abietinum) - OREGON - Appearing in Portland, Multnomah County. (Nicolaïson).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - WASHINGTON - Larvae very heavy on roots of 10,000 container-grown blue spruce at nursery in Olympia, Thurston County. Pupation began March 3. (Saunders).

A PLANT BUG (Plagiognathus delicatus) - DELAWARE - Collected on honeylocust in northern New Castle County June 8, 1968, by D.F. Bray. Determined by P.P. Burbutis. This is a new State record. (Burbutis).

AN ARMORED SCALE (Clavaspis coursetiae) - FLORIDA - Infesting buttonwood (Conocarpus erectus) at Ft. Pierce, St. Lucie County, August 23, 1968. Collected by E.W. Campbell. This is a new Florida Department of Plant Industry host and county record. (Fla. Coop. Sur.).

WALNUT SCALE (Aspidiotus juglansregiae) - FLORIDA - Collected on honeylocust January 23, 1969, and silver maple April 24, 1968. Both collections made at same nursery in Gainesville, Alachua County. Collected by A.E. Graham. These are new Florida Department of Plant Industry host records. (Fla. Coop. Sur.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Five cases reported in U.S. March 2-8 as follows: TEXAS - Hidalgo 1, Live Oak 1, Maverick 2, Starr 1. Total of 96 cases reported in portion of Barrier Zone in Republic of Mexico February 23 to March 1 as follows: Territorio sur de Baja California 3, Sonora 46, Coahuila 5, Nuevo Leon 7, Tamaulipas 35. Total of 17 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 45,768,000; Mexico 106,580,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - COLORADO - Grubs in cattle in the Nunn area, Weld County. Averaged 9 per head in untreated and 2 per head in treated animals. (Hantsbarger).

FACE FLY (Musca autumnalis) - MISSOURI - Emerged from winter hibernation in house at Lamar, Barton County, February 27. Collected by C.G. Jones. Determined by W.S. Craig. This is a new county record. (Munson). OREGON - Active adult female found in Salem, Marion County. (Goeden).

MOSQUITOES - MISSISSIPPI - Culiseta inornata, Culex salinarius, Culex restuans, Anopheles quadrimaculatus, Anopheles crucians, Aedes vexans adults collected in Hancock County. Culiseta inornata and Culex salinarius dominant. Larvae of Culex restuans most abundant of larvae found. (Dinkins).

CATTLE LICE - OKLAHOMA - Mostly Haematopinus eurysternus (short-nosed cattle louse) heavy on cattle in Mayes County, moderate in Ellis County, and light in Washington County. (Okla. Coop. Sur.). MISSISSIPPI - Linognathus vituli (long-nosed cattle louse) very heavy on 60 beef cattle, calves appear more heavily infested in Oktibbeha County. (Dinkins, Feb. 21).

CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Heavy and widespread in northwest area. (Simco).

EAR TICK (Otobius megnini) - OKLAHOMA - Found 4 ticks on 2 of 15 steers in Washington County. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - COLORADO - Economic on poultry farm in Adams County; causing hens to molt. Controls necessary. (Hantsbarger).

#### HOUSEHOLDS AND STRUCTURES

A POWDER-POST BEETLE (Lyctus sp.) - OREGON - Severe in understructure of house near Ashland, Jackson County. Prevalent in timbers with dry rot fungus. (Larson, Berry).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - DELAWARE - First swarm of season reported in Sussex County. (Milford, Feb. 17). MICHIGAN - R. flavipes (eastern subterranean termite) swarming in Allegan County. (Janes).

#### BENEFICIAL INSECTS

A CRYPTOCHETID FLY (Cryptochetum iceryae) - CALIFORNIA - Larvae and pupae parasitizing ICerya purchasi (cottony-cushion scale) in Yuba City, Sutter County. (Cal. Coop. Rpt.).

LADY BEETLES - NEW MEXICO - Mostly Hippodamia convergens (convergent lady beetle) up to 3 per linear foot in small grain fields in Curry County. (Mathews).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TENNESSEE - Surveys negative in Hamilton, Lincoln, and Wayne Counties. (Harris, Watson).

WHITE GARDEN SNAIL (Theba pisana) - CALIFORNIA - Light on 3 properties in Manhattan Beach eradication area. These infestations extend buffer block treatment by 4 city blocks. (Cal. Coop. Rpt.).

## INSECT DETECTION

### New State Records

A TENEBRIONID BEETLE (Tribolium brevicornis) - WASHINGTON - Found in alfalfa leafcutter bee nest material at Zillah, Yakima County. Nest material received from out of State. Determined by H.H. Hatch. (Eves).

SUNFLOWER MOTH (Homoeosoma electellum) - ARKANSAS - Larvae were collected on sunflower in Jackson County, by W.P. Boyer on July 29, 1968. Determination was made by D.M. Weisman. Reared adults were determined by W.D. Duckworth. (p. 178).

A PLANT BUG (Plagiognathus delicatus) - DELAWARE - Collected on honeylocust in northern New Castle County June 8, 1968, by D.F. Bray. Determined by P.P. Burbutis. (p. 173).

### New County Records

AN ARMORED SCALE (Clavaspis coursetiae) - FLORIDA - St. Lucie County. (p. 173).

FACE FLY (Musca autumnalis) - MISSOURI - Barton County. (p. 173).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 2/28-3/6, BL - Black cutworm (Agrotis ipsilon) 1, granulate cutworm (Feltia subterranea) 9, variegated cutworm (Peridroma saucia) 1. TEXAS - Brownsville - 2/18-3/6, 2BL - Armyworm (Pseudaletia unipuncta) 29, black cutworm 43, cabbage looper (Trichoplusia ni) 3, corn earworm (Heliothis zea) 44, granulate cutworm 11, pale-sided cutworm (Agrotis malefida) 62, tobacco budworm (Heliothis virescens) 2, tobacco hornworm (Manduca sexta) 1, variegated cutworm 16, yellow-striped armyworm (Prodenia ornithogalli) 3.

CUTWORMS - OHIO - Blacklight trap operated throughout winter at Wooster, Wayne County, to determine earliest moth flights. Following moths collected February 2, 1969: Eupsilia morrisoni 2, E. sidus 1, and Plathypena scabra (green clover-worm) 1. February 1, 1967, previous earliest date for these species in Wayne County. (Rings).

## CORRECTIONS

CEIR 19(10):160 - RAPID PLANT BUG (Adelphorcoris rapidus) should read (Adelphocoris rapidus)

CEIR 19(8):122 - TOMATO HORNWORM (Manduca quinquemaculata) should read TOBACCO HORNWORM (Manduca sexta) for Oregon. (Westcott). TOMATO HORNWORM (M. quinquemaculata) correct for Kansas.

## HAWAII INSECT REPORT

Turf, Pasture, Rangeland - Larvae of a GRASS WEBWORM (Herpetogramma licarsisalis) caused 75 percent damage in 5 acres of Bermuda grass and heavy sporadic damage in 5 acres of Kikuyu grass at Haiku, Maui; larvae and adults trace to light in other areas. Damage negligible throughout Hilo and Kona, Hawaii; medium to heavy on various grasses in Puna. Larvae and adults trace on Oahu and Kauai. (Miyahira, Sugawa, Yoshioka, et al.).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) becoming widespread on coconut trees in Koko Head, Oahu. Light on leaves of many previously uninfested trees. (Nakao). A BARK BEETLE (Xylosandrus compactus) medium on avocado trees at Koa Ridge Farm, Kipapa, Oahu. (Suzukawa, Davis). FLORIDA RED SCALE (Chrysomphalus aonidium) heavy on many coconut leaves in Lihue, Wailua, Poipu, and Anahola, Kauai. Medium to heavy on coconut leaves in various areas in Honolulu, Oahu. (Sugawa, Funasaki).

Ornamentals - Nymphs and adults of A PLATASPID BUG (Coptosoma xanthogramma) heavy on flowers of jade vine along library building in Lihue and on maunaloa vine in Ahukini, Kapahi, Koloa, and Anahola, Kauai. Eggs and adults light on flowers of young coralbeans (Erythrina spp.) at Koa Ridge Farm at Kipapa and light to medium on maunaloa vine along windward coast on Oahu. (Sugawa, Suzukawa, Davis, et al.). HAWAIIAN THRIPS (Taeniothrips hawaiiensis) medium to heavy on maunaloa flowers on Kauai, Oahu, and probably other islands. Buildup on gardenia blossoms anticipated within several weeks as most gardenias in bud stage and expected to bloom from late March. CROTON CATERPILLAR (Achaea janata) heavy on castorbean plants at Koko Head and heavily damaged croton hedge at Kailua, Oahu. Further increase and spread expected. (Funasaki, Olson).

Man and Animals - HORN FLY (Haematobia irritans) adults moderate to heavy on cattle in open pasture, light on cattle in feeding pen at Ulupalakua, Maui. (Miyahira).

Beneficial Insects - A PTEROMALID WASP (Muscidifurax raptor) recovered for the first time on island of Hawaii at Kawaihae and Keaau. Released on Hawaii for control of the house fly (Musca domestica) and other filth inhabiting flies. (Yoshioka).

Miscellaneous Insects - Adults of a GRASSHOPPER (Oedaleus abruptus) spreading from known infested grassy areas at Hickam Air Force Base, Honolulu, Oahu; moving toward barracks and housing area. (Olson). Heavy winds on north shore of Oahu during past two weeks may generate severe outbreak of COCONUT LEAF ROLLER (Hedylepta blackburni). Last explosive outbreak in 1959 preceded by heavy winds.

Weather continued from page 170.

TEMPERATURE: Temperatures averaged below normal over almost the entire Nation. The cold weather has been remarkable because of its intensity and persistence. Montana has shivered through eleven weeks of cold weather and the Deep South has been cold for the past 3-4 weeks. Temperatures in the past week averaged 9° to 18° below normal over most of Montana and southward across the western Great Plains to the gulf. Most of the Rocky Mountains averaged more than 9° below normal. On Sunday, subzero temperatures occurred in 16 States. (Summary supplied by Environmental Data Service, ESSA.)

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968  
(Continued from page 168)

SUGARBEETS

Highlights:

ZEBRA CATERPILLAR, BEET ARMYWORM, and BEET WEBWORM were major pests of sugarbeets in the Arkansas Valley of Colorado. Beet armyworm was heavy in southern Arizona. SUGAR-BEET ROOT MAGGOT was damaging in Cass County, North Dakota, for the first time.

Lepidoptera were of concern on sugarbeets in 1968. VARIEGATED CUTWORM (Peridroma saucia) was spotted and heavy in the panhandle area of NEBRASKA in late August and September; few controls were necessary. ZEBRA CATERPILLAR (Ceramica picta), BEET ARMYWORM (Spodoptera exigua), and BEET WEBWORM (Loxostege sticticalis) were the major pests in the Arkansas Valley of COLORADO. Losses in the eastern area were light. Beet webworm injury in UTAH was very low due to unusually low numbers of adults. Beet armyworm larvae in ARIZONA ranged light to moderate in 5 southern counties in March and April. From May through mid-June numbers were heavy in Cochise and Graham Counties. Many acres were plowed under in Cochise County. During October and November populations ranged moderate to heavy in Maricopa and Pinal Counties. Very few growers treated. In CALIFORNIA variegated cutworm was heavy on beets in Imperial County and SALT-MARSH CATERPILLAR (Estigmene acrea) damaged beets in Yolo and Santa Cruz Counties.

Several beetles were troublesome on sugarbeets in 1968. High numbers of SPOTTED BLISTER BEETLE (Epicauta maculata) infested fields in Goshen County, WYOMING, in late July. About 500 acres were treated. Larvae of unspecified FLEA BEETLES damaged sugarbeets in MONTANA from Custer in Yellowstone County to Park City in Stillwater County and south to Bridger in Carbon County. Adults were a problem in the Hardin area of Big Horn County. Systema taeniata was one of 2 major pests of this crop in northeastern COLORADO. Losses in the eastern areas were light. BEET LEAF BEETLE (Erynephala puncticollis) in NEBRASKA moved into sugarbeet fields bordering alkali-grass pastures on June 11 in Scotts Bluff County. Counts ranged 4-5 per row foot; egg masses were present on 30 percent of the plants. Controls were applied.

GREEN PEACH APHID (Myzus persicae) was the predominant pest of sugarbeets in CALIFORNIA. Populations in ARIZONA were heavy on the crowns of plants from January through early February in Maricopa County and moderate in November and December. New growth was damaged in Cochise County in June. Control of this aphid was difficult in Curry County, NEW MEXICO, during August and September. Green peach aphid populations were normal on sugarbeets in UTAH.

SPINACH LEAF MINER (Pegomya hyoscyami) damage was as common as usual in UTAH. In MONTANA this leaf miner infested sugarbeets in the Toston and Townsend area of Broadwater County and near Hardin, Big Horn County. Spinach leaf miner was one of 2 major pests in northeastern COLORADO. Losses in the eastern area were light. In MICHIGAN, damage ranged moderate to heavy in some Bay County and Saginaw Valley fields.

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) losses in north-central COLORADO were very variable from field to field. In IDAHO, adult populations peaked at Rupert, Minidoka County, and at Burley, Cassia County, by May 20. Larvae caused little damage in MONTANA. Adults of sugar-beet root maggot emerged in NORTH DAKOTA the week of June 3, about 2 weeks earlier than in 1967. Peak fly populations occurred the week of June 24 in Walsh and Pembina Counties. Larval damage was severe to untreated sugarbeets in these counties. Usually a problem only in these 2 counties, the first known economic infestation in Cass County caused light damage.

MISCELLANEOUS FIELD CROPS

SUNFLOWER MOTH (Homoeosoma electellum) larvae in CALIFORNIA damaged safflower in Imperial County. Sunflower moth larvae were medium to heavy on sunflower in the McLennan County area of TEXAS in late June and medium in Brazos and Hill Counties. Sunflower moth larvae were collected on sunflower in Jackson County, ARKANSAS, by W.P. Boyer on July 29, 1968. The determination was made by D.M. Weisman. Reared adults were determined by W.D. Duckworth. This is a new State record. Larvae were reported as a major pest of sunflower in 1968. Infestations were heavier in July than later in the year. Sunflower moth and BANDED SUNFLOWER MOTH (Phalonia hospes) adults were active in sunflower fields in southern NORTH DAKOTA the week of July 8. By the last week of July larvae were evident. Up to 200 (average 50) larvae per 100 heads infested 73 percent of the heads in the east-central and northeastern districts. Banded sunflower moth comprised about 84 percent of the population. Damage was economic in several fields.

CUTWORMS reduced up to 20 percent of the stand in individual sunflower fields in late May in MINNESOTA. BLACK CUTWORM (Agrotis ipsilon) damaged flax in Codington County, SOUTH DAKOTA, in mid-June. Up to 12 larvae per row foot infested heavily damaged fields. Light numbers of BEET ARMYWORM (Spodoptera exigua) damaged castorbeans in Hale County, TEXAS, in July.

SUNFLOWER BEETLE (Zygogramma exclamationis) was light on sunflower in Polk County, MINNESOTA, in late July. Larvae ranged up to 120 per 100 infested sunflower plants in Pembina and Grand Forks Counties, NORTH DAKOTA, but no damage was evident. SUNFLOWER MAGGOT (Strauzia longipennis) pupae were evident in 70 percent of the sunflower fields in 5 east-central counties of North Dakota. Counts ranged up to 80 (average 26) per 100 heads.

LYGUS BUGS (Lygus spp.) were moderate on safflowers in late March and early May in Maricopa County, ARIZONA. These pests also damaged safflower in CALIFORNIA.

POTATOES, TOMATOES, PEPPERS

Highlights:

COLORADO POTATO BEETLE continued to increase in Pennsylvania. This pest was moderate to heavy on the Eastern Shore of Maryland and was more severe than in 1967 in Virginia. Colorado potato beetle was controlled in Alabama, but populations in Idaho were the heaviest in several years. FLEA BEETLES required controls in Arizona, and TOBACCO FLEA BEETLE was more damaging than usual in California. TOMATO FRUITWORM was the most important pest of commercial tomatoes in Alabama. EUROPEAN CORN BORER was the major pest of peppers in Michigan and Maryland and was damaging in Virginia and Delaware. GREEN PEACH APHID was heavy on potatoes on the Eastern Shores of Maryland and Virginia.

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COLORADO POTATO BEETLE (Leptinotarsa decemlineata) laid eggs by the last week of May in southern NEW HAMPSHIRE. The population of this pest was greater in 1968 than in 1967. This leaf beetle was of no commercial importance in well-sprayed fields in RHODE ISLAND. Populations in PENNSYLVANIA continued to increase on potatoes and tomatoes. After an absence of 20 years it has resumed economic importance throughout the eastern half of the State. Colorado potato beetle increased generally on commercial potatoes and tomatoes in DELAWARE. Moderate to heavy numbers in MARYLAND required controls on tomatoes and late potatoes in 3 southern Eastern Shore counties. Large plantings of eggplants were heavily damaged in Anne Arundel County. Damage by Colorado potato beetle was more severe than in 1967 in VIRGINIA. Control failed in some cases. The normal summer inactivity period did not occur. Feeding continued until mid-October. Untreated check plots were completely defoliated.

# EUROPEAN CHAFER

COOPERATIVE FEDERAL, STATE, AND CANADIAN QUARANTINES

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

AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

U. S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
PLANT PEST CONTROL DIVISION AND  
CANADIAN DEPARTMENT OF AGRICULTURE  
COOPERATING WITH AFFECTED STATES

Revised Jan. 10, 1969

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

Information as to designated laboratories may be obtained from an inspector \*

It is exempt if the equipment is cleaned and repainted.

\* Used mechanical soil-moving equipment.

free of soil.





# EUROPEAN CHAFER

COOPERATIVE FEDERAL, STATE, AND CANADIAN QUARANTINES

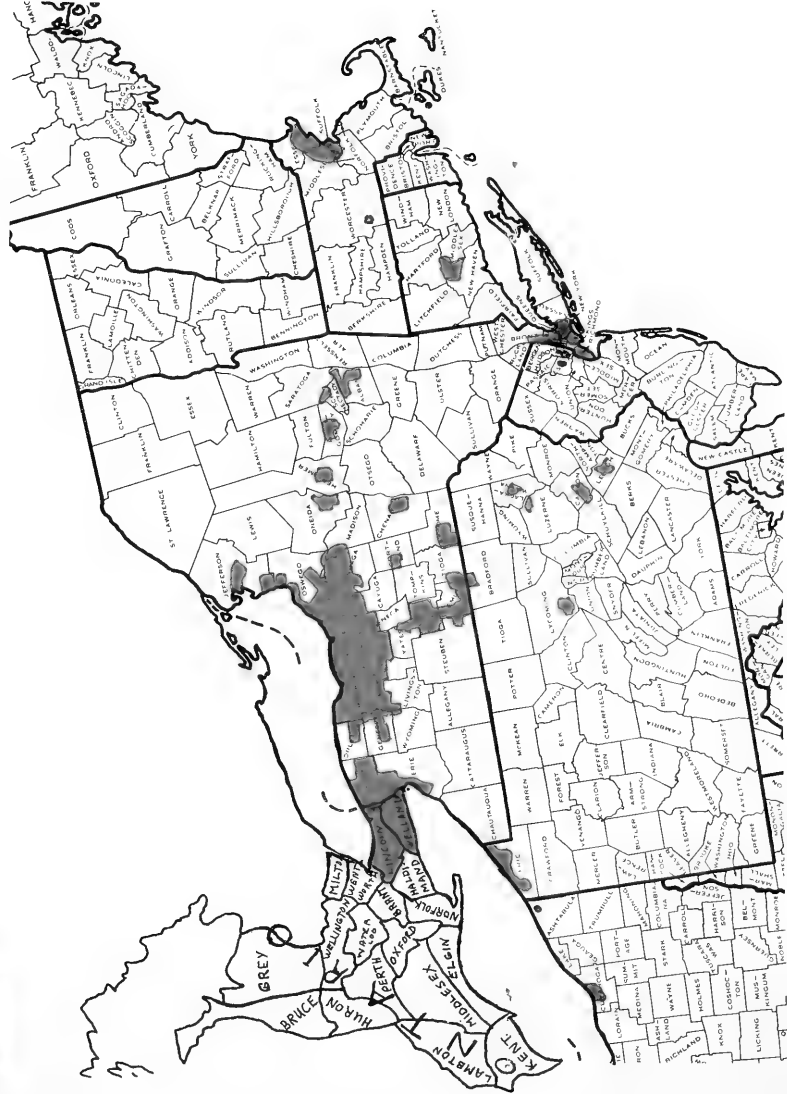
COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED; COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED.



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



STATE REGULATIONS ONLY. (SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)



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

1. RED INTO OR THROUGH WHITE OR BLUE.
2. BLUE INTO ANY OTHER AREA WHEN REQUIRED BY APPROPRIATE STATE QUARANTINE OR BY AN AUTHORIZED INSPECTOR.

IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PEST CONTROL 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.

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SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER 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 Corps of Engineers Soil Laboratories  
are exempt.

Soil samples of one pound or less shipped to designated  
Laboratories \* are exempt.

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

Colorado potato beetle larvae were severe on 160 of 200 potato plants at Thonotosassa in Hillsborough County, FLORIDA, in late April. Although this beetle poses a threat each year in ALABAMA, it was again successfully controlled in commercial potato areas by the constant use of pesticides. Colorado potato beetle damaged vegetable crops in many sections of TEXAS. Damage in OKLAHOMA was heaviest during May. This pest caused light damage to gardens in many eastern areas of KANSAS. In MINNESOTA this leaf beetle severely damaged a field near Argyle, Marshall County, in July; damaging numbers are rarely found in the State. Trace numbers infested other potato fields in this area.

Colorado potato beetle infestations occurred in fewer areas than usual in MONTANA, but controls were necessary in Lake and Carbon Counties. Larvae heavily damaged garden potatoes in Park and Goshen Counties, WYOMING, in late June and early July. Light numbers caused light to moderate losses in most of COLORADO. Colorado potato beetle was above normal on potatoes in northern UTAH. Populations of this leaf beetle in many areas of IDAHO were the largest in several years. By June 20 either adults or larvae infested up to 75 percent of the potato plants in Power County. Larvae were abundant and caused extensive damage to untreated potato fields. In OREGON Colorado potato beetle was scarce and no damage was reported to central and eastern area potatoes.

FLEA BEETLES (*Systema* spp.) in early May and DESERT CORN FLEA BEETLE (*Chaetocnema ectypa*) in late April required controls on bell peppers in Yuma County, ARIZONA. TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) was more general and damaging than usual in CALIFORNIA. TUBER FLEA BEETLE (*E. tuberis*) remained at low levels in central OREGON. At one time this flea beetle was the major pest of potato production in that area. None were found in Malheur County, and only a few specimens of WESTERN POTATO FLEA BEETLE (*E. subcrinita*) were taken. Unspecified flea beetles threatened potatoes in Gallatin, Madison, and Beaverhead Counties in MONTANA. POTATO FLEA BEETLE (*E. cucumeris*) was low and not damaging in VIRGINIA but was active on tomatoes and eggplants in CONNECTICUT. In RHODE ISLAND a new generation of potato flea beetle adults was found in low numbers on July 24. In NEW HAMPSHIRE flea beetles caused heavy damage to tomatoes in Strafford and Hillsborough Counties.

WIREWORMS were severe on potatoes at Homestead, Dade County, FLORIDA. Damage to tubers was very low in St. Johns County. Injury in UTAH was scattered with occasional damage to tubers. Wireworms infested potatoes in Lake County, MONTANA.

DARKLING BEETLES (*Blapstinus* sp. and *Metoponium* sp.) damaged young plantings throughout much of CALIFORNIA. PEPPER WEEVIL (*Anthonomus eugenii*) infested chili peppers in the southern part of the State.

CABBAGE LOOPER (*Trichoplusia ni*) damaged some tomatoes and potatoes in CALIFORNIA. Commercial tomatoes at Yuma, ARIZONA, required controls in late March, and populations were heavy in some potato fields at Queen Creek in mid-April. Cabbage looper was abundant and damaged potato foliage in the Homestead area of Dade County, FLORIDA. Controls were applied. Miscellaneous larvae, mostly cabbage looper, heavily defoliated commercial tomatoes in central INDIANA in early September. This looper damaged potatoes in WISCONSIN. Cabbage looper was heavy on tomatoes in July in VIRGINIA. Buildup was probably due to dry weather. Viruses reduced populations in early September. Very heavy populations of cabbage looper infested potatoes in RHODE ISLAND by August 19.

TOMATO FRUITWORM (*Heliothis zea*) was less severe on tomatoes in CALIFORNIA than in 1967. Controls were required on tomatoes in Yuma County, ARIZONA, from May through July. This pest damaged tomatoes in OKLAHOMA from June through August. Tomato fruitworm was light on commercial tomatoes in southwestern KANSAS in August. Larvae of this cutworm were severe on tomatoes in VIRGINIA during the second half of the summer and were the most important pests of tomatoes in commercial plantings and gardens in ALABAMA. However, damage was not so serious in Alabama as in 1966.

THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER 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 Corps of Engineers Soil Laboratories  
are exempt.

Soil samples of one pound or less shipped to designated  
laboratories \* are exempt.

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.

\* Information as to designated Laboratories may be obtained  
from an Inspector

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



EUROPEAN CORN BORER (*Ostrinia nubilalis*) was very light on commercial pimento peppers in northern ALABAMA. This pyraustid was the important pest on pickling peppers in MICHIGAN. Larvae infested the crop through most of the fruiting season. Overall infestation levels were well below the past 2 years. Flights peaked June 8-9 for the first generation and August 19-24 for the second generation. Flights continued into late October because of extended mild temperatures. European corn borer destroyed 500 acres of peppers on the Eastern Shore of VIRGINIA. Populations were above normal on peppers and potatoes in MARYLAND. European corn borer was the major pest of peppers in the State in 1968. The number of European corn borer larvae infesting sweet peppers in DELAWARE in 1968 reflected the heaviest populations in corn ever recorded for the State.

BLACK CUTWORM (*Agrotis ipsilon*) in WISCONSIN damaged potatoes in early June near Spring Green, Sauk County, and some peppers in mid-June in Waushara County. VARIEGATED CUTWORM (*Peridroma saucia*) also infested potatoes near Spring Green in early June. In northeastern ILLINOIS, variegated cutworm occurred through most of the growing season, especially on tomatoes. Variegated cutworm and black cutworm were locally severe on the Eastern Shore of VIRGINIA with up to 35 percent damage to spring potatoes which were not dug until August. Black cutworm caused light damage to potato tubers by August 28 in RHODE ISLAND.

CUTWORMS were an early season problem in CALIFORNIA on tomatoes and potatoes. BEET ARMYWORM (*Spodoptera exigua*) caused local damage in a few areas of California and was medium on tomato seedlings in Clark County, NEVADA, in April. Controls were required for beet armyworm on 500 acres of tomatoes in late April and early May in Yuma County, ARIZONA. In mid-April larvae injured potato vines at Queen Creek, Maricopa County. In mid-May populations were heavy on chili peppers at Elfrida, Cochise County. A complex of beet armyworm and SOUTHERN ARMYWORM (*Prodenia eridania*) damaged tomatoes at Bradenton in Manatee County, FLORIDA. Noctuid loopers and southern armyworm damaged tomatoes in the Ft. Pierce area of St. Lucie County from August to October. Frequent rains and dense foliage made control difficult. Cutworm larvae damaged potatoes in Somerset County, MARYLAND, just before harvest. One 10-acre stand had light to heavy injury in 30 percent of the tubers.

POTATO TUBERWORM (*Phthorimaea operculella*) was generally light in potato areas of CALIFORNIA and was scarce in UTAH. Infestations in ALABAMA recurred in isolated fields in Baldwin, Mobile, and Escambia Counties. Damage was negligible due to intensified control efforts. Larvae injured less than 1 percent of the potato tubers, the lowest in several years, in the Hastings area of St. Johns County, FLORIDA. Potato tuberworm was severe in fall potatoes on the Eastern Shore of VIRGINIA. A problem is expected in untreated storage bins. Larvae occurred in some potato fields in Monroe County, MICHIGAN, for the first time in 5 years. This pest also infested potatoes in Bay County.

STALK BORER (*Papaipema nebris*) damaged tomatoes in eastern KANSAS in mid-June. Larvae damaged tomatoes in gardens in Davidson County, TENNESSEE, in early July. Stalk borer infested many potato stalks by June 27 in RHODE ISLAND.

GREEN PEACH APHID (*Myzus persicae*) was damaging all season in CALIFORNIA. Populations ranged moderate to heavy on potato vines in Maricopa County, ARIZONA, during March and April. Controls were required on tomatoes in early April in Yuma County. Green peach aphid was the most common aphid on potatoes in UTAH. Control of green peach aphid on chili peppers in the Mesilla Valley of NEW MEXICO was difficult. Green peach aphid was severe on potatoes in the Homestead area of Dade County, FLORIDA, and controls were applied. Populations of this aphid on fall potatoes were the heaviest in recent years on the Eastern Shore of VIRGINIA, but damage was light due to the late occurrence. Heavy green peach aphid populations were difficult to control on peppers and potatoes on the Eastern Shore of MARYLAND. In DELAWARE this aphid continued to be very serious on sweet peppers during July and August. Green peach aphid was a problem on potatoes in the valley area of CONNECTICUT.

POTATO APHID (*Macrosiphum euphorbiae*) built up heavily in untreated potato fields in RHODE ISLAND by July 10, continued heavy for about a week, and then declined rapidly. Light to moderate numbers infested potatoes and tomatoes in a south-eastern MARYLAND county. This aphid was one of the most common pests in gardens in IOWA. Potato aphid caused heavy damage to potatoes in Lyon County, NEVADA, in late August, and controls were required. This aphid was very common on potatoes and some tomatoes in CALIFORNIA.

GARDEN SYMPHYLAN (*Scutigerella immaculata*) caused heavy damage to tomato seedlings locally in Yolo County, CALIFORNIA.

## BEANS AND PEAS

### Highlights:

MEXICAN BEAN BEETLE was heavy on beans in Arizona and New Mexico, was a major pest of this crop in Colorado, and was economic in areas of Nebraska. Mexican bean beetle was serious throughout Alabama, but populations in Michigan were lighter than in 1967. COWPEA CURCULIO was a major pest of table peas on the expanded commercial acreage in Alabama. Larvae of several NOCTUID MOTHS damaged beans and peas in some areas.

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MEXICAN BEAN BEETLE (*Epilachna varivestis*) was heavy on beans in Cochise County, ARIZONA, in mid-August and in the Prescott area of Yavapai County in late August. Heavy populations damaged beans in the Farmington area of San Juan County and at Manzano in Torrance County, NEW MEXICO. Mexican bean beetle was a major pest of beans in COLORADO. Economic infestations of this beetle were scattered in Scotts Bluff, Morrill, and southern Sioux Counties, NEBRASKA. Controls were necessary in most of these fields. Mexican bean beetle larvae appeared on beans in south-eastern WYOMING in mid-July. Damage was moderate in many fields in Goshen and Platte Counties, and controls were applied. Mexican bean beetle was above normal on beans in central and northern UTAH. For Mexican bean beetle in IDAHO, see CEIR 19(7):102.

Mexican bean beetle ranged light to moderate on beans over most of MICHIGAN. Populations were lower than in 1967 and lower than the 5-year average. This beetle was serious and damaging to lima and pole beans throughout ALABAMA. It was less of a problem on field peas in the State. Populations were about the same as in 1967. This beetle was generally heavy on unsprayed beans throughout MARYLAND. Controls were successful on commercial acreages. Mexican bean beetle adults infested some beanfields in RHODE ISLAND by July 2, and larvae and pupae were moderate on plants by August 19. Mexican bean beetle was moderate in NEW HAMPSHIRE in 1968.

WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) was widespread and very abundant in most of OREGON. Damage to pole beans was extensive in Douglas County, especially when adjacent hayfields were cut. Dusting was necessary on snap beans in Benton County. Although present in ALABAMA throughout 1968, BEAN LEAF BEETLE (*Cerotoma trifurcata*) was mainly a pest of peas and beans in the 2 to 6-leaf stage.

PEA WEEVIL (*Bruchus pisorum*) was prevalent in the peafields of the Willamette Valley, OREGON. Significant losses to processing peas occurred where control was lax. Adults appeared to be heavier than for several years in north-central IDAHO. Migrants probably entered peafields in one general movement rather than in several which is the usual occurrence. Pea weevil was generally light on peas in UTAH.

COWPEA CURCULIO (*Chalcoedermus aeneus*) remained one of the major pests of table peas on the expanded commercial acreage in ALABAMA. Infestations in harvested peas in 1968 were less than in 1966 due to more intensified controls. Infestations were about the same as those in 1967.

BEAN LEAF SKELETONIZER (Autopliusia egea) damaged string beans in San Diego County, CALIFORNIA. WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) reached damaging levels in several lentil fields in north-central IDAHO during July. Populations ranged up to 1 per square foot with as many as 4 cut lentil pods per square foot observed. CABBAGE LOOPER (Trichoplusia ni) damaged beans in WISCONSIN. Controls were required in several locations. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) became a serious pest to late plantings of table peas and beans in southern ALABAMA.

BEAN APHID (Aphis fabae) was general on bush and pole beans throughout Clark and Pierce Counties, WASHINGTON, in July. Infestations were light on beans in UTAH. Bean aphid was heavy on unsprayed bean plants in RHODE ISLAND by July 16. In MARYLAND one heavy infestation was found on 4 acres of fresh market beans in Wicomico County. COWPEA APHID (A. craccivora) was widespread and heavy on cowpeas in home gardens and commercial plantings in ALABAMA. Cowpea aphid is a vector of cowpea mosaic in the State.

PEA APHID (Acyrtosiphon pisum) was generally light on peas in UTAH in 1968. Winged individuals were noted in peas in WISCONSIN by May 17. Parasites and predators prevented any rapid increase in population. Populations in midseason peas remained sufficiently high (30-50 per sweep) in some fields to warrant controls. By June 28, populations decreased due to weather, parasites, and predators. Infestations increased about September 17, when as many as 60 per sweep were noted in a few fields. Pea aphid was first noted on peas in DELAWARE in early May. Counts averaged 1-2 per sweep in most areas by late May, and controls were applied. Pea aphid populations were low in MARYLAND.

A FALSE CHINCH BUG (Nysius raphanus) was a serious pest of peas, beans, and other vegetables throughout southern ALABAMA and as far north as Bibb County.

THRIPS were generally light on peas in UTAH, but WESTERN FLOWER THRIPS (Frankliniella occidentalis) damaged beans in San Diego County, CALIFORNIA. A thrips, probably ONION THRIPS (Thrips fabaci), was very heavy on peas and beans in the Dayton area of Columbia County, WASHINGTON. The thrips problem was serious in this area throughout the 1968 season.

SEED-CORN MAGGOT (Hylemya platura) larvae injured some planted bean seeds in the spring in UTAH and infested bean seedlings a week after planting in Marion County, OREGON, in late April.

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) damaged beans statewide in CALIFORNIA and caused moderate damage to some garden beans in UTAH.

GRAY GARDEN SLUG (Deroceras reticulatum) severely damaged bean seedlings in Benton County, OREGON.

## COLE CROPS

### Highlights:

CABBAGE LOOPER was heavy on crucifers in New Hampshire and was serious on cole crops in Maryland. Larvae were troublesome in Michigan, damaging in Tennessee and Alabama, and required controls in the Salt River Valley of Arizona. IMPORTED CABBAGEWORM was heavier than usual and very damaging to cole crops in California and was one of the most damaging pests of commercial cole crops in Alabama. DIAMONDBACK MOTH larvae were damaging in Alabama, Florida, Texas, and Arizona. ROOT MAGGOTS were of some concern in a few areas. CABBAGE APHID was serious on cabbage and collards in Alabama.



CABBAGE LOOPER (Trichoplusia ni) larvae were first collected in NEW HAMPSHIRE in early July in Cheshire County. Moderate to heavy damage began to appear on crucifers by mid-July in southern areas, with up to 90 percent of the plants damaged in some fields. Larval populations in RHODE ISLAND were low on cabbage on August 19 but were heavy on rutabagas by August 26. Moths were flying by September 3. Cabbage looper was a serious pest of cabbage, broccoli, and other cole crops during late summer and fall in MARYLAND. This looper was heavy on newly transplanted cole crops on the Eastern Shore of VIRGINIA in August. This buildup was probably due to dry weather. Viruses were effective in reducing populations in early September, and no additional increases were noted on these crops.

Cabbage looper moths were first collected in MICHIGAN in early July. A rapid buildup followed, and weekly collections of 60-80 moths were made as far northward as Newaygo and Montcalm Counties by August 26. Larvae became increasingly troublesome in all cole crop areas. Moths were collected as late as October 29. Cabbage looper damaged cabbage in WISCONSIN, and controls were required on cabbage in several locations. Larvae infested cole crops in some small areas of north-eastern ILLINOIS, especially where intervals between sprays were lengthened or irrigation was inadequate.

Cabbage looper peaked in the usual high numbers on cabbage at Hastings, St. Johns County, FLORIDA, in March and April. Populations were lower than in previous years at Sanford, Seminole County. Numbers were generally low during winter and early spring in the Everglades area but became heavy on cabbage from late April through May. Cabbage looper averaged 5 per infested head on untreated cabbage in mid-May. This looper was severe on 50 acres of collards in Suwannee County, Florida, in May and delayed harvest of the crop. Cabbage looper and larvae of a NOCTUID MOTH (Pseudoplusia includens) damaged cabbage, collards, and other cole crops throughout ALABAMA. Cabbage looper was heavy on commercial cabbage plantings in Madison County, TENNESSEE, and damage was heavy on commercial and garden cabbage in northeastern and north-central OKLAHOMA during June. Cabbage looper and P. includens damaged vegetable crops in many sections of TEXAS.

Cabbage looper infestations on broccoli, cabbage, and cauliflower required controls at 3-day intervals during September in the Salt River Valley of Maricopa County, ARIZONA. Larvae infested some cole crops in UTAH and were unusually prevalent on most cole crops in CALIFORNIA. Weather kept cabbage looper populations, especially those of the second generation, low in OREGON. Controls on cauliflower and broccoli in the Willamette Valley were effective.

CUTWORMS were prevalent in CALIFORNIA early in 1968, but infestations of BEET ARMYWORM (Spodoptera exigua) were locally heavy. GRANULATE CUTWORM (Feltia subterranea) was moderately severe during mid and late spring in FLORIDA. Larvae had entered about 50 percent of the heads of untreated cabbage by mid-May in the Everglades region. Larvae did not return to the soil until just before pupation. Unspecified cutworms caused light damage to cabbage at Hastings, St. Johns County.

IMPORTED CABBAGEWORM (Pieris rapae) was more prevalent than usual in CALIFORNIA and very damaging to cole crops. Numbers in UTAH were generally high where no control was applied. Larvae were very prevalent in MONTANA. Imported cabbageworm was one of the most common pests of gardens in IOWA. The main flight in MICHIGAN occurred from early to late July. Larvae were heavy on cole crops. Adults and larvae were active throughout September and into October. In ALABAMA this pierid butterfly was one of the most damaging pests on commercial and home plantings of cabbage, collards, and other cole crops. Many larvae infested untreated cabbage in RHODE ISLAND by August 19. Infestations were moderate in cauliflower by August 27. Imported cabbageworm was lighter in NEW HAMPSHIRE in 1968 than during 1966 and 1967.

DIAMONDBACK MOTH (Plutella xylostella) was severe from early April through early June on untreated crucifers in the Everglades area of FLORIDA. After mid-May up to 60 (average 22) larvae per head infested cabbage. Damaging populations

occurred in isolated areas throughout ALABAMA on all cole crops but mainly on turnips, mustard, and cabbages. Diamondback moth larvae damaged vegetable crops in many sections of TEXAS. Larvae heavily damaged cabbages in the Date Creek area of Yavapai County, ARIZONA, in late April. Although numerous in UTAH during spring, larvae did not severely damage crucifers. Diamondback moth infestations were widespread in NORTH DAKOTA, but damage was not extensive in the major mustard-growing area in the north-central district. Larvae damaged 50 percent of a field in Ransom County and a small acreage in Pierce County.

CABBAGE MAGGOT (*Hylemya brassicae*) heavily infested radishes by July 22 and infested rutabagas by August 19 in RHODE ISLAND. Damage by root maggots was evident in radishes, cole crops, and turnips in PENNSYLVANIA, although thousands of adult flies were killed by a fungus disease. These flies were mainly cabbage maggot and SEED-CORN MAGGOT (*H. platura*). ROOT MAGGOTS (*Hylemya* spp.) were heavy in cabbage, turnip, and radish plantings in Baltimore County, MARYLAND. Cabbage maggot was especially damaging in southeastern MICHIGAN. Some fields were so damaged that replacement fields had to be planted elsewhere. In spite of preventive controls, populations were very heavy in those fields where no crop rotation had been used. Half-grown cabbage maggot larvae were numerous in some untreated radish plantings in Dane County, WISCONSIN, by May 31. A few larvae were full grown by June 7. Damage in early radishes ranged 1-50 percent. Early in July an average of 5 larvae per plant killed up to 30 percent of the plants in scattered commercial cabbage fields in Kenosha County. Cabbage maggot was present in ILLINOIS in the spring, especially on radishes. Some resistance to certain organo-phosphates was evident.

TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) was common in the horseradish-growing area of west-southwestern ILLINOIS. Up to 1,250 mites per leaf infested some fields. Predators were few.

CABBAGE APHID (*Brevicoryne brassicae*) was a serious pest of cabbages and collards in all counties of ALABAMA. Damaging numbers of TURNIP APHID (*Hyadaphis pseudo-brassicae*) in Alabama infested turnips and mustard all summer and winter. In FLORIDA the usual high numbers of cabbage aphid were present on susceptible crops in the Hastings area of St. Johns County. Cabbage aphid, GREEN PEACH APHID (*Myzus persicae*), and turnip aphid populations were generally light on cabbages and other crucifers in the Everglades area. Cabbage aphid was generally high where no control was applied in UTAH. Treatments of APHIDS (*Aphis* spp.) in ARIZONA were made in mid-January to control colonies on broccoli, brussels sprouts, cauliflower, and turnips at Glendale, Maricopa County. Cabbage aphid and green peach aphid were very prevalent and damaging in CALIFORNIA.

YELLOW-MARGINED LEAF BEETLE (*Microtheca ochroloma*) was a serious pest in Mobile and Baldwin Counties and was reported as far north as Lee County, ALABAMA. STRIPED FLEA BEETLE (*Phyllotreta striolata*) larvae were recovered from turnip roots in western ARKANSAS in late October. In north-central NORTH DAKOTA striped flea beetle and WESTERN BLACK FLEA BEETLE (*P. pusilla*) ranged up to 1,250 per 100 sweeps on mustards. Severe damage was scattered but not extensive in some areas.

MOLE CRICKETS (*Scapteriscus* spp.) appeared in the usual high numbers in cabbage seedbeds and were damaging in the Hastings area of St. Johns County, FLORIDA.

## CUCURBITS

### Highlights:

STRIPED CUCUMBER BEETLE was serious on cucurbits in Delaware, heavily damaged cucumber seedlings on the Maryland Eastern Shore, and was serious on commercial cucumbers in Alabama. CABBAGE LOOPER and MELON APHID required controls on cantaloups in Arizona. Melon aphid was troublesome on the Eastern Shore of Maryland.

STRIPED CUCUMBER BEETLE (Acalymma vittatum) infested squash in RHODE ISLAND by September 30. Adults were again serious on young cucurbits during late May and early June in DELAWARE. Striped cucumber beetle caused heavy damage to cucumber seedlings on the Eastern Shore of MARYLAND before true leaves had emerged and was generally abundant on all cucurbits during the season. This leaf beetle was one of the most common pests of gardens in IOWA. Striped cucumber beetle was the most serious pest of commercial and homegrown cucumbers throughout ALABAMA, but the problem was less serious than in most years. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) caused isolated damage to cucurbits in ALABAMA. This leaf beetle damaged commercial cucumbers in southeastern OKLAHOMA in late May. CUCUMBER BEETLES (Diabrotica spp.) damaged cucurbits in Washington and Kane Counties, UTAH, and Diabrotica sp. caused general damage in cucumber and melon-growing areas of CALIFORNIA. FLEA BEETLES (Chaetocnema spp.) on cantaloups in Yuma County, ARIZONA, required controls in late April.

CUTWORMS damaged and CABBAGE LOOPER (Trichoplusia ni) generally infested melons and cucumbers in CALIFORNIA. Cabbage looper started to build up on cantaloups in Yuma County, ARIZONA, in April, and by mid-May controls were required. Larvae of Feltia spp. were successfully controlled on cantaloups in the same area during May. Cabbage looper caused a rindworm problem in Lake County, FLORIDA, but populations were very small and injury was slight. SQUASH VINE BORER (Melittia cucurbitae) was a pest of cucumbers and cantaloups in central and southern ALABAMA. Larvae of this agerIID moth were light on squash in RHODE ISLAND by August 28.

MELON APHID (Aphis gossypii) was prevalent on melons and squash in CALIFORNIA. Populations reached 2 peaks on cantaloups in Yuma County, ARIZONA, and controls were applied in late March and in late April. Populations of this aphid were heavy in some areas of UTAH. Melon aphid was heavy and troublesome on many cucumber, watermelon, and cantaloup plantings on the Eastern Shore of MARYLAND. Most infestations required controls.

WESTERN POTATO LEAFHOPPER (Empoasca abrupta) was prevalent and damaged cucurbits in CALIFORNIA. Empoasca spp. required controls on cantaloups from May through June to prevent the spread of disease in Yuma County, ARIZONA.

SQUASH BUG (Anasa tristis) damaged squash and other cucurbits in many areas of OKLAHOMA from mid-June until late September. Populations were heaviest in late June and mid-August. This coreid bug damaged vegetable crops in many sections of TEXAS. Squash bug was the most damaging pest of cucurbits in UTAH, especially in the southern part of the State. Populations of squash bug were unusually heavy on squash and pumpkins in CALIFORNIA.

SPIDER MITES (Tetranychus spp.) caused moderate to heavy injury to watermelons and cantaloups in MARYLAND. These pests infested cantaloups in Yuma County, ARIZONA, and required controls from early April through early July. PACIFIC SPIDER MITE (T. pacificus) damaged melons in Fresno County, CALIFORNIA, and TWO-SPOTTED SPIDER MITE (T. urticae) was locally damaging to cucurbits in the State.

GRAY GARDEN SLUG (Deroceras reticulatum) damaged cucumbers in Lane County, OREGON.

## GENERAL VEGETABLES

### Highlights:

CABBAGE LOOPER damaged vegetable crops in several States. BEET ARMYWORM required controls on lettuce in Arizona and was a major pest of this crop in Colorado. ASPARAGUS BEETLE was heavier than in 1967 in Delaware. GREEN PEACH APHID was a general pest of vegetables in California, damaged spinach in Oklahoma, and was heavy on celery in Florida. SLUGS damaged vegetables in some areas.

CABBAGE LOOPER (*Trichoplusia ni*) was very damaging on many vegetable crops in CALIFORNIA, primarily on lettuce. Larvae caused heavy damage to vegetable gardens in Clark County, NEVADA. Cabbage looper was the major problem on lettuce throughout ARIZONA except from June through August. Controls were difficult and had to be applied 3 times in many fields. This looper was heavy on sweetpotatoes in Maricopa County. Cabbage looper infested lettuce in the Mesilla Valley of NEW MEXICO and required controls at 3 to 7-day intervals. Cabbage looper was one of the major pests of lettuce in COLORADO and was a major pest of greens crops in ARKANSAS. Full-grown larvae were found in northern Arkansas as early as May 25. Cabbage looper usually causes problems in Arkansas during the fall months, but in 1968 some problems developed during the spring. In October light traps collected up to 3,000 cabbage looper moths per night in Cross County. Cabbage looper and CELERY LOOPER (*Anagrapha falcifera*) replaced aster yellows as the prime problem on celery in MICHIGAN. At harvest pupae presented a quality problem in celery. Control was satisfactory on young plants but became increasingly ineffective as the crop matured, mainly because spray materials could not penetrate the dense foliage. Buildup was rapid, and weekly collections of 60-80 cabbage looper and celery looper moths were made as far northward as Newaygo and Montcalm Counties, Michigan, by late August.

BEE T ARMYWORM (*Spodoptera exigua*) was general on many vegetables in CALIFORNIA and caused heavy damage to vegetable gardens in May in NEVADA. Larvae first appeared on lettuce in Yuma County, ARIZONA, in early February. Treatments were made on this crop in late March, mid-April, and early October in Yuma County and in mid-May in Cochise County. This armyworm damaged onions in Maricopa County, Arizona, in early April and November. Beet armyworm was one of the major pests of lettuce in COLORADO.

Several Lepidoptera were troublesome in some areas. ARTICHOKE PLUME MOTH (*Platyptilia carduidactyla*) was severe on artichoke in all growing areas of CALIFORNIA. VARIEGATED CUTWORM (*Peridroma saucia*) caused much damage to vegetable gardens in many areas of eastern KANSAS in June. W-MARKED CUTWORM (*Spaelotis clandestina*) infested vegetables in WISCONSIN by May 31, and some treatments were made in the Wood County area. DARK-SIDED CUTWORM (*Euxoa messoria*) was more active than usual on asparagus in MICHIGAN. Larvae destroyed about 6 acres of this crop in Berrien County.

SPOTTED ASPARAGUS BEETLE (*Crioceris duodecimpunctata*) and ASPARAGUS BEETLE (*C. asparagi*) ranged from normal to below normal on asparagus in UTAH. Asparagus beetle populations were heavier than last season in DELAWARE, and injury was evident during May. SWEETPOTATO FLEA BEETLE (*Chaetocnema confinis*) was the major pest of sweetpotatoes in MARYLAND. Control programs did not prevent larval injury. Damage was as high as 30 percent in fields sampled in Wicomico County. Adults of DARKLING BEETLES (*Blapstinus* spp.) were heavy around young sweetpotato slips in Maricopa County, ARIZONA, the last half of May. Controls were applied.

GREEN PEACH APHID (*Myzus persicae*) was a general pest of vegetable crops all year in CALIFORNIA. This aphid was active on carrots, lettuce, and other vegetables from January to March and from November to December in Maricopa and Yuma Counties, ARIZONA. Green peach aphid was heavy and damaged spinach in Tulsa County, OKLAHOMA, in mid-April. Populations were very heavy on celery in the Everglades area of FLORIDA, and controls gave poor results. Green peach aphid was heavy on vegetables in RHODE ISLAND by July 10. Populations remained heavy for about 7 days and then decreased to low levels. Some aphids were infected with a fungus.

BEAN APHID (*Aphis fabae*) was heavy on rhubarb in RHODE ISLAND by June 26 and infested artichokes in Tillamook County, OREGON, during August. In CALIFORNIA, APHIDS (*Capitophorus* spp.) infested artichokes. *C. braggii* was severe on this crop in Monterey County, and *C. elaeagni* occurred in Colusa County. MELON APHID (*Aphis gossypii*) was heavy on celery in the Everglades area of FLORIDA. Controls gave poor results.

ONION MAGGOT (Hylemya antiqua) occurred in a few locally heavy infestations in CALIFORNIA. This pest caused very light damage to vegetable crops in OREGON. Current control measures are still effective against this fly. Damage to vegetables in UTAH ranged normal to light. Onion maggot was unusually active in many counties of MONTANA. Losses to vegetable crops from this fly ranged light to moderate in the Arkansas Valley area of Pueblo County, COLORADO.

SPINACH LEAF MINER (Pegomya hyoscyami) caused the normal amount of damage to table beets in UTAH. This anthomyiid fly infested beets, spinach, and chard in many backyard gardens and truck gardens in MONTANA. It was especially prevalent in the central and southeastern parts of the State. CARROT RUST FLY (Psila rosae) apparently caused no damage in OREGON in 1968 as none was reported. At one time, this fly was a serious pest in the Willamette Valley. ASPARAGUS MINER (Melanogromyza simplex) has become active on asparagus in the past 2-3 years in MICHIGAN, especially in the Oceana area. Activity has been confined to fern growth.

All stages of ONION THRIPS (Thrips tabaci) damaged onions in Grant County, WASHINGTON. Damage was unusually heavy to green onions and, in a few instances, to asparagus in CALIFORNIA. Onion thrips damage ranged from normal to light in UTAH. Onion thrips populations were moderate on onions in Maricopa County, ARIZONA, during April and early May. In Maricopa and Yuma Counties WESTERN FLOWER THRIPS (Frankliniella occidentalis) damaged lettuce in early January, February, and again in November. Unspecified THRIPS were of minor importance on onions in Dona Ana County, NEW MEXICO, during February and March, although controls were required in a few fields. Onion thrips populations were light in COLORADO. Some scarring occurred in untreated onion fields in the Arkansas Valley, but losses were light on a statewide basis.

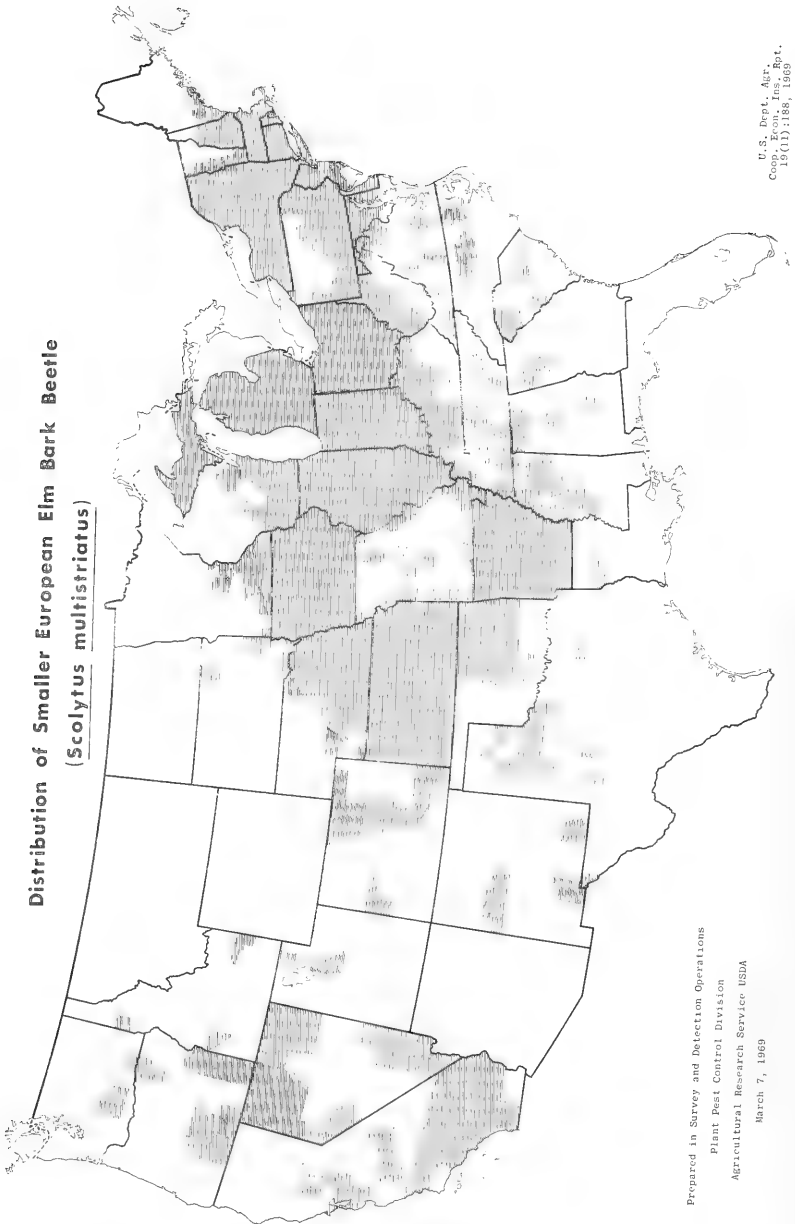
HARLEQUIN BUG (Murgantia histrionica) was more of a problem on vegetables in 1968 than in other years in CALIFORNIA. This stink bug was one of the major pests of lettuce in COLORADO. LYGUS BUGS (Lygus spp.) were heavy on lettuce in the Casa Grande area of Pinal County, ARIZONA, in early April, and adults damaged the midribs of some lettuce at Yuma, Yuma County, in late November. LEAF-FOOTED BUG (Leptoglossus phyllopus) damaged vegetables in many sections of TEXAS. GARDEN FLEA-HOPPER (Halticus bracteatus) adults and nymphs were very common on several vegetables in DELAWARE during late August and September.

A FIELD CRICKET (Gryllus sp.) damaged vegetable plantings in Imperial County, CALIFORNIA. EUROPEAN EARWIG (Forficula auricularia) was heavier in gardens than in 1967 in VERMONT.

BROWN WHEAT MITE (Petrobia latens) required controls on onions in Lyon County, NEVADA, in late May. In CALIFORNIA a SPIDER MITE (Aplonobia myops) damaged asparagus in Orange County, and BULB MITE (Rhizoglyphus echinopus) was severe in a large onion planting in Kern County.

SLUGS were a problem for the second year in gardens in NEW HAMPSHIRE. Slugs, probably SPOTTED GARDEN SLUG (Limax maximus) and GRAY GARDEN SLUG (Deroceras reticulatum), caused much damage to garden crops in VERMONT. Deroceras spp. damaged garden crops in many instances in OHIO. Damage to vegetables continued into September. Unspecified slugs were among the most common pests of gardens in IOWA. Gray garden slug built up heavily during spring in the Willamette Valley of OREGON and again in late summer and early fall because of abnormally high rainfall. Infestations were reported in general vegetable plantings.

**Distribution of Smaller European Elm Bark Beetle  
(*Scolytus multistriatus*)**



Prepared in Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service USDA  
March 7, 1969

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REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
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United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG damaged wheat in parts of Rolling Plains area of Texas. Some irrigated wheat required treatment in Curry County, New Mexico. (p. 191).

SOUTHERN PINE BEETLE infestations present on National Forest land in Alabama, North and South Carolina, Tennessee, and Texas. Infestation in Texas worst since 1962. (p. 193).

Detection

New State records include a MEALYBUG (p. 192) and a LEAFCUTTING BEE (p. 193) in Washington, four ANTS in Arkansas (p. 195), and APPLE RUST MITE in Vermont (p. 201).

For new county and island records see page 195.

Some First Occurrences of Season

CLOVER LEAF WEEVIL larvae in California and EASTERN TENT CATERPILLER larvae in Arkansas.

Forecasts

PALE WESTERN CUTWORM expected to be moderate to heavy in eastern area of Colorado. (p. 191).

An ARMORED SCALE may cause problems on citrus in Florida. (p. 203).

Special Reports

Summary of Insect Conditions in the United States - 1968  
Deciduous Fruits and Nuts (pp. 195-203).  
Citrus (pp. 203-205).  
Other Tropical and Subtropical Fruit (p. 205).  
Small Fruits (pp. 205-206).

Insects Not Known to Occur in the United States  
Eyeless Tampans (Ornithodoros moubata (Murry) complex) (pp. 207-208).

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WEATHER BUREAU'S 30-DAY OUTLOOK  
MID-MARCH TO MID-APRIL 1969

The Weather Bureau's 30-day outlook for mid-March to mid-April is for temperatures to average below normal over the Mississippi Valley and the central and southern Plains, as well as the east Gulf States. Above normal temperatures are expected over the Great Basin, the West Coast States, and the mid-Atlantic States, while near normal temperatures are expected elsewhere. Precipitation is expected to exceed normal over most of the South, the Ohio Valley, and the middle Mississippi Valley. Subnormal totals are indicated over California, the Great Basin, the northern Plains, and the upper 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 Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price \$5.00 a year.

WEATHER OF THE WEEK ENDING MARCH 10

HIGHLIGHTS: Cold, sunny weather continued over most of the Nation. The most important precipitation included snow in the southern Rockies and central Great Plains and generous weekend rains along the gulf.

PRECIPITATION: Moist air moved into the Southwest and over the cold Rockies and Great Plains. Nine inches of snow fell at Flagstaff, Arizona, Monday forenoon, and by Tuesday morning 17 inches of new snow had fallen, increasing the snow cover to 29 inches. As moist air moved into the Great Plains, it dumped more heavy snow - only an inch or so in New Mexico and Colorado but 9-12 inches in parts of the Texas Panhandle, 7-13 inches in the Oklahoma Panhandle, and up to 10 inches locally in southwestern Kansas. Flurries occurred on several days in the latter part of the week from the northern Great Plains to the Northeast. Amounts were generally light. Generous weekend rains fell along the Gulf of Mexico from eastern Texas to Georgia and Florida with some areas receiving 1-3 inches of moisture. Rains fell along the coast in the Far Northwest late in the week while heavy snow fell in nearby foothills and mountains. Snow cover in the northern Great Plains and in the Northeast diminished somewhat, and a few bare fields were noted, but the threat of flooding continued. Weather of the week continued on page 195.

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Up to 3 per linear foot in northeastern Kiowa County. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Light to moderate in Dona Ana County barley. (Campbell).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Ranged 40-90 per linear foot in 4 wheatfields, up to 200 per linear foot in 1 field in Tillman County, and 75-85 per linear foot in Altus area of Jackson County. Ranged 0-60 per linear foot in Kiowa and Caddo Counties. Continues very light in Garfield and Wagoner Counties. (Okla. Coop. Sur.). TEXAS - Remained unchanged in panhandle area. In Rolling Plains, continued to damage wheat in parts of Motley, Knox, Stonewall, Wilbarger, and Cottle Counties. Although damage generally decreasing in area, light damage observed in Young, Archer, and Baylor Counties. (Boring). NEW MEXICO - Counts per linear foot averaged 10-30 in barley (ranged 250-300 in one field) and 75-100 in wheat in Chaves County; some irrigated wheat treated in Curry County. (Campbell). CALIFORNIA - Medium on barley in Bakersfield, Kern County. (Cal. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Ranged 5-50 per square foot in 4 alfalfa fields in Roswell and Dexter areas of Chaves County. (Mathews).

### CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ALABAMA - About 4 percent of larvae survived in 5 old cornfields in Franklin County; 40-50 percent of stalks girdled and down in 3 fields, 5-15 percent girdled in 2 fields. (Ponder et al.).

### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - CALIFORNIA - This aphid and Rhopalosiphum padi medium on barley in Bakersfield, Kern County. Small grains severely damaged by excessive rain and standing water in many locations statewide. (Cal. Coop. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 90-100 per linear foot on wheat in Altus area of Jackson County. (Okla. Coop. Sur.). TEXAS - Continued to decrease in Archer County. (Boring).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Expected to be moderate to heavy in eastern area. (Pruess).

### FORAGE LEGUMES

CLOVER LEAF WEEVIL (Hypera punctata) - CALIFORNIA - Larvae light on alfalfa in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

CLOVER HEAD WEEVIL (Hypera meles) - MISSOURI - Collected by R.E. Munson at Crane, Stone County, May 11, 1968. This is a new county record. (Munson).

### GENERAL VEGETABLES

ONION MAGGOT (Hylemya antiqua) - TEXAS - Infesting onion sets at Woodville, Tyler County. (Currie).

## CITRUS

Citrus Insect Situation in Florida - End of February - CITRUS RUST MITE (*Phyllocoptura oleivora*) infested 75 (norm 62) percent of groves; 54 (norm 41) percent economic. Above normal and into high range for the State, but varies considerably among groves and districts. Expected to hold near current level. Highest districts south, west, and north. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 27 (norm 31) percent of groves; 12 (norm 12) percent economic. Near normal low level for this date. Decrease expected, some groves will show increase and few heavy infestations likely to occur. Highest districts north, south, and central. CITRUS RED MITE (*Panonychus citri*) infested 30 (norm 38) percent of groves; 7 (norm 15) percent economic. Below normal and in low range. Gradual increase expected with some groves developing heavy infestations. Highest districts west, east, and south. SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) light in 6 percent of groves. Near normal for this date. GLOVER SCALE (*Lepidosaphes gloverii*) infested 75 (norm 79) percent of groves; 4 (norm 18) percent economic. PURPLE SCALE (*L. beckii*) infested 58 (norm 78) percent of groves; 2 (norm 9) percent economic. YELLOW SCALE (*Aonidiella citrina*) infested 75 (norm 65) percent of groves; 4 (norm 13) percent economic. BLACK SCALE (*Saissetia oleae*) infested 20 (norm 33) percent of groves; 4 (norm 14) percent economic. CHAFF SCALE (*Parlatoria oleae*) infested 33 (norm 61) percent of groves; less than 1 (norm 10) percent economic. An ARMORED SCALE (*Unaspis citri*) present in 16 percent of groves; moderate to heavy in 6 percent. WHITEFLIES and MEALYBUGS below normal and of little importance; increase of whiteflies expected. APHIDS appearing in scattered groves; strong increase expected end of March. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - CALIFORNIA - Medium on lemon trees and fruit in large grove at Santa Paula, Ventura County. (Cal. Coop. Rpt.).

## ORNAMENTALS

A MEALYBUG (*Rhizoecus cacticans*) - WASHINGTON - Collected on roots of African-violet in Whatcom County, September 4, 1965. Determined by D.J. Williams. This is first published record of this mealybug in State. (Jackson, Nonini, Mar. 7).

ARMORED SCALES - FLORIDA - Adults of *Ischnaspis longirostris* (black thread scale) on leaves of ceriman, February 19, and *Gymnaspidium aechmeae* on leaves of bromeliad, February 18, at St. Cloud, Osceola County. Collected by A.C. Crews. These are new county records. Adults of *Aspidiotus spinosus* moderate on greenbrier (*Smilax* sp.) plant at Hobe Sound, Martin County. Collected by E.W. Campbell, August 12, 1968. This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

## FOREST AND SHADE TREES

ENGRAVER BEETLES (*Ips* spp.) - FLORIDA - Statewide survey conducted by State forest service indicated bark beetles, primarily these pests, caused loss of 293,853 cords of wood during 1968. (South. For. Pest Rptr., Feb.).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - TENNESSEE - Scattered small spot infestations present in Happy Valley section of Blount County and west of Watts Bar Lake from Rhea County to Anderson County. (Applegate). ARKANSAS - Ground checking of sites, reported in CEIR 19(10):149, revealed another area infested (possibly by this species) east of Hamburg in Ashley County. (Warren).

Southern pine beetle infestations present on National Forest land in ALABAMA, NORTH and SOUTH CAROLINA, TENNESSEE, and TEXAS; on private land in GEORGIA, LOUISIANA, North and South Carolina, and Texas; and on National Park land in Tennessee. Control by removal of infested material through commercial sales being emphasized. Infestation in Texas worst since 1962. About 43,000 trees salvaged on National Forest land in State since July 1968; yielding 1,520,000 board feet of sawtimber and 2,620 cords of pulpwood. On private land in Texas 236,035 infested trees treated during 1968. (South. For. Pest Rptr., Feb.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Medium on pine nursery stock in speciality nursery at La Mesa, San Diego County, and light on pines locally in Reedley, Fresno County. (Cal. Coop. Rpt.). NEVADA - Heavy on spruce trees in Elko, Elko County. (Hackett).

A CONIFER SAWFLY (Neodiprion taedae linearis) - ARKANSAS - No egg hatch March 10-12 in southern area. (Warren).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - New larvae observed in Ashley and Drew Counties March 10 and in Hempstead County March 12. (Warren).

ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) - MISSOURI - Adults in blacklight trap at Vulcan, Iron County, July 29, 1968. Collected by H.E. Brown. This is a new county record. (Munson).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - COLORADO - Prevalent in Fort Morgan area of Morgan County, where Dutch elm disease occurs. (Hantsbarger).

CALICO SCALE (Lecanium cerasorum) - CALIFORNIA - Adults medium on maple trees locally in Calistoga, Napa County. Not a common scale but periodically appears in widely separated areas. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. March 9-15 in Jim Hogg County, TEXAS. Total of 177 cases reported in portion of Barrier Zone in Republic of Mexico March 2-8 as follows: Territorio sur de Baja California 22, Sonora 46, Chihuahua 9, Coahuila 2, Nuevo Leon 9, Tamaulipas 89. Total of 7 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 55,168,000; Mexico 69,280,000. (Anim. Health Div.).

CATTLE LICE - ALABAMA - Light to medium on scattered beef herds. Currently light in Jefferson, Mobile, and Franklin Counties. (Smith et al.). OKLAHOMA - Mostly Haematopinus eurysternus (short-nosed cattle louse) heavy on cattle in Mayes County. (Okla. Coop. Sur.).

#### BENEFICIAL INSECTS

A LADY BEETLE (Psyllobora vigintimaculata) - ALABAMA - Adults observed during winter on magnolia trees in Lee County, feeding on mites and plant fluids. Mulsantina picta, dark and light forms, feeding on pine aphids in Lee County. (McQueen).

A LEAF-CUTTING BEE (Megachile concinna) - WASHINGTON - Found in trap nest of Megachile rotundata in Yakima Valley in 1968. First record of this alfalfa seed pollinator in Pacific Northwest. Determined by C.E. Bohart. (Eves, Mar. 7).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TENNESSEE - Survey negative in Bledsoe, Giles, Lincoln, Rhea, and Warren Counties. (Harris et al.).

### HAWAII INSECT REPORT

General Vegetables - Adults and grubs of VEGETABLE WEEVIL (Listroderes costirostris obliquus) severely damaged 0.25 acre of turnip seedlings in Waimea (Kamuela), Hawaii. (Nakano). All stages of DIAMONDBACK MOTH (Plutella xylostella) light on mustard cabbage at Koko Head, Oahu; medium to heavy in some fields at Waimanalo; negligible at Waianae. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy to severe on snap beans and eggplants at Waianae, generally light to medium at Waimanalo, Oahu. Medium to heavy in scattered plantings of snap beans and eggplants on Kauai. (Yamamoto, Funasaki).

Fruits - Larvae of a NOCTUID MOTH (Phlegetonia delatrix) medium, damage heavy on terminals of Java-plum in Hilo, Hawaii. Larvae light, moderate damage on Java-plum foliage along roadside at Pukoo, Molokai. This is a new island record. To date, this species has been found feeding on foliage of Java-plum, mountain-apple, and ohia-lehua and now occurs on Kauai, Oahu, Maui, Hawaii, and Molokai. (Kobayashi, Miyahira).

Ornamentals - PAINTED LADY (Vanessa cardui) larvae heavy and severely defoliated common foxglove (Digitalis purpurea) in Hilo, Hawaii; new host record for the State. (Himori).

Forest and Shade Trees - A BARK BEETLE (Xylosandrus compactus) lightly damaged twigs of Albizia lebeck at Anahola, Kauai. (Sugawa). BARNACLE SCALE (Ceroplastes cirripediformis) heavy on fiddlewood trees along Lunalilo Home Road at Koko Head, Oahu. Light and confined to young branches in early January. (Nakao). KIAWE FLOWER LOOPER (Cosymbia serrulata) adult collections in light traps increasing in scattered areas on Oahu. Further increase expected as more kiawe trees begin to flower. (Au).

Man and Animals - MOSQUITOES - Collected 520 Aedes vexans nocturnus and 3,431 Culex pipiens quinquefasciatus in 51 light traps on Oahu during February. Aedes low in all areas. Culex catches highest at MacKay Radio in Kailua (416). (Mosq. Cont. Br., Dept. of Health).

Household - Large numbers of a CERATOPOGONID MIDGE (Forcipomyia indecora) entered homes and caused nuisance during past two weeks in Honolulu (Nuuanu, Alewa Heights, Aina Koa), Kaneohe, and probably elsewhere on Oahu. This insect becomes abundant during wet months and breeds in damp areas such as leaf axils of plants, rotting wood, and stems and roots of dead plants. Other species of midges caused nuisance but this was the most abundant and widespread. (Kim, Chong).

Beneficial Insects - LANTANA HISPID (Uroplata girardi) adults and larval mines remain moderate on foliage of lantana at Ulupalakua, Maui. Light on lantana near Kaunakakai on Molokai and along Mahana Road on Lanai. (Miyahira).

Miscellaneous Insects - A female of VAGRANT GRASSHOPPER (Schistocerca vaga) captured in wild vegetation at Kaunakakai, Molokai, on March 7. Sightings of other adults in vicinity reported. This species previously found only on Oahu and Kauai. (Fujimoto, Miyahira).

### CORRECTIONS

CEIR 19(11):182 - Paragraph 5, line 3: ONION THRIPS (Thrips fabaci) should read (Thrips tabaci).



## INSECT DETECTION

### New State Records

ANTS - ARKANSAS - Aphaenogaster tennesseensis collected in Crawford County May 16, 1968, by L.O. Warren. A. texana texana collected in Crittenden County March 3, 1955. A. treatae pluteicornis collected in Washington County April 30, 1968, by L.O. Warren and G. Wallis. Smithistruma rostrata collected in Washington County in October 1967 by R.M. Kirkton. All determined by E.P. Rouse. These are new State records. New county records are: A. tennesseensis, Madison and Washington; A. texana texana, Washington, Madison, Crawford, Craighead, Baxter, and Arkansas; A. treatae pluteicornis, Crawford, Madison, Craighead, Baxter, Nevada, and Polk. (Boyer).

APPLE RUST MITE (Aculus schlechtendali) - VERMONT - Collected on apple at Shoreham, Addison County. (p. 201).

A MEALYBUG (Rhizoecus cacticans) - WASHINGTON - Found in Whatcom County September 4, 1965. Determined by D.J. Williams. This is first published record of this mealybug in State. (p. 192).

A LEAFCUTTING BEE (Megachile concinna) - WASHINGTON - Found in trap nest of Megachile rotundata in 1968 in Yakima Valley. Determined by C.E. Bohart. (p. 193).

### New County and Island Records

CLOVER HEAD WEEVIL (Hypera meles) - MISSOURI - Stone County. (p. 191).

ARMORED SCALES (Ischnaspis longirostris) and (Gymnaspis aechmeae) - FLORIDA - Osceola County. (p. 192).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - MISSOURI - Iron County. (p. 193).

A NOCTUID MOTH (Phlegetonia delatrix) - HAWAII - Molokai Island. (p. 194).

VAGRANT GRASSHOPPER (Schistocerca vaga) - HAWAII - Molokai Island. (p. 194).

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 3/7-13, BL - Beet armyworm (Spodoptera exigua) 1, black cutworm (Agrotis ipsilon) 2, granulate cutworm (Feltia subterranea) 6. SOUTH CAROLINA - Charleston - 3/2-3/9, BL - Armyworm (Pseudaletia unipuncta) 1, black cutworm 3, variegated cutworm (Peridroma saucia) 2.

Weather of the week continued from page 190.

TEMPERATURE: A large dome of polar air covered much of the Nation early in the week. Subzero temperatures occurred in a dozen States - in the northern and central Rockies and eastward across the northern Great Plains to Upper Michigan. Freezing temperatures reached the Gulf of Mexico. This was the 12th consecutive cold week in Montana and the 5th consecutive cold week across the Deep South from Louisiana to Georgia. Afternoon temperatures generally remained in the 20's across the Central States and in the 40's, 50's and 60's across the South and in the Far West. Rapid warming occurred over the weekend, and temperatures reached the 50's and 60's from the central Great Plains to the middle Atlantic coast on Sunday. Almost the entire Nation averaged colder than normal. Parts of the Great Basin and the Great Plains averaged 12°-20° colder than normal. Maine averaged 3°-9° warmer than normal. (Summary supplied by Environmental Data Service, ESSA.)

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968  
(Continued from page 187)

DECIDUOUS FRUITS AND NUTS

Highlights:

CODLING MOTH infestations in Washington were the heaviest in 10 years. This pest was damaging to untreated fruit. ORIENTAL FRUIT MOTH was severe on peaches in Missouri. RED-BANDED LEAF ROLLER was heavier than usual in the fall in Virginia. LESSER PEACH TREE BORER and PEACH TREE BORER caused the most damage in 10 years in Florida and were the most destructive pests of stone fruit trees in Alabama. PEAR PSYLLA was heavier than usual in unsprayed orchards in Oregon and was generally less abundant than in 1967 in Washington. PLUM CURCULIO was serious on peach, plum, and apple in Alabama. APPLE MAGGOT was locally damaging to commercial apples in Indiana. EUROPEAN APPLE SAWFLY caused significant damage in a commercial orchard in New Hampshire for the first time. SPIDER MITE buildups were heavy in some areas. WALNUT CATERPILLAR damaged walnut and pecan in Kansas and walnuts in Iowa and Ohio. PECAN NUT CASEBEARER caused some loss to pecans in Alabama. HICKORY SHUCKWORM damage was heavy on pecans in Florida and Alabama. APHIDS damaged nut crops in some areas and required controls. PECAN WEEVIL was damaging in Alabama and was heavy in areas of Texas.

CODLING MOTH (*Carpocapsa pomonella*) larvae infested apples throughout MONTANA. The infestation in WASHINGTON was the heaviest recorded for the last 10 years. The reduced spraying, resulting from a smaller apple crop, may have accounted for some of this increased infestation. In north-central OREGON female-baited traps placed in 23 commercial orchards in Hood River and Wasco Counties caught 669 males in 947 trap-nights. Individual night catches ranged up to 71. In Umatilla County third-generation adults peaked in late August with up to 51 males per night in traps. Numbers varied considerably over CALIFORNIA. Codling moth populations in UTAH were slightly higher than normal during 1968 than during 1967. Many unsprayed apples were 100 percent infested. Possibly because of well-timed sprays, the percentage of infested apples in NEW MEXICO was much lower than in previous years in the Hondo Valley. Losses were very high in apple orchards in San Juan and De Baca Counties. At least 70 percent of the apples checked in De Baca County were infested. Larvae damaged fruits in TEXAS.

Codling moth damage in MISSOURI was very light in sprayed apple orchards; late June infestations were severe on unsprayed fruit in the southeastern and central areas. Moth catches in WISCONSIN were regular but low, except for a mild peak the first week of August. Larvae damaged only 0.13 percent of the apples in 33 well-kept ILLINOIS orchards. Larvae in INDIANA were 0.5 inch long at Vincennes, Knox County, by mid-May. Prepupae began leaving fruit about June 18, as the last overwintered moths were emerging. The second flight began the first week of July. New entries were found a week later. In the last week of August the third flight peaked and then ceased October 7. Damaged apples ranged 85-95 percent in unsprayed trees and was below 0.05 percent in well-kept commercial orchards. By late June codling moth larvae in OHIO had damaged apples and had begun leaving fruit to begin pupation. In mid-July the first-generation adults began emerging. Larvae were light even in unsprayed orchards in RHODE ISLAND. In VIRGINIA codling moth was well controlled until preharvest when control was discontinued. Infestations in commercial orchards were very low in MARYLAND.

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) caused local damage in several CALIFORNIA counties. Feeding mainly on peach terminals but not on fruit, larvae caused no loss in 1968 in COLORADO. Larvae caused occasional damage in OKLAHOMA and damaged fruits in TEXAS. Oriental fruit moth was severe on peaches in the delta area of MISSOURI by mid-May. By late May populations were moderate in several orchards in the south-central and central areas. Numbers were very light for the rest of the season. Flights in INDIANA peaked May 2, June 14, July 22,

and September 8 at Vincennes, Knox County. Extending from August 7 to October 1, the last flight may have been composed of the third and fourth generations. A few late entries at harvest were reported by one commercial grower. Twig injury and infested peaches increased in CONNECTICUT in 1968.

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was normally light early in the season in VIRGINIA. However, early instars were heavier than usual on apples in September and October and on peaches where infestation levels reached 18 percent. Overwintered adults peaked April 9-15 in the Vincennes area of Knox County, INDIANA. Summer broods peaked in mid-June, early August, and late September. Last males were caught the week of October 22-28. Damage was 24 percent in an unsprayed orchard and less than 1 percent on commercial apples. Red-banded leaf roller was very light and occurred in very few orchards in MISSOURI. ORANGE TORTRIX (Argyrotaenia citrana) larvae in OREGON damaged much apple fruit near Salem, Marion County, for an unusual occurrence.

FRUIT-TREE LEAF ROLLER (Archips argyrosipilus) larvae were heavy on chokecherry and apple trees in Weston County, WYOMING, in mid-June. A few reports were received from other areas. Infestations occurred in a few local CALIFORNIA areas. Fruit-tree leaf roller populations were high, especially on poorly or late sprayed trees in CONNECTICUT.

LESSER PEACH TREE BORER (Synanthedon pictipes) larvae were more destructive than PEACH TREE BORER (Sanninoidea exitiosa) in FLORIDA. Many growers had the greatest damage in 10 years. Poorly timed sprays were partly responsible. Lesser peach tree borer and peach tree borer were the most destructive pests of peach, plum, and cherry throughout ALABAMA. In Lower MICHIGAN lesser peach tree borer outbreaks occurred in Grand Traverse County on tart cherries because of tree injury by mechanical harvesters. Broods of lesser peach tree borer in INDIANA peaked in early June and late August at Vincennes, Knox County. One or more larvae infested an average of 80 percent of 7-year-old peach trees in several commercial orchards. Losses were moderate. Peach tree borer larvae damaged less than 1 percent of 3,600 commercial peach trees examined in the same area of Indiana. Lesser peach tree borer was the main peach insect in ILLINOIS. Peach tree borer caused occasional damage in OKLAHOMA. Peach tree borer larvae infested many stone-fruit trees in UTAH. Light to heavy larval populations of an AEGERIID MOTH (Sanninoidea sp.) infested peach trees in 2 west-central counties of NEW MEXICO. Infestations were especially serious in untreated orchards.

AMERICAN PLUM BORER (Euzophera semifuneralis) damaged deciduous fruit trees in a few CALIFORNIA locations. Larvae damaged fruits in TEXAS. American plum borer larvae averaged 1.6 per infested tree in a 1.7-percent infestation of a 60-acre commercial peach orchard in the Vincennes area of Knox County, INDIANA.

FALL WEBWORM (Hyphantria cunea) damaged fruits in TEXAS. Webs and defoliation became noticeable throughout TENNESSEE during August. Defoliation was heavy on persimmon and cherry, especially in the central and in some western areas. In INDIANA all trees in an unsprayed 5-acre apple orchard at Vincennes, Knox County, had one or more second-brood fall webworm webs in September.

PEACH TWIG BORER (Anarsia lineatella) was generally heavy in CALIFORNIA. In COLORADO peach twig borer was the most destructive peach insect. Because few controls were applied in 1966 and 1967, populations built up to the damaging levels of 1968.

EASTERN TENT CATERPILLAR (Malacosoma americanum) damaged fruits in TEXAS, and larvae caused occasional damage in OKLAHOMA. Hatching and larval feeding in INDIANA occurred the first week of April at Vincennes, Knox County. Nests were conspicuous by mid-April and were being abandoned by full-grown larvae by May 4.

PEAR PSYLLA (Psylla pyricola) caused more damage than normal to pears in northern CALIFORNIA. Populations in OREGON were the heaviest in recent years in untreated orchards in Hood River and Lane Counties. During mid-February and early March

overwintered adults were active in Jackson County and the Willamette Valley. In mid-March hatch began in Hood River County. About mid-May second-generation adults appeared in Jackson County. During late May and early June an average of 500-600 eggs and 5 nymphs per 25 leaves were found in untreated orchards. A mid-July buildup began in Jackson County in orchards treated in February. In late August adults of the last summer generation were heavily infesting and laying eggs in untreated orchards in Hood River County. Populations were average in sprayed orchards. Although generally less abundant in WASHINGTON in March 1968 than in 1967, heavy flights of 2 to 5 per minute in traps occurred at Yakima, Yakima County, February 29. Of 93 specimens examined, 47 percent were males; this is the heaviest flight to date recorded at Yakima. By November, 90 percent of a population sample were overwintering forms. Counts in upper and lower Yakima Valley pear orchards were very high. The highest count in February was 400, but counts on October 23 ranged 300-3,000. Pear psylla buildups on pears in MICHIGAN were heavy because controls were ineffective. Numbers in PENNSYLVANIA were moderately severe on all unsprayed trees. Many unsprayed trees were black from sooty fungus and almost completely defoliated in mid-August. Numbers increased throughout CONNECTICUT; they were very abundant in backyard pear trees. Pear psylla was widespread on pear in RHODE ISLAND after mid-July.

APPLE APHID (Aphis pomi) was at a high level in NEW HAMPSHIRE. Colonies persisted well into August. Heavy populations were found on sucker growth of apples in late July and on flowering crab apple in mid-August in RHODE ISLAND. Apple aphid was lower than normal in VIRGINIA. Existing spray programs were effective. Eggs in OHIO had hatched, and colony size had begun to increase on apple foliage by the end of April. By late June and early July up to 300 aphids per leaf infested some unsprayed apple foliage in the northeastern area. The first colony in INDIANA was found on soft terminal growth in early May at Vincennes, Knox County. Alates were found during the fourth week of May. Numbers in commercial orchards were low. Apple aphid was light on apples early in the season in MISSOURI. A light to moderate infestation was reported in one orchard in mid-June. Dormant and delayed sprays controlled light to moderate populations in COLORADO apple-growing areas. Predators in untreated orchards were effective. Apple aphid numbers in UTAH were up compared with 1967, and this pest was one of the major species infesting fruit crops in CALIFORNIA.

ROSY APPLE APHID (Dysaphis plantaginea) in VIRGINIA was slightly more prevalent than in 1967 but was adequately controlled with the existing spray program. Curled leaves in OHIO were first reported the last week of April. Up to 100 aphids per curled leaf remained on unsprayed apples through June. During the last week of April in INDIANA, rosy apple aphid colonies were found at Vincennes, Knox County, and were conspicuous May 7-13 with alates dispersing. Fruit damage ranged 6-8 percent in one unsprayed orchard checked at harvest; commercial damage was low. Light apple aphid infestations occurred in many MISSOURI apple orchards. Dormant and delayed sprays controlled light to moderate populations in COLORADO apple-growing areas. Predators were effective in untreated orchards. Rosy apple aphid populations decreased in UTAH when compared with 1967, but this pest was one of the major species infesting fruit crops in CALIFORNIA.

APPLE GRAIN APHID (Rhopalosiphum fitchii) began to hatch in southern OHIO the first week of April, but the relatively low population caused no damage. Eggs hatched March 18 at Vincennes, INDIANA. By April 8, females deposited live nymphs. During the first half of May alates left the trees. Dormant and delayed sprays controlled the light to moderate apple grain aphid populations in apple-growing areas of COLORADO. Predators were effective in untreated orchards.

WOOLLY APPLE APHID (Eriosoma lanigerum) lightly infested pears in RHODE ISLAND during the last week of July. In ALABAMA it was again the major pest of apples, infesting root systems above and below ground level. Populations in UTAH were normal in 1968 compared with 1967. Woolly apple aphid was one of the the major species infesting fruit crops in CALIFORNIA.

GREEN PEACH APHID (*Myzus persicae*) and BLACK CHERRY APHID (*M. cerasi*) were 2 of the major species infesting fruit in CALIFORNIA. Green peach aphid caused normal to below normal curling of peach foliage during spring in UTAH. Black cherry aphid infested cherry in RHODE ISLAND in late May.

SAN JOSE SCALE (*Aspidiotus perniciosus*) produced color rings on developing apples in INDIANA at Vincennes, Knox County. The rings were first noted June 11-17. Only poorly maintained orchards had fruit and tree injury from large populations. In central and northern ALABAMA San Jose scale continued to be the most important scale insect affecting peach, apple, plum, and pear. It damaged fruits in TEXAS. This scale damaged trees at many homes and in some commercial orchards in UTAH. In CALIFORNIA general infestations of San Jose scale were heavy, and FORBES SCALE (*A. forbesi*) was heavy on 50 acres of quince in Sacramento County.

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) damage in FLORIDA was much less in 1968 than in 1967 partly because of winter oil sprays and precision timing of summer sprays. Even in untreated orchards, numbers were lighter than usual. Extremely dry weather could have affected buildup. Infested nursery stock and resultant quarantines have discouraged several nursery owners from stocking peach trees. In southern and central ALABAMA white peach scale has become the more important scale on peach and plum and on several nonfruit hosts. OYSTER-SHELL SCALE (*Lepidosaphes ulmi*) crawlers in OREGON were feeding and damaging cherry fruits at Cove, Union County, in early August. In MONTANA it infested fruit trees in many scattered locations and damaged a few other trees and shrubs.

PRUNE LEAFHOPPER (*Edwardsiana prunicola*) and APPLE LEAFHOPPER (*Empoasca maligna*) discolored some foliage in UTAH. Apple leafhopper damaged some developing terminals on young trees in commercial orchards in the Vincennes area of Knox County, INDIANA. Heavy leafhopper populations, mostly *Erythroneura obliqua* and *E. lawsoniana*, caused considerable leaf stippling and terminal distortion in apple orchards in Indiana. WHITE APPLE LEAFHOPPER (*Typhlocyba pomaria*) outbreaks in MICHIGAN were severe in late August and September on plums and apples in Berrien and Van Buren Counties. *Empoasca* sp. was abundant in CONNECTICUT and damaging where sprays were inadequate.

PLUM CURCULIO (*Conotrachelus nenuphar*) damage in FLORIDA was at a minimum partly because of well-timed sprays. Statewide in ALABAMA, plum curculio was the most serious pest of peach, plum, and apple fruit. It damaged fruits in TEXAS. Populations in MISSOURI were light on treated apples but severe by early July on unsprayed trees. Early in the season plum curculio was light on peaches but by early July was medium in the southern and southeastern areas of Missouri. Egg scars on small apple fruit in INDIANA were first noted in late May and early June at Vincennes, Knox County. The majority of early variety apples in one orchard had egg scars at fruit maturity. One thousand unsprayed Lodi apples yielded 1,200 prepupae, and most unsprayed peaches were infested at harvest in another orchard. Spring emergence of plum curculio was heavier than usual in CONNECTICUT. Some increase in damage activity lasted later than usual. Scattered plum curculio adults occurred by June 25 in RHODE ISLAND. In NEW HAMPSHIRE the first plum curculio adult was taken on May 15. Unfavorable weather prevailed during the oviposition period. Damage was at a low level in commercial orchards.

PACIFIC FLATHEADED BORER (*Chrysobothris mali*) was severe again in CALIFORNIA in 1968. In WASHINGTON this pest was found feeding in the large brace roots of 3 to 4-year-old cherry trees at White Salmon, Klickitat County, September 13; it damaged or killed about 50 trees. SCARABS (*Pleocomma* spp.) did not emerge as early as expected in OREGON because of unusually high rainfall in August. The first *Pleocomma* adults, which were collected September 18, were females of *P. minor*; very few males were taken in light traps. First captured the third week of October, *P. crinita* appeared to be in peak flight in mid-November. The above records are for the Hood River Valley, Hood River County. At The Dalles, Wasco County, *P. oregonensis* peaked the first part of October.

SHOT-HOLE BORER (*Scolytus rugulosus*) was more prevalent than in other years in CALIFORNIA. Overwintered adults of *S. rugulosus* in WASHINGTON were recovered from duff under trees about March 1. Numbers were more abundant than usual on stone fruits in Chelan County. A specimen of APPLE TWIG BORER (*Amphicerus bicaudatus*) in OREGON was found in a blacklight trap on one of the Portland docks for the first report west of the Rocky Mountains. TWIG GIRDLER (*Oncideres cingulata*) in KANSAS was less numerous in 1968 than usual. Many larvae and pupae of BROAD-NECKED ROOT BORER (*Prionus laticollis*) in RHODE ISLAND were excavated from around the trunks and roots of apple trees in late June.

APPLE MAGGOT (*Rhagoletis pomonella*) was a pest in IOWA. Flies were caught on stickyboards in the Vincennes area of Knox County, INDIANA, from June 10 until October 26. Adults of the first brood peaked July 2, and the partial second generation of adults peaked in mid-September. A sample of 1,000 unprayed Lodi apples from an abandoned orchard produced 1,179 prepupae at harvest. Damage occurred in local commercial orchards. The first apple maggot adults of the season were collected in northeastern OHIO on June 20. In late July larvae began to emerge from summer apples. Larvae in PENNSYLVANIA continued as the major pest of backyard apple trees. Timely sprays held numbers to a low level in commercial orchards. Late season activity in CONNECTICUT was heavy in commercial and backyard trees; more fruit was infested. Females in RHODE ISLAND laid eggs in late July; little damage occurred in commercial orchards.

A CHERRY FRUIT FLY (*Rhagoletis indifferens*) caused much economic loss in OREGON where spray programs were lax. First adult emergence was noted in late May and early June in Jackson, Marion, and Umatilla Counties. Most cherry orchards in the Flathead Lake area and the Bitterroot Valley of MONTANA were treated for *R. indifferens*. BLACK CHERRY FRUIT FLY (*R. fausta*) adults were collected in Door County, WISCONSIN, beginning June 7 and occurred throughout the county. Late in July full-grown larvae were heavy in untreated cherry orchards in Door County. In August adult catches declined.

PEAR-SLUG (*Caliroa cerasi*) was very low in Jackson County, OREGON, although numbers are normally abundant in this area. Much parasitism was noted. Pear-slug larvae in MONTANA infested ornamental plums, cotoneaster, and backyard fruit trees. Pear-slug infested fruit trees at several locations in Ravalli, Lake, Gallatin, Musselshell, Carbon, and Yellowstone Counties, Montana. Pear-slug was a pest in IOWA. EUROPEAN APPLE SAWFLY (*Hoplocampa testudinea*) in NEW HAMPSHIRE caused a significant amount of damage for the first time in a commercial orchard. European apple sawfly injury occurred in 2 orchards in VERMONT. The number of reports are increasing. Damage is as yet insignificant. Numbers on apples were above normal.

EUROPEAN RED MITE (*Panonychus ulmi*) started to build up in NEW HAMPSHIRE in late July after 4-6 weeks of dry weather. This mite was absent from VERMONT orchards. All stages of European red mite infested sprayed and unsprayed orchards throughout the growing season in RHODE ISLAND. Developing late in the season, infestations in central MARYLAND caused moderate damage in commercial orchards. Recommended controls were not effective in several orchards. Populations of European red mite and other mites in VIRGINIA were generally lighter than in 1967. Very few serious problems involved fruit loss. Hatch of overwintering European red mite eggs in most OHIO areas was nearly completed by the second week of May. During July some buildup occurred. By the third week of August bronzed apple foliage, and up to 30 mites per leaf were reported. Unfavorable weather generally kept numbers lighter than normal during the season.

Most overwintering eggs of European red mite in INDIANA had hatched at Vincennes, Knox County, by April 22. Hot, humid weather in the southern districts favored heavy buildups on apples. Miticides were applied in mid-June when counts reached 25 motile forms per leaf. Late July counts averaged 43 immatures and 31 adults per leaf in Knox County. September counts declined naturally while overwintering eggs were laid. This was the major apple pest in southern Indiana. In MICHIGAN hot, humid weather caused outbreaks on apples, prunes, peaches, and cherries.

European red mite was a pest in many IOWA orchards. Populations on apples and peaches in MISSOURI were light from early April until late June, then moderate to severe in some orchards, and finally declining by late July. Numbers on apples in COLORADO were not so abundant as in 1967 and 1966. This pest was controlled by miticides. European red mite counts in UTAH were above normal. The greatest amount of damage occurred in Utah County. This mite was prevalent throughout the growing season in CALIFORNIA.

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) occurred infrequently and in very low numbers throughout the growing season in RHODE ISLAND. Miticides easily controlled heavy numbers in FLORIDA. Unnecessary and poorly timed applications seemed to aggravate the situation in many cases. Sprays on apples in COLORADO had to be applied 2-3 times to control two-spotted spider mite populations of 30-50 per leaf. Indirect loss of apples was estimated at 1-3 percent. Miticides added to cover sprays on pears gave good control. Normal cover sprays on peaches controlled the light to moderate numbers.

A SPIDER MITE (Tetranychus mcdanieli) caused much damage in one central and 5 northwestern counties of NEW MEXICO. A complex of T. mcdanieli and two-spotted spider mite in UTAH was common and damaging. Populations developed, damaged, and remained on the trees later than normal. Dominant in many orchards during 1967, two-spotted spider mite was seldom dominant this season. T. mcdanieli infestations ranged up to 200 per leaf in parts of some integrated orchard blocks of Canyon County, IDAHO, by early August. Typhlodromus spp. (phytoseiid mites) ranged 0-5 per leaf.

Nymphs of a SPIDER MITE (Tetranychus sp.) were first found in INDIANA in an apple leaf sample at Vincennes, Knox County, on May 1. Numbers in most orchards were low probably because of the good quality of the ground cover. One commercial orchard on sandy soil was heavily infested in midseason. Tetranychus sp. in MISSOURI ranged light to moderate on apples until mid-July; a few reports of high numbers occurred in late July and early August. In OREGON overwintering forms of Tetranychus spp. were active by mid-March in Hood River and Wasco Counties. Mid-August counts on most tree fruits were heavy. Predaceous mites and much moist, cool weather kept the spider mite problem lower than usual. A FRUIT-TREE MITE (Bryobia rubrioculus) was low for the fourth successive year in UTAH. Bryobia rubrioculus ranged light to moderate on peaches in COLORADO. Normal cover sprays gave good control.

APPLE RUST MITE (Aculus schlechtendali) was collected from apple at Shoreham, VERMONT, for a new State record. A. schlechtendali was heavy in unsprayed apple trees in an orchard at Vincennes, Knox County, INDIANA, in June. PEACH SILVER MITE (A. cornutus) ranged light to moderate on peaches in COLORADO. Normal cover sprays gave good control. PEAR RUST MITE (Epitrimerus pyri) on pears in Colorado was not so abundant as in the past 2 years; early sprays gave good control. PEAR LEAF BLISTER MITE (Eriophyes pyri) infested many pear and apple trees in western MONTANA.

Several pests were of some concern on nut crops in 1968. WALNUT CATERPILLAR (Datana integerrima) damaged nuts in TEXAS, and was damaging in scattered areas of OKLAHOMA from early July to mid-October. Larvae defoliated many walnut and pecan trees throughout eastern KANSAS. Walnut caterpillar populations ranged light to moderate on walnut in eastern, southeastern, and northeastern NEBRASKA in August and September. Colonies averaged one or more per tree in most areas. Larvae defoliated many black walnut trees in IOWA. Hatch in OHIO was first reported in June. During July larval populations became established primarily on walnut, but also on hickory. By mid-August defoliated walnut trees were common. Walnut trees were severely defoliated through much of the State except possibly in the southeastern area. Widespread damage to walnut and hickory continued through most of August. In early September most larvae had completed feeding. PECAN NUT CASEBEARER (Acrobasis caryae) moths from the overwintering generation in FLORIDA appeared about May 1. Damage was severe in untreated pecan orchards near Monticello, Jefferson County. Many growers lost at least half of their crop.

A light second generation caused practically no economic damage. Heavy first and second generations of pecan nut casebearer caused some pecan losses in central and southern ALABAMA. Infestations in TEXAS were reported from the south-central and Rolling Plains areas. Pecan nut casebearer eggs were first found in south-western and south-central OKLAHOMA in early June. Heavy numbers infested scattered areas by late June. Second-generation egg laying began in early August. Larvae of pecan nut casebearer damaged nuts on untreated trees in the Carlsbad area of Eddy County, NEW MEXICO. Larvae were found in nuts in the Artesia area of this county for the first time during the summer of 1968. NAVEL ORANGEWORM (Paratylocis transitella) infestations in almonds and walnuts were normal in CALIFORNIA.

HICKORY SHUCKWORM (Laspeyresia caryana) moth emergence peaked in FLORIDA April 4 to 11, 1-2 weeks before the first pecan nuts appeared near Monticello, Jefferson County. Most second-generation larvae occurred on hickory. In the second week of July moths were first seen in numbers about pecans. Third-generation larvae apparently caused a heavy July drop of pecan nuts. A very heavy fifth generation in late September and early October was followed by a very light sixth generation in late November. Overall damage was heavy. Hickory shuckworm was again the major pest of pecans in ALABAMA. Serious losses resulted from the lower yield and poorer quality. This pest was damaging in OKLAHOMA during October and November, and larvae damaged nuts in TEXAS.

In OREGON, FILBERTWORM (Melissopus latiferreanus) adults emerged July 9 in a test orchard near Eugene, Lane County, and reached a peak during the first few days of August. FALL WEBWORM (Hyphantria cunea) was heavy on walnuts in Butte County, CALIFORNIA. Larvae ranged medium to heavy in most areas of OKLAHOMA from mid-June to early September.

APHIDS (Monellia spp.) were lighter than usual in FLORIDA, but Myzocallis spp. were heavy in many cases. Near Monticello, Jefferson County, sooty mold as a result of Monellia spp. infestations caused early defoliation of neglected pecans. Myzocallis spp., however, appeared too late to cause serious damage. BLACK PECAN APHID (Myzocallis caryaefoliae), BLACK-MARGINED APHID (Monellia costalis), and Monelliopsis nigropunctata were serious pests of pecans in southern and central ALABAMA, but aphids were generally less important than in most years. Black-margined aphid caused occasional damage in OKLAHOMA, but this aphid and black pecan aphid required treatment in most pecan orchards in NEW MEXICO. FILBERT APHID (Myzocallis coryli) in northern UTAH was extremely numerous in some plantings during spring and fall. WALNUT APHID (Chromaphis juglandicola) heavily infested English walnut trees at times in Washington, Utah, and Weber Counties, UTAH. Slightly above normal infestations over most of the State made black walnut foliage moderately to extremely sticky. Walnut aphid and black-margined aphid were the major species infesting nut crops in CALIFORNIA. PHYLLOXERAS (Phylloxera spp.) appeared in mid-May in OKLAHOMA and were heavy in many areas by early June.

PECAN WEEVIL (Curculio caryae) caused localized damage as usual in FLORIDA, but was severe in parts of a few pecan groves in the vicinity of Monticello, Jefferson County. Egg oviposition apparently occurred in early July. Larvae left the nuts in October. Counts of 12 larvae per square yard in soil were not uncommon in November. Pecan weevil has become more widespread and damaging in ALABAMA. Infestations occurred farther south than usual in Covington, Clarke, Monroe, and other southern counties. Emergence of pecan weevil began in late August in OKLAHOMA. Damage ranged as high as 90 percent on the very small pecan crop in Mayes County. Light to heavy populations occurred in many of the pecan-growing regions of TEXAS. Infestations were again heavy in Kimble, Menard, and Comanche Counties.

WALNUT HUSK FLY (Rhagoletis completa) was detected for the first time in Clackamas and Yamhill Counties, OREGON, during 1968. The first adults were collected at The Dalles, Wasco County, the last week of June. In past years, emergence began during the last half of July. Adults began to emerge in Jackson



County the week of July 26, and the first catch of the season in Portland was August 1. In The Dalles emergence peaked during the first week of August and again in the first week of September. This can probably be correlated with an unusually cool, wet August which suppressed most insect activity. Populations appeared to be higher in The Dalles and are still increasing in Jackson County. Lighter numbers were reported in Douglas County. Walnut husk fly was widespread and very damaging in CALIFORNIA. Populations ranged moderate to very numerous in UTAH. Larvae infested more English walnuts than black walnuts from Utah County northward.

PACIFIC SPIDER MITE (Tetranychus pacificus) infested almonds, and a FRUIT-TREE MITE (Bryobia rubrioculus) was heavy on this crop in CALIFORNIA. PECAN LEAFROLL MITE (Aceria carya) caused occasional damage in OKLAHOMA. Unspecified MITES were abundant in several pecan groves in FLORIDA, especially late in the year, but damage was not severe.

## CITRUS

### Highlights:

An ARMORED SCALE occurred in 16 percent of the survey groves in Florida. This is the highest number on record and indicates potential problems in the State. Infestations of several other SCALE INSECTS were at low levels in Florida. CALIFORNIA RED SCALE was unusually prevalent and difficult to control in California. MEALYBUGS and WHITEFLIES were generally normal on Florida citrus. Larvae of LEAF ROLLER MOTHS were problems in California and Arizona. CITRUS RED MITE was severe in California citrus areas and was heavy on grapefruit and lemons in Arizona.

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BLACK SCALE (Saissetia oleae) was above normal from January to March in FLORIDA but was important only in 2-5 percent of the groves. Numbers increased rapidly from a very low level at mid-May to a record high for June. In June 93 percent of the groves were infested, and 50 percent had heavy infestations. Black scale continued at a very high level through July, gradually decreased to a low level by late September, and was in the normal low range in the fall. PYRIFORM SCALE (Protopulvinaria pyriformis) and BROWN SOFT SCALE (Coccus hesperidum) were at the lowest levels for November in 18 years in Florida. In ARIZONA brown soft scale heavily infested a 100-acre grove at Goodyear, Maricopa County, in June. In early December a moderate infestation was found at Somerton, Yuma County. CITRICOLA SCALE (C. pseudomagnoliarum) heavily infested trees at Glendale, Goodyear, and Litchfield in Maricopa County, Arizona, from April through June. In CALIFORNIA citricola scale was much lower than in 1967, but black scale was higher apparently because of lower parasite activity.

The following armored scales were reported from FLORIDA. Unaspis citri was recorded from 16 percent of the survey groves, the highest percentage on record. This indicates future problems. Populations generally did not increase to above normal levels until the second half of 1968 when a record high was reached for November. This scale continued to be a problem for citrus nursery owners because of difficulty with controls and the need to quarantine infested stock. FLORIDA RED SCALE (Chrysomphalus aonidium) was at the lowest November levels in 18 years. PURPLE SCALE (Lepidosaphes beckii) was the lowest for June in 17 years and the lowest for November and December in 18 years of record. GLOVER SCALE (L. gloverii), CHAFF SCALE (Parlatoria pergandii), and YELLOW SCALE (Aonidiella citrina) were below normal during 1968 in Florida.

CALIFORNIA RED SCALE (Aonidiella aurantii) was unusually prevalent and difficult to control in CALIFORNIA. Locally heavy damage occurred. Parasite and/or predator activity were reduced or absent.

COTTONY-CUSHION SCALE (Icerya purchasi) was at the lowest November levels in 18 years in FLORIDA. MEALYBUGS and WHITEFLIES generally followed the norms established from previous records. APHIDS in Florida citrus groves were scarce in winter due to weather, and populations were the lowest on record for March. In spring aphids were much below normal due to the late appearance and rapid hardening of the spring flush.

The following Lepidoptera were troublesome. A TORTRICID MOTH (Ptycholoma peritana) infested citrus in Tulare County, CALIFORNIA. Platynota stultana was severe on 10,000 acres in Kern, Tulare, and Fresno Counties in December. In ARIZONA P. stultana required controls in nurseries at Yuma, Yuma County, from mid-July through October, and ORANGE-DOG (Papilio cressphontes) was a problem on many trees during September and October, especially young trees in Maricopa and Yuma Counties. In FLORIDA orange-dog became very prevalent on limes in the Homestead area of Dade County.

CITRUS THRIPS (Scirtothrips citri) was lower but more widespread in CALIFORNIA. Nymphs began appearing in the Salt River Valley of ARIZONA during early March. By late March prebloom treatment had been made in most groves. Postbloom treatments were applied in mid-April. In September populations built up heavily, especially on young trees. Ripe fruit showed little damage in early December. In Yuma County nymphs appeared at Yuma in mid-February, and adults were active from mid-March through September in nurseries. Periodic treatments were required in nurseries.

FORK-TAILED BUSH KATYDID (Scudderia furcata) was damaging in Riverside and San Bernardino Counties, CALIFORNIA. In ARIZONA fork-tailed bush katydid and S. mexicana caused heavy feeding injury on the rinds of ripe navel oranges. Damage was especially heavy in groves on the east side of the Salt River Valley in Maricopa County. In late February viable eggs were heavy on leaf edges and stems at Mesa. Numbers were heavy at Chandler Heights and East Mesa in mid-April. By early May these katydids were feeding heavily on young fruit.

CITRUS RED MITE (Panonychus citri) was severe and is now a problem in practically all citrus areas in CALIFORNIA. In ARIZONA citrus red mite was heavy in grapefruit and lemon blocks at Yuma, Yuma County, from February through April, spotty from May through September, and heavy in October through early December. Treatments were made to prevent fruit scarring. In FLORIDA citrus red mite was the lowest for June in 17 years of record. A peak in July was slightly higher than the moderate level of May. Only 33 percent of the groves harbored economic numbers. Populations remained below normal overall and decreased to the lowest level for September and November in 18 years of record.

TEXAS CITRUS MITE (Eutetranychus banksi) was much above the normal winter abundance in FLORIDA until late March, when it then decreased to normal. About 5 percent of the groves in scattered locations had heavy infestations. From April to June this mite was at moderate levels. Populations held the normal high level through July when 54 percent of the groves had economic infestations and then rapidly decreased in August to the lowest September level since 1955.

CITRUS FLAT MITE (Brevipalpus lewisi) scarred fruit in ARIZONA at Yuma, Yuma County, from July through September. This mite was found in the Wellton citrus area in early October; repeated treatments were made. Light numbers infested the fall flush of growth at Deer Valley and Rainbow Valley during early November in Maricopa County. Citrus flat mite populations were medium in Butte, San Bernardino, and Tulare Counties, CALIFORNIA.

CITRUS RUST MITE (Phyllocoptera oleivora) was the heaviest in 17 years of record from January through March in FLORIDA. At the January peak, infestations were heavy in 49 percent of the groves and important in all districts. April to mid-September populations continued above normal; a majority of the groves had economic infestations. Near mid-September a brief decrease to normal levels was followed by the fall uptrend. At mid-November frosty weather started a downward

trend. CITRUS BUD MITE (Aceria sheldoni) was general in coastal Santa Barbara and Ventura Counties, CALIFORNIA.

#### OTHER TROPICAL AND SUBTROPICAL FRUIT

OLIVE SCALE (Parlatoria oleae) was heavy on olive in Madera, Tulare, Fresno, and Yolo Counties, and BLACK SCALE (Saissetia oleae) infested olive trees locally; both were in CALIFORNIA. FIG SCALE (Lepidosaphes ficus) showed some buildup in Fresno County.

A SEED CHALCID (Megastigmus pistaciae) did not spread in Butte County, CALIFORNIA, due to suppression treatment. A JUNE BEETLE (Cotinis texana) damaged ripening figs in San Bernardino and San Diego Counties, California. Larvae of a GRACIL-LARIID MOTH (Gracillaria perseae) were more abundant on avocado in the Homestead area of FLORIDA than for several years. AVOCADO RED MITE (Oligonychus yothersi) was generally not abundant enough on avocados in Florida to warrant control measures.

#### SMALL FRUITS

##### Highlights:

WESTERN GRAPE LEAF SKELETONIZER was damaging in the Salt River Valley of Arizona. STRAWBERRY CROWN MOTH larvae damaged strawberries in Washington and Oregon. CRANBERRY FRUITWORM was severe on blueberries in New Hampshire. STRAWBERRY APHID was unusually numerous in the Willamette Valley of Oregon. MITES were of some concern in a few areas.

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) adults appeared in mid-April in NEVADA, about a month early, and developed heavy populations in the Las Vegas area of Clark County. This pest was found in Boulder City, Clark County, for the first time. Larvae caused very light damage to vineyards in the "Dixie" area of Washington County, UTAH. Eggs were laid from mid-May through September in ARIZONA. Adults were numerous in June, and larvae in July. Larvae damaged many vines in the Salt River Valley of Maricopa County.

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) larvae heavily damaged some strawberry fields in Washington and Malheur Counties, OREGON, and severely girdled roots and stunted many young strawberry plants in a 5-acre field in Clark County, WASHINGTON, in April. RASPBERRY CROWN BORER (Bembecia marginata) infested raspberries in most of western MONTANA. Larvae of GRAPE BERRY MOTH (Paralobesia viteana) conspicuously damaged vineyards in the "Dixie" area of Washington County, UTAH.

CRANBERRY FRUITWORM (Acrobasis vaccinii) severely damaged some highbush blueberry plantings in NEW HAMPSHIRE. Larvae infested up to 25 percent of the clusters. Larvae of GRAPE PLUME MOTH (Pterophorus periscelidactylus) infested grape leaves June 13 in RHODE ISLAND and tips in most plantings in CONNECTICUT.

WESTERN RASPBERRY FRUITWORM (Byturus bakeri) adults were common on flowers of western thimbleberry in Multnomah County, OREGON, during June. This fruitworm beetle was not reported on cane fruits in Oregon but infested raspberry plantings at Arlee in Lake County, MONTANA. EASTERN RASPBERRY FRUITWORM (B. rubi) adults were active by May 16 in RHODE ISLAND. This species was more common than usual in NEW HAMPSHIRE.

A WEEVIL (Sciopithes obscurus) was a contaminant of cane berries in the northern Willamette Valley of OREGON. Larvae of another weevil (Peritelinus oregonus) heavily damaged at least 50 acres of strawberries in the Parkdale area of Klickitat County, WASHINGTON, in July. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus), B. rugosostrigatus, and BLACK VINE WEEVIL (B. sulcatus) damaged strawberry,

raspberry, and other susceptible plants in UTAH. Strawberry root weevil and Brachyrhinus rugosostriatus were numerous in canyons and farm areas. Egg laying injury by another WEEVIL (Ampelogypter ater) was widespread in New Haven County, CONNECTICUT.

A FLEA BEETLE (Altica ignita) heavily infested some varieties of strawberries in mid-September in ARKANSAS. In NEW HAMPSHIRE moderate to heavy feeding by Altica sylvia caused some defoliation in several acres of lowbush blueberries. RASPBERRY CANE BORER (Oberea bimaculata) populations were above average in New Hampshire.

STRAWBERRY APHID (Chaetosiphon fragaefolii) was unusually prevalent in the Willamette Valley of OREGON, where large numbers persisted until late in the season. Strawberry aphid averaged 2 per strawberry leaf by March 1 at Vancouver in Clark County, WASHINGTON. This is a higher than usual count for this time of year.

LEAFHOPPERS (Erythroneura spp.) were widespread and heavy on grapevines in CALIFORNIA. VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) was plentiful and persistent on grapevines in Garfield County, MONTANA. Virginia-creeper leafhopper and ROSE LEAFHOPPER (Edwardsiana rosae) discolored much grape foliage throughout UTAH.

GRAPE MEALYBUG (Pseudococcus maritimus) was heavy on grapes in San Joaquin County, CALIFORNIA.

A CECIDOMYIID MIDGE (Lasioptera vitis) was the heaviest on small fruits in several years in NEW HAMPSHIRE. CURRANT FRUIT FLY (Epochra canadensis) infested gooseberries and currants at Livingston, Park County, and at Jordan, Garfield County, in MONTANA.

IMPORTED CURRANTWORM (Nematus ribesii) infested some black and amber currants in UTAH. GRAPE SAWFLY (Erythraspides vitis) caused light to moderate damage on grapes in Washington County, TENNESSEE, during late August and early September.

A MITE complex was prevalent on strawberries in the Bradenton area of Manatee County, FLORIDA. Mites were severe on strawberries in the Homestead area of Dade County, and effective controls were needed. An ERIOPHYID MITE (Phyllocoptes wisconsinensis) distorted leaves in a planting of cultivated elderberries in Crawford County, PENNSYLVANIA, for a new county record. SPIDER MITES (Tetranychus spp.) often discolored red currant and raspberry foliage in UTAH. TWO-SPOTTED SPIDER MITE (T. urticae) was a serious pest of strawberries in all CALIFORNIA growing areas. CYCLAMEN MITE (Stenotarsonemus pallidus) damaged strawberries in Santa Barbara County, and GRAPE ERINEUM MITE (Eriophyes vitis) was locally severe in El Dorado and Sonoma Counties. REDBERRY MITE (Acalitus essigi) caused substantial yield reductions in improperly sprayed blackberry fields in the Willamette Valley of OREGON.

SLUGS (Deroceras spp.) damaged strawberries on many occasions in OHIO during the 1968 season.

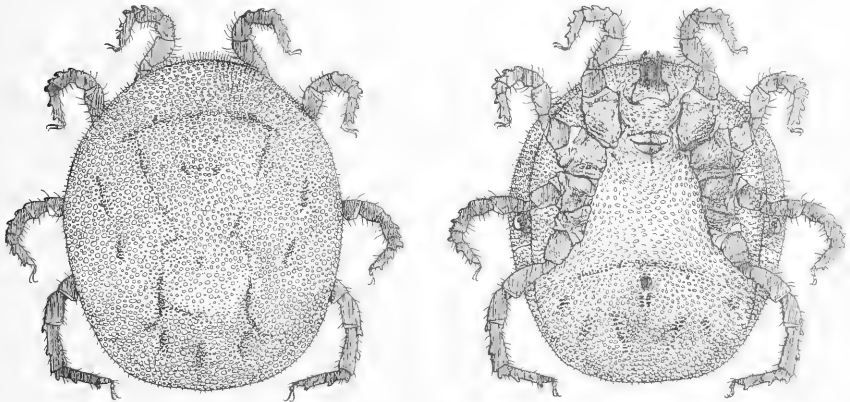
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

EYELESS TAMPANS (Ornithodoros moubata (Murray) complex)

**Economic Importance:** Certain members of this group are vectors of African tick-borne relapsing fever (Borrelia duttoni) of man in East, Central, and South Africa. Although the disease is hyperendemic, it sometimes reaches epidemic proportions and many deaths have occurred. This rather severe disease is accompanied by a high fever lasting a few days but relapses quickly follow. In the United States, O. parkeri Cooley, O. hermsi Wheeler, Herms and Meyer and O. turicata (Duges) are vectors of human relapsing fever in the Southwest. Bites of African eyeless tampsans may be quite irritating. In 1964, over one million huts infested with these ticks were reported in Tanzania alone. Aside from huts, O. moubata complex may be annoying in rest and labor camps and places such as coffeehouses where people congregate. These species apparently have been willfully distributed (at times) when migrant workers leave home for long periods. They carry ticks which they allow to feed on themselves to preserve their immunity to the disease. These pests, which are easily concealed, also have been spread through commercial channels such as potato baskets and household goods. Domestic pigs are important hosts of some species and often harbor large quantities of these ticks. In Malawi, eyeless tampsans have been suspected of causing death among pigs. According to Walton, O. moubata is a complex of species in which several biological and morphological differences have been noted.

**Distribution:** Angola, Botswana, Burundi, Congo (Kinshasa), Ethiopia, Ghana, Kenya, Malagasy Republic, Malawi, Mozambique, Republic of South Africa, Rwanda, Sierra Leone, Somalia, Southwest Africa, Southern Rhodesia, Sudan (limited small areas), Tanzania, Uganda, and Zambia.

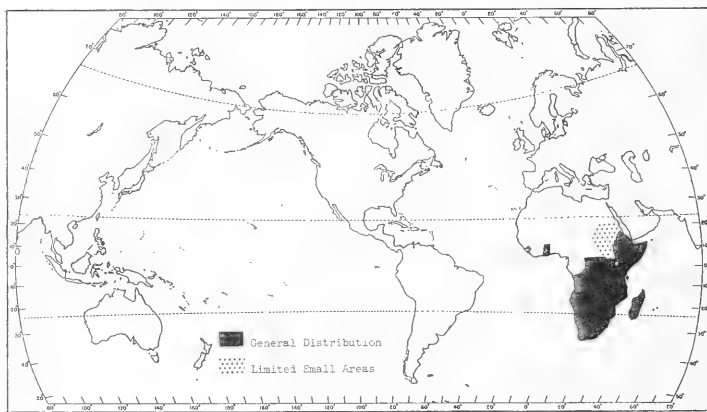
**Hosts:** Man, domestic pigs, chickens, warthogs, South African tortoises and snakes.



Dorsal and ventral views of female Ornithodoros porcinus porcinus Walton, one of the species of the O. moubata complex in Africa. (Illustrations--courtesy of H. Hoogstraal)

Life History and Habits: Following mating, the female takes a blood meal and deposits eggs in 5-25 days. Oviposition usually occurs only after a blood meal and feeding sometimes takes place before mating. Parthenogenesis rarely occurs; when it does, the progeny are all females. Eggs are emitted singly from the genital opening and come in contact with a glandular organ providing each with a waxy, waterproof coating. Those which fail to get coated do not hatch. Ten to over 250 eggs per batch have been recorded and one female usually deposits 6-7 batches. Following the egg stage, which lasts about 8 days, larvae emerge but do not feed. In fact, they are nonmotile and remain quiescent until the nymphal molt, a few hours to 5 days later. Eyeless tymphans are among the few ticks known to have an inactive larval stage. Nymphs are quite active and pass through 4-8 instars before becoming adults. Although the first nymphal stage requires about 8 days at room temperature, subsequent ones require a longer time. Males complete the life cycle in a minimum of 60 days and females 73 days. The life cycle may be greatly prolonged depending upon delayed feeding and mating. O. moubata complex is more resistant to desiccation than most ticks. Moreover, unfed specimens have been kept alive for five years.

Description: ADULT - Length about 8 mm. but engorged females may reach 11 mm. Eyeless. Color, dusty brown to greenish with few ochreous patches, but after engorging becomes darker. Integument granular. Genital opening, short and rounded in males but a broad slit in females, situated between the first pair of legs. EGG - 0.9 x 0.8 mm. One of the largest known of tick eggs. Slightly ovoid, glistening golden yellow when first laid. Eggs from older females light to dark brown. LARVA - About 1 mm., not capable of movement but with most essential structures as in larval ticks. Mouth parts degenerate. Color dull purplish brown. NYMPH - Flattened, subcircular and ochreous in color. Minute spiracle between legs III and IV. No genital opening.



General Distribution of Ornithodoros moubata (Murray) Complex

Selected References: 1. Hoogstraal, H. 1956. African Ixodoidea. Vol. I. Ticks of the Sudan, pp. 119-190. 2. Lesson, H. S. 1952. Bul. Ent. Res. 43(2):407-411. 3. Nuttall, G. H. F., Warburton, C., Cooper, W. F. and Robinson, L. E. 1908. Monograph of the Ixodoidea. Part I, Argasidae, pp. 46-55. 4. Walton, G. A. 1964. J. Med. Ent. 1(1):53-64. 5. Walton, G. A. 1962. Zool. Soc. London Symp. 6:83-156.

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**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

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Survey and Detection Operations  
Plant Pest Control Division  
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Hyattsville, Maryland 20782

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

GREENBUG heavy on wheat in Rolling Plains and Panhandle of Texas. Heavy on wheat in Jackson and Tillman Counties in Oklahoma. (p. 211).

VEGETABLE WEEVIL heavy on flue-cured tobacco in plant beds in Madison County, Florida. (p. 213).

PINK BOLLWORM larvae collected on wild cotton at two locations in Everglades National Park, Monroe County, Florida (p. 216). Larvae medium on wild cotton at Waipahu, Ewa, and Waianae, Oahu Island, Hawaii. (p. 217).

Detection

A JAPANESE WEEVIL reported for first time in West Virginia. (p. 218).

For new county records see page 218.

Some First Occurrences of Season

A MAY BEETLE in Florida, LESSER CLOVER LEAF WEEVIL and PEA LEAF WEEVIL in Oregon, CLOVER STEM BORER in Tennessee, BEET ARMYWORM in Arizona, PEAR PSYLLA eggs in Washington and Oregon, FALL WEBWORM and HICKORY SHUCKWORM in Florida, SPRING CANKERWORM and ELM LEAF BEETLE in Michigan, and a SUBTERRANEAN TERMITE in Iowa. FACE FLY active in Washington, Nebraska, Tennessee, and Virginia.

Forecasts

FOREST TENT CATERPILLAR populations expected to be same as in 1968 in Fort Collins area of Larimer County, Colorado (p. 214) and may cause severe defoliation of hardwoods in Lower Michigan (p. 227). SPRUCE BUDWORM may require controls in some recreation areas in Minnesota. (p. 223). SADDLED PROMINENT infestations expected to increase in New York. (p. 224).

Special Reports

Summary of Insect Conditions in the United States - 1968

Ornamentals (pp. 219-221).

Forest (pp. 222-226).

Shade Trees (pp. 226-232).

Reports in this issue are for week ending March 21 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING MARCH 24

**HIGHLIGHTS:** A rising temperature trend occurred over most of the United States last week. More snow fell from central Iowa to Upper Michigan, and thunderstorms occurred in the South. The snowpack in the West, North Central, and Northeast decreased with only minor local flooding.

**PRECIPITATION:** Rain, accompanied by strong winds, fell along the Washington and Oregon coast early in the week. Showers occurred in northern California and spread eastward to the Rocky Mountains. Midweek brought snow from the northern Great Plains to New England with 5-6 inches of new snow common in southern Minnesota, west-central Iowa, Wisconsin, and Upper Michigan. Marshall, Minnesota, received 10 inches, and 8-12 inches fell locally in central Upper Michigan. Thunderstorms brought generous rains to most of the Southeast early and late in the week with several sunny days at midweek. Rains in Indiana, Ohio, and Kentucky on Sunday afternoon and evening followed several weeks of dry weather, during which brush and grass fires became increasingly frequent. The heavy snowpack in the West, the northern Great Plains, and eastward to New England decreased somewhat. In Washington and other Western States, much of the snow melted in the foothills and lower range and farm lands with most of the water percolating into the ground and with very little runoff. The snowmelt caused local high water problems in Montana and rising streams in Iowa. Thawing progressed slowly in the Dakotas and Minnesota, but posed a threat of flooding because of the high water content. Many bare areas appeared in New England. Weather of the week continued on page 218.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - WYOMING - None in wheat in Laramie, Goshen, and Platte Counties. (Parshall). COLORADO - Second instars on wheat ranged 0-2 per linear foot in Briggsdale and New Raymer area, Weld County. None in 4 northeastern counties. (Johnson, Pilcher). KANSAS - None in wheat in 8 south-central counties. (Simpson). OKLAHOMA - Ranged 1-5 per 10 linear feet in most wheat in 7 north-central counties. Light in Blaine and Major Counties. Averaged 5 per 10 linear feet in barley in Kingfisher County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - WYOMING - None in wheat in Laramie, Goshen, and Platte Counties. (Parshall). COLORADO - None on wheat in northeastern area. (Johnson, Pilcher). KANSAS - Less than 1 per row foot in wheat examined in Ottawa, Cloud, Mitchell, Osborne, Smith, Phillips, Rooks, and Ellis Counties. (Simpson). TEXAS - Maximum number per row foot in wheat March 17-18 by county: Randall 500, Potter 250, Swisher 3,000, Briscoe 3,000, Hall 2,000, Deaf Smith 3,000, Parmer 1,200, Castro 5,000, and Oldham 250. Wheat generally good. Above counts scarce as control excellent. Survey completed in 4 additional counties March 19. Counts per row foot by county: Hartley 20, Dallam 50, Sherman 50, and Moore 300. Lighter in northern panhandle area. (Daniels). OKLAHOMA - Heavy in Jackson and Tillman Counties. Up to 150 per linear foot on wheat in Beckham County. Ranged 30-35 in Cotton County. Counts of 0-7 in Grant, Garfield, Kay, Noble, Payne, Logan, Kingfisher, Major, and Blaine Counties. (Okla. Coop. Sur.). NEW MEXICO - Reaching control levels in eastern area. (N.M. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - This species and Macrosiphum avenae (English grain aphid) light and scattered in most barley in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - R. maidis light to moderate on barley in Dona Ana County. (Campbell).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Averaged 1 per potato plant in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Averaged 75 per square foot in one Chaves County alfalfa field; ranged 0-25 per square foot in other fields surveyed. (Mathews).

## SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light, 1-2 per linear foot, in occasional wheatfields in central and north-central areas and in barley in Kingfisher County. (Okla. Coop. Sur.). MISSISSIPPI - Light on wheat in Oktibbeha County. (Dinkins, Mar. 14).

AN APHID (Rhopalosiphum padi) - CALIFORNIA - Medium on barley in Kerman, Fresno County. (Cal. Coop. Rpt.). OKLAHOMA - Averaged 50 per linear foot in 12 to 15-inch rye in Noble County. (Okla. Coop. Sur.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Hatching in southeast Scotts Bluff and northwest Banner Counties. No wheat damage. (Hagen, Mar. 18).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 1-15 per linear foot in scattered wheatfields in north-central and northwestern areas. (Okla. Coop. Sur.). TEXAS - Damaging wheat in Foard County. (Boring).

## TURF, PASTURES, RANGELAND

AN APHID (Rhopalosiphum padi) - CALIFORNIA - Heavy on grass and iris plants in Encanto, San Diego County. (Cal. Coop. Rpt.).

CHINCH BUG (Blissus leucopterus) - KANSAS - Bunch grass samples collected in late February from 55 central and eastern counties. Total of 173 samples collected. Average number per square foot by district as follows: Northeast 0.89 (only in Riley County); east-central 14.0; southeast 17.3; north-central 0; central 67; south-central 95.6. Highest average counts above 100 per square foot by county: Morris 114 (range 0-4); Dickinson 222 (range 0-5); Marion 212 (range 0-5); Harvey 137 (range 0-150); Sedgwick 107 (range 0-21). (Wilde, Martinez, Redding, Simpson).

A MAY BEETLE (Phyllophaga tristis) - FLORIDA - First emergence of year noted in Gainesville area, Alachua County. (Woodruff, Mar. 19).

GREEN JUNE BEETLE (Cotinis nitida) - ALABAMA - This species and Phyllophaga spp. (white grubs) ranged 20-25 per square foot in Coastal Bermuda grass in Cullman County. (Baswell).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Larval counts per 200 stems by county: Oktibbeha 10; Pontotoc 7; Marshall 13. Adults per 10 square feet by county: Oktibbeha 1; Pontotoc 2; Marshall 1. (Pitre, Mar. 14). WEST VIRGINIA - Samples of overwintering eggs show low viability in standing alfalfa stems through February. Percent hatch by month: November 88, December 20, January 2, February 0. Percent hatch in stems on ground surface in February much higher, 36. (W. Va. Ins. Sur.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae averaged 20 per 100 sweeps in alfalfa in Pinal County. (Ariz. Coop. Sur.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - OREGON - Overwintering adults active in Salem, Marion County. (Westcott, Mar. 14).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MISSOURI - Adults collected with Malaise trap at Ashland, Boone County, July 12, 1968. This is a new county record. (Munson).

PEA LEAF WEEVIL (Sitona lineatus) - OREGON - Overwintering adults flying in Salem, Marion County. (Westcott).

CLOVER STEM BORER (Languria mozardi) - TENNESSEE - This species and Conotrachelus seniculus (a weevil) observed on ragweeds bordering cornfields in Grundy County. (Williams).

PEA APHID (Acyrtosiphon pisum) - ARKANSAS - Low, 30-40 per 100 sweeps, in bur and crimson clover in Faulkner and Lee Counties; little buildup to date. (Boyer). NEW MEXICO - Light to medium on alfalfa in Chaves and Dona Ana Counties. (N.M. Coop. Rpt.). ARIZONA - Averaged 250 per 100 sweeps of alfalfa at Pinal County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Averaged 20 nymphs per 100 sweeps in Pinal County. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARKANSAS - Active in eastern area. Adults ranged 8-10 in 100 sweeps in bur clover in Lee County. (Boyer).

ALFALFA CATERPILLAR (Colias eurytheme) - ARKANSAS - Second instars ranged 5-6 in 100 sweeps on bur clover in Lee County. (Boyer).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Averaged 250 per 100 sweeps on alfalfa at Pima County. (Ariz. Coop. Sur.).

## TOBACCO

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Larvae on flue-cured tobacco in plant beds; heavy on 800 square yards in Madison, Madison County; scattered over 1,000 square yards at Live Oak, Suwannee County. Collected and determined by D. Lundy and B. Whitty. (Fla. Coop. Sur.).

## SUGARBEETS

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae very light in many fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

BROWN STINK BUG (Euschistus servus) - ARIZONA - Adults light in most fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

## POTATOES, TOMATOES, PEPPERS

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Light on potatoes in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate on potato plants 6 inches high. Treatments underway in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## COLE CROPS

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Infesting lettuce in Mesilla Valley, Dona Ana County, and Hatch Valley, Sierra County. Some controls being applied. (Campbell).

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Very severe on broccoli and cauliflower at Bradenton, Manatee County. (Kelsheimer, Mar. 3).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Observed 154 full-grown larvae on 40 cabbage plants in cupping stage on unsprayed plots at Bradenton, Manatee County. Collected and determined by E.G. Kelsheimer March 3. No problem now on cabbage at Hastings, St. Johns County; Belle Glade, Palm Beach County; and Sanford, Seminole County. (Fla. Coop. Sur.).

## GENERAL VEGETABLES

AN APHID (Acyrtosiphon scariolae) - ARIZONA - Many lettuce fields in Maricopa and Pinal Counties being treated. (Ariz. Coop. Sur.).

AN ACARID MITE (Tyrophagus dimidiatus) - CALIFORNIA - This mite and Myzus persicae (green peach aphid) caused medium damage to spinach in Soledad area, Monterey County. Wet weather caused mites to move up onto leaves from low crowns. (Cal. Coop. Rpt.).

## DECIDUOUS FRUITS AND NUTS

HICKORY SHUCKWORM (Laspeyresia caryana) - FLORIDA - First adult emergence in outdoor cages noted at Monticello, Jefferson County. Collected and determined by W.H. Whitcomb March 6. This earlier than last year. (Fla. Coop. Sur.).

PEAR PSYLLA (Psylla pyricola) - OREGON - Oviposition underway in Portland, Multnomah County. (Gray, Mar. 14). WASHINGTON - Adult count 1 per trap, more in sagebush than orchard; no egg differentiation March 5 in Wenatchee and Chelan Counties. (Rushmore). First adults caught in flight at Yakima, Yakima County, March 3-5. (Landis, Fox). First eggs observed at orchard in Parker Heights, Yakima County, March 7. (Johnson).

## CITRUS

THRIPS - ARIZONA - Frankliniella occidentalis (western flower thrips) moderate on citrus trees in Eloy area, Pinal County. Some activity by Scirtothrips citri (citrus thrips) noted in block in same area. (Ariz. Coop. Sur.).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy and general on citrus trees in Nicolaus, Sutter County. (Cal. Coop. Rpt.).

A SPIDER MITE (Eotetranychus lewisi) - CALIFORNIA - Medium on citrus trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

## ORNAMENTALS

A WALSHIID MOTH (Periploca nigra) - CALIFORNIA - Heavy in juniper shrubs in Placerville, El Dorado County. (Cal. Coop. Rpt.).

A CHRYSAUGID MOTH (Galasa nigrinodis) - VIRGINIA - Larvae on English boxwood light in Hanover County (Innes, Feb. 11), medium in Charles City County (May, Feb. 28), and light in Charlotte County (May, Mar. 12).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Heavy on poinsettia nursery stock in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

MINING SCALE (Howardia biclavis) - FLORIDA - All stages severe on stems of undetermined number of 200 Dombeya hybrids, Dombeya sp., at Miami, Dade County. Collected by J. Dillon February 26. This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

TEA SCALE (Fiorinia theae) - ALABAMA - Heavy increase of crawlers noted on camellia and holly. Averaged 25-75 per leaf on heavily infested plants. Many growers applying controls. (McQueen).

## FOREST AND SHADE TREES

A SOFT SCALE (Toumeyella pinicola) - CALIFORNIA - This species and Phenacaspis pinifoliae (pine needle scale) medium on Monterey pine in Oakland, Alameda County. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - FLORIDA - First adults in blacklight traps at Gainesville, Alachua County, March 9-10. (Habeck, Mead).

FOREST TENT CATERPILLAR (Malacosoma disstria) - COLORADO - Egg survey indicates populations will be same as in 1968 in Fort Collins area, Larimer County. (Thatcher).

FALL CANKERWORM (Alsophila pometaria) - MICHIGAN - Blacklight collections in Livingston County: 123 males March 18, 19, and 23. (Newman).



SPRING CANKERWORM (Paleacrita vernata) - MICHIGAN - Adults active in Muskegon and Ingham Counties. (Janes, Mar. 17).

ELM LEAF BEETLE (Pyrrhalta luteola) - MICHIGAN - Taken in Wayne County. (Janes, Mar. 17).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - One case reported in U.S. March 16-22: TEXAS, Maverick County. Total of 71 cases reported in portion of Barrier Zone in Republic of Mexico March 16-22 as follows: Sonora 21, Chihuahua 5, Coahuila 3, Nuevo Leon 5, Tamaulipas 37. Total of 4 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 63,968,000; Mexico 137,820,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - FLORIDA - Larvae averaged 11 per animal, some over 40 per animal, at Canal Point, Palm Beach County. Collected and determined by M.J. Janes, March 7. (Fla. Coop. Sur.). OKLAHOMA - Moderate in cattle in Mayes County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - WASHINGTON - Adults very abundant in church in Sawyer, Yakima County, March 10. (Johnson, Retan). NEBRASKA - Active in Furnas and Lancaster Counties March 16. (Roselle). TENNESSEE - Heavy during warmer days in Knox County. (Williams). VIRGINIA - Found in homes throughout winter in Culpeper County. (Heltzel, Amos, Mar. 6).

A NOSE BOT FLY (Cephenemyia jellisoni) - OKLAHOMA - Adult activity light in Cherokee County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - FLORIDA - Adults declined to average of 15 per animal in Belle Glade area by mid-March. Collected and determined by M.J. Janes. (Fla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - TEXAS - Moderate to heavy in Sutton, Edwards, and Pecos Counties. (Neeb).

MOSQUITOES - MISSISSIPPI - Adults and larvae, respectively, collected in Hancock County: Culiseta inornata 175 and 49; Culex salinarius 15 and 4; C. restuans 13 and 185; C. territans 0 and 86; Anopheles crucians 12 and 0; Aedes vexans 3 and 12; A. canadensis 0 and 20. (Dinkins, Mar. 17).

LICE - OKLAHOMA - Haematopinus eurysternus (short-nosed cattle louse) heavy on cattle in Cotton and Mayes Counties and moderate in Cleveland and Nowata Counties. (Okla. Coop. Sur.). TEXAS - Bovicola ovis (sheep biting louse) heavy on sheep in Crockett, Pecos, and Edwards Counties; unspecified goat lice heavy in Sutton and Edwards Counties. (Neeb).

WINTER TICK (Dermacentor albipictus) - TEXAS - Moderate to heavy in Sutton and Edwards Counties. (Neeb).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - OKLAHOMA - Very heavy in home in Tulsa, Tulsa County. (Okla. Coop. Sur.).

#### HOUSEHOLDS AND STRUCTURES

A WEEVIL (Brachyrhinus rugosostriatus) - NEVADA - Adults light in home in Caliente, Lincoln County, in August 1968. Identified by R.C. Bechtel. This is a new county record. (Miller).

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Found in basement of home in Sac City, Sac County. This is a new county record. (Iowa Ins. Sur.).

A SUBTERRANEAN TERMITE (Reticulitermes sp.) - IOWA - Probably R. flavipes (eastern subterranean termite) swarmed in Cedar Rapids, Linn County, March 17. First report of swarming in 1969. (Iowa Ins. Sur.).

#### STORED PRODUCTS

GRANARY WEEVIL (Sitophilus granarius) - WYOMING - This weevil, Tribolium confusum (confused flour beetle), and Rhyzopertha dominica (lesser grain borer) medium in stored barley at Agriculture Experiment Station in Torrington, Goshen County. (Parshall).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Weekly checks of 225 traps operated in control zone made during February. Weevils caught during week of February 24. (PPC South. Reg.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MAINE - Winter mortality check made of winter webs in Portland area. Few larvae emerged from web collected at one location; up to 100 larvae emerged from single web at another location. Winter weather to end of February will probably have little adverse effect on larvae. NEW HAMPSHIRE - Survey hampered by heavy snow. To date, 2 single web infestations found at widely separated locations; Henniker Township in Merrimack County and Moultonboro Township in Carroll County. Both webs at old infestation sites. MASSACHUSETTS - Scouting to delimit known infested areas on Cape Cod begun February 10, webs clipped in lightly infested areas, and detection survey in Cape area also started. Limited survey being conducted in western part of State. (PPC East. Reg.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - NORTH CAROLINA - Surveys conducted in Brunswick, Carteret, Columbus, Onslow, and Pamlico Counties during February. Imported fire ant found in all counties except Pamlico. Surveys in Robeson and Cumberland Counties negative. (PPC South. Reg.). GEORGIA - Collected along county road 5 miles south of Waverly, Camden County, March 6. Referred by K.L. Davenport. Determined by D.R. Smith. This is a new county record. (PPC).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Survey during February concentrated in Brownsville area of Cameron County. Limited surveys made in Webb and Zapata Counties. No A. woglumi found. (PPC South. Reg.).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - Egg mass surveys in vicinity of positive trap sites continued during February. Small infestations found about 3 miles west of heavy infestation at Weekstown, Atlantic County. PENNSYLVANIA - Scouting continued in Carbon, Schuylkill, and Berks Counties to determine if additional areas of heavy infestation present on or near Blue Mountain Ridge; results negative. Federal and State personnel continued to scout positive trap sites in Luzerne, Bucks, Lackawanna, and Susquehanna Counties. Scouting completed in Lackawanna and Susquehanna Counties; no heavy infestations found. Six egg clusters found near Tobyhanna Army Depot in Clifton Township, Lackawanna County; 20 egg masses found near Alden in Newport Township, Luzerne County. (PPC East. Reg.).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Larvae collected on wild cotton at two locations in Everglades National Park, Monroe County; Bouy Key location K-32 and Cape Sable. (Humphries, Weaver, Mar. 16).

A SEED CHALCID (Megastigmus pistaciae) - CALIFORNIA - During February 2,100 nuts from 1967 pistachio crop at U.S. Plant Introduction Station inspected; 53 live larvae, numerous dead larvae, and one dead male adult collected. Additional pistachio seeds from several portions of infested orchard placed in emergence cages in effort to secure guideline information for timing of spray applications. (PPC West. Reg.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Surveys during February revealed following new infestations: 6 in Baldwin County, ALABAMA; 2 in Decatur County, GEORGIA; one in Rapides Parish and one in Ouachita Parish, LOUISIANA; one in Jefferson Davis County, MISSISSIPPI. (PPC South. Reg.).

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#### HAWAII INSECT REPORT

Cotton - Larvae of PINK BOLLWORM (Pectinophora gossypiella) medium on wild cotton plants along roadsides at Waipahu, Ewa, and Waiānae, Oahu. Random inspection showed 10 of 20 bolls in each area with one or more larvae. (Funasaki).

Turf, Pastures - A GRASS WEBWORM (Herpetogramma licarsisalis) infestation subsided and now at lowest level in many months on pastures at Haiku, Maui. Population very light on turf grasses and pastures in areas on Maui and all other islands. (Miyahira et al.). GRASS FLEAHOPPER (Halticus chrysolepis) nymphs and adults heavy on Tifgreen Bermuda grass lawns in Kaneohe, Oahu. Adults of a FLEAHOPPER (Spanogonicus albofasciatus) light on some lawns. Feeding injury (whiteness of blades) conspicuous. (Leong).

General Vegetables - WATERLILY APHID (Rhopalosiphum nymphaeae) heavy on taro at Hanalei, Kauai. (Sugawa). SWEETPOTATO LEAF MINER (Bedellia orchilella) heavy and sporadic in one-acre sweetpotato field at Waimanalo, Oahu. As many as 12 larvae per leaf. Trace to light at Waiahole and Kahaluu. IMPORTED CABBAGEWORM (Pieris rapae) eggs and adults heavy, larvae medium on head cabbages at Pulehu, Maui, and on broccoli at Kahuku, Oahu. (Miyahira, Funasaki). SOUTHERN GREEN STINK BUG (Nezara viridula) light to medium, mostly nymphs, on backyard long beans at Ewa and Waipahu, Oahu. Nymphs and adults medium on yard-long beans at Koko Head. Seventy-five percent of adults observed bore eggs of Trichopoda pennipes var. pilipes (a tachina fly) at Ewa and Waipahu, 40 percent at Koko Head. (Wong).

Fruits - LITCHI MITE (Aceria litchii) widespread on litchi trees throughout Hilo, Hawaii. Injury to leaves (brown, felt galls) very noticeable on trees. (Yoshioka).

Miscellaneous Insects - Two adults of a LONGHORN GRASSHOPPER (Euconocephalus nasutus) picked up at the Honolulu International Airport; one at gate 11 on March 11 and the other at gate 18 on March 12. These were fourth and fifth known specimens collected to date on Oahu. (Au, Shiroma). Larvae of KOA HAOLE LOOPER (Anacamptodes fragilaria) light to medium on foliage of tree tobacco (Nicotiana glauca), kiawe (Prosopis pallida), and koa-haole (Leucaena leucocephala) in various areas on Oahu; heavy on rose foliage at Koko Head. (Nakao).

## INSECT DETECTION

### New State Records

A JAPANESE WEEVIL (Calomycterus setarius) - WEST VIRGINIA - Collected July 17, 1968, at Beaver, Raleigh County, by A. E. Cole. Determined by R. E. Warner. (W. Va. Ins. Sur.).

### New County Records

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MISSOURI - Boone County. (p. 212).

A WEEVIL (Brachyrhinus rugosostriatus) - NEVADA - Lincoln County. (p. 215).

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Sac County. (p. 216).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Camden County. (p. 216).

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 3/17-20, BL - Armyworm (Pseudaletia unipuncta) 3, black cutworm (Agrotis ipsilon) 5, granulate cutworm (Feltia subterranea) 10. TEXAS - Brownsville - 3/14, 2BL - Armyworm 26, black cutworm 60, cabbage looper (Trichoplusia ni) 19, corn earworm (Heliothis zea) 60, pale-sided cutworm (A. malefida) 75, tobacco budworm (Heliothis virescens) 2, variegated cutworm (Peridroma saucia) 19. Waco - 3/14-20, BL - Armyworm 20, granulate cutworm 4, variegated cutworm 28.

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Weather of the week continued from page 210.

TEMPERATURE: A large high pressure area extending from the Rocky Mountains to the Atlantic Ocean early in the week brought rising temperatures over the Central and Eastern States. Montana experienced mild weather after 3 months with below normal temperatures. Temperatures averaged slightly below normal along the Red River of the North and the Big Sioux River due to the deep snow cover. Sunny, mild weather prevailed in the Deep South at midweek but failed to offset the cool temperatures accompanying the cloudy, showery weather early in the week and over the weekend. A large area along the western edge of the northern Great Plains from eastern Montana to northwestern Kansas averaged 6°-8° above normal. The Great Lakes region also averaged 6°-8° warmer than seasonal. (Summary supplied by Environmental Data Service, ESSA.)

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968  
(Continued from page 206)

ORNAMENTALS

Highlights:

BAGWORM was the most destructive pest of coniferous shrubs in Alabama, was heavy in Tennessee and Arkansas, and damaged evergreens in Oklahoma. Larvae of TORTRICID MOTHS were damaging in some areas. BLACK VINE WEEVIL and related species were damaging in scattered areas. Various SCALE INSECTS damaged numerous ornamentals in several States. THRIPS and SPIDER MITES were troublesome in a few areas.

BAGWORM (Thyridopteryx ephemeraeformis) was common on many ornamentals throughout MARYLAND. Larvae were again the most destructive pests of coniferous shrubs throughout ALABAMA. Egg hatch in central TENNESSEE began about mid-May. By mid-June damage was heavy and ranged moderate to heavy statewide. Damage in some central and eastern areas was heavier than in recent years; unsprayed ornamentals were completely defoliated in many instances. Bagworm infestations were heavy and widespread throughout ARKANSAS. Activity in OKLAHOMA began in late May. Moderate to heavy numbers damaged evergreens throughout the summer. Bagworm larvae continued to infest ornamentals throughout MISSOURI. Serious defoliation occurred on saw log size eastern redcedar in Douglas County. Egg hatch in NEBRASKA was completed by June 18 in Lancaster County. Population levels were about the same as in 1967. Large numbers of bagworm infested juniper near Spencer in McCook County, NEBRASKA, in mid-September.

A TORTRICID MOTH (Cacaecimorpha pronubana) was found on Viburnum davidii, Japanese skimmia, and dwarf rhododendron in Multnomah County, OREGON. It was found for the first time in Clatsop County. Platynota stultana infested a wide variety of hosts in CALIFORNIA. In May and June in Washoe County, NEVADA, Choristoneura zapulata heavily damaged various ornamental shrubs, especially roses, and Argyrotaenia cockerellana was again heavy on ornamental juniper in the southern Nevada area but with less damage than in the last 3 years. Heavy numbers of OBLIQUE-BANDED LEAF ROLLER (C. rosaceana) persisted in large greenhouses in New Haven County, CONNECTICUT.

A PTEROPHORID MOTH (Platyptilia pica monticola) was serious on geraniums in CALIFORNIA. MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) caused some damage in the northern area, and a WALSHIID MOTH (Periplocia nigra) was severe in a few locations. LILAC LEAF MINER (Gracillaria syringella) damaged lilacs in most MONTANA communities east of the Continental Divide. IO MOTH (Automeris io), HAG MOTH (Phobetron pithecium), and LESSER CANNA LEAF ROLLER (Geshna cannalis) damaged ornamentals in TEXAS. One to four larvae of SUGARCANE BORER (Diatraea saccharalis) infested 40 percent of the stalks of pampasgrass at Samsula, Volusia County, in FLORIDA in early October. Healthy plants were reduced from 180,000 to 60,000 in a 30-acre field in one year; 50 percent of the reduction was due to "knocking back" of the plumes. Wasp parasites recovered included Agathis sp. (a braconid) and Trichogramma sp. (a minute egg parasite). BEET ARMYWORM (Spodoptera exigua), a noctuid LOOPER complex, and a mite complex were predominant on chrysanthemums in the Bradenton area of Manatee County, FLORIDA. S. exigua was also prevalent on gladiolus in this area. W-MARKED CUTWORM (Spaelotis clandestina) infested ornamentals by May 31 in WISCONSIN; some treatment was done in Wood County. RHODODENDRON BORER (Ramosia rhododendri) infestations were heavy and numerous during April and May in New Castle County, DELAWARE.

BLACK VINE WEEVIL (Brachyrhinus sulcatus) adults emerged by July 11 in RHODE ISLAND. Infestations in nurseries were light by August 8, but by August 22 some infestations were heavy. The number of quarantined nurseries decreased from 15

in 1967 to 5 in 1968. Black vine weevil ranged light to heavy on yew throughout CONNECTICUT. This weevil persisted as a major problem in MICHIGAN on nursery and established plantings of yew. Control attempts were generally inconsistent. Brachyrhinus spp. adults in UTAH were common about gardens, sometimes damaging roots of roses or other plants and flowers in some gardens. A WEEVIL (Brachyrhinus cribricollis) in ARIZONA was heavy on plantings of chrysanthemum, nasturtium, privet, and pyracantha at Tucson, Pima County, in September and October. Black vine weevil damaged nursery stock and yard shrubs in local areas of CALIFORNIA. HOLLYHOCK WEEVIL (Apion longirostre) was found on hollyhock at Pine Bluffs, Laramie County, WYOMING, for a new State record.

TEN-LINED JUNE BEETLE (Polyphylla decemlineata) larvae were heavy in trees and shrubs at Pompeys Pillar, Yellowstone County, and Kalispell, Flathead County, MONTANA. A FALSE POWDER-POST BEETLE (Amphicerus cornutus) severely damaged old bougainvillea plantings at Glendale, Maricopa County, ARIZONA, in July.

EUONYMUS SCALE (Unaspis euonymi) heavily infested several varieties of euonymus in the Albuquerque area of Bernalillo County, NEW MEXICO. Many homeowners replaced infested euonymus with other shrubs because they were unable to control this pest. Euonymus scale damaged ornamentals in TEXAS and was again heavy on euonymus in OKLAHOMA. Crawlers were active in Oklahoma in mid-May, mid-June, early August, mid-September, and mid-October. Possibly the most destructive pest of ornamentals, euonymus scale was widespread in ARKANSAS. Euonymus scale was common in all parts of VIRGINIA, and many heavy infestations occurred on euonymus throughout DELAWARE.

OYSTERSHELL SCALE (Lepidosaphes ulmi) damage was common on lilacs and other susceptible shrubs in UTAH, and the pest damaged ornamentals in TEXAS. Infestations in SOUTH DAKOTA were heavy on lilac hedges at Rapid City, Pennington County, and at Spearfish, Lawrence County. Lilac at Spearfish had been extensively damaged; infestations were apparently several years old. Crawlers were evident on new growth the third week of June. Egg hatch in WISCONSIN began on May 17, and a few crawlers were exposed. Hatch was 75 percent complete on May 28, but only 40 percent of the crawlers were exposed on the plants. Crawlers began producing scales by June 21. High counts infested ornamentals in mid-July. Oystershell scale was prevalent on lilac in CONNECTICUT.

The following armored scales were also troublesome. In CALIFORNIA, CALIFORNIA RED SCALE (Aonidiella aurantii) was very widespread on many ornamentals, OLEANDER SCALE (Aspidiotus nerii) was particularly abundant, and OLIVE SCALE (Parlatoria oleae) was heavy in scattered local areas. JUNIPER SCALE (Diaspis carueli) numbers and damage increased again in UTAH. TEA SCALE (Fiorinia theae) damaged ornamentals in TEXAS, was the most destructive and widespread scale on camellia and Burford hollies in ALABAMA, and was one of the important pests in FLORIDA. Phenacaspis cockerelli was also an important pest in Florida.

The following soft scales were troublesome. Toumeyella mirabilis killed many mesquite trees in the northwestern area of Tucson in Pima County, ARIZONA, during May. BROWN SOFT SCALE (Coccus hesperidum) damaged ornamentals in TEXAS. A WAX SCALE (Ceroplastes sp.) in VIRGINIA is well established in the Norfolk area, severe in the Richmond area, and increasing in the northern areas. FLETCHER SCALE (Lecanium fletcheri) was still troublesome in several nurseries in CONNECTICUT. Fletcher scale eggs first hatched in RHODE ISLAND on July 11. Lecanium sp. was again one of the major problems on MICHIGAN-grown yew. Control attempts were generally inconsistent.

A MEALYBUG (Dysmicoccus wistariae) was heavy on yew in some nurseries in CONNECTICUT. This species was again one of the major problems on MICHIGAN-grown yew. Control attempts were generally inconsistent. LONG-TAILED MEALYBUG (Pseudococcus longispinus) was one of the important ornamental pests in FLORIDA and was unusually prevalent this year in CALIFORNIA.

A CONIFER APHID (Cinara tujaefilina) was one of the most frequently encountered aphids in CALIFORNIA. Populations on arborvitae in ARIZONA were heavy at Safford, Graham County, in early February and moderate to heavy at Tucson, Pima County, and Salt River Valley, Maricopa County, during March. In OKLAHOMA this aphid damaged arborvitae from early February to late April. Fall activity began in early December. CHRYSANTHEMUM APHID (Macrosiphoniella sanborni) heavily infested chrysanthemums in north-central and northeastern OKLAHOMA from mid-April to mid-May.

A LACE BUG (Stephanitis takeyai) was common wherever andromeda was found in CONNECTICUT. All stages of AZALEA LACE BUG (S. pyrioides) by August 13 and all stages of S. takeyai by August 22 heavily infested andromeda in RHODE ISLAND.

A LEAFHOPPER (Opsius stactogalus) heavily defoliated salt-cedar in Churchill and Lyon Counties, NEVADA, in September and October; light numbers were present in Pershing County.

EUROPEAN EARWIG (Forficula auricularia) caused early damage and was a nuisance most of the year in CALIFORNIA. Populations in UTAH may have leveled off as European earwig was less generally troublesome than 10-20 years ago. Numbers were, however, very heavy and troublesome in scattered communities and some canyon picnic areas and damaging in some flower gardens. In MONTANA this plant feeding and household nuisance was reported from about 20 counties. It still is not distributed over all of the State. European earwig is widespread in CONNECTICUT and more injurious to house plants.

THRIPS in general were less prevalent than previously in CALIFORNIA, but CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) was very severe on Ficus retusa. WESTERN FLOWER THRIPS (Frankliniella occidentalis) heavily infested roses during April in the Salt River Valley of Maricopa County, ARIZONA, and was unusually heavy in many kinds of flowers in UTAH. GLADIOLUS THRIPS (Taeniothrips simplex) was generally present in Utah; injury ranged from light to very severe.

A FALSE SPIDER MITE (Pentamerismus taxi) infested Irish yew at Portland for a new State record in OREGON. SPIDER MITES (Tetranychus spp.) built up to economic levels on evergreens in several nurseries at Salem, Oregon, in early September. In CALIFORNIA, TWO-SPOTTED SPIDER MITE (T. urticae) was common and widespread, and an ERIOPHYID MITE (Aculus ligustri) was very common on privet. CARMINE SPIDER MITE (T. cinnabarinus) in ARIZONA built up on violets at Tucson, Pima County, in late July, was heavy on chrysanthemums at Yuma, Yuma County, in early August, and was heavy on arborvitae, pyracantha, and violets in the Phoenix area of Maricopa County during August and September. Unspecified spider mites were the most general and injurious pests of ornamentals statewide in NEVADA. Two-spotted spider mite and other spider mites were constant pests of roses, azaleas, and many other shrubs and annual flowers throughout ALABAMA. Two-spotted spider mite was one of the important pests in FLORIDA. Carmine spider mite was abundant on Japanese yew in a nursery in Hartford County, CONNECTICUT.

SLUGS were a serious problem for the second year in NEW HAMPSHIRE. Damage by Deroceras spp. in OHIO on annuals and perennials was reported many times. Damage to flowers continued into September. Arion ater was found on 3 residential properties in August at Pullman, Whitman County, WASHINGTON. Specimens were also taken from commercial nurseries at Spokane, Spokane County. This is believed to be the first record of establishment east of the Cascade Mountains in the State. A SNAIL (Rumina decollata) heavily infested gardens and lawns at Mesa, Phoenix, and Tempe in Maricopa County, ARIZONA, in November.

GARDEN SYMPHYLAN (Scutigera immaculata) damaged arborvitae, juniper, yew, and various garden plants in OHIO.

## FOREST INSECTS 1/

### Situation in the Western States

All reports indicate that BARK BEETLE damage was again the major problem confronting forest managers in the West. MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) still predominated in the Intermountain States with heavy infestations continuing to deplete lodgepole pine forests of eastern IDAHO and western WYOMING. However, the widespread infestations on the Teton National Forest, Wyoming, continued to decline. On the Targhee National Forest, Idaho, infestations collapsed from natural causes in some areas and built up in others. In the northern and central Rockies, this insect caused damage to ponderosa pine and white pine as well as lodgepole pine.

A number of other BARK BEETLES were active in western forests. For example, DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) damage in 1968 was the highest recorded in recent years in OREGON and WASHINGTON; in the Southwest and Intermountain States, ENGELMANN SPRUCE BEETLE (D. obesus) is now a potential threat to a vast acreage of mature spruce; CALIFORNIA has an epidemic of WESTERN PINE BEETLE (D. brevicomis).

Forest DEFOLIATORS also caused concern. Among these were BUDWORMS, NEEDLE MINERS, and CASEBEARERS. The most significant areas of BUDWORM activity were in the central Rockies, in IDAHO, and in western MONTANA. LARCH CASEBEARER (Coleophora laricella) and NEEDLE MINERS were found in increasing numbers in OREGON and WASHINGTON and in the northern Rocky Mountain States.

In ALASKA the SITKA-SPRUCE BEETLE (Dendroctonus obesus) remained at epidemic levels on the Kenai Peninsula despite control efforts using both trap-trees and chemicals. A new infestation developed near Hyder in southeastern Alaska, and two old infestation centers in the south-central area became active again. Defoliation by the LARGE ASPEN TORTRIX (Choristoneura conflictana) was common throughout the interior. Hundreds of acres were completely defoliated in the Fairbanks and Glennallen areas. HEMLOCK SAWFLY (Neodiprion tsugae) populations declined sharply.

Hot, dry weather in the summer of 1967 contributed to an upsurge in all BARK BEETLE activity in OREGON and WASHINGTON. DOUGLAS-FIR BEETLE damage caused the loss of one billion board feet of timber. Greater populations of WESTERN PINE BEETLE, ENGELMANN SPRUCE BEETLE, PINE ENGRAVER (Ips pini), and FIR ENGRAVER (Scolytus ventralis) emerged and were destructive. Among the DEFOLIATORS, the LARCH CASEBEARER, the WESTERN HEMLOCK LOOPER (Lambdina fiscellaria lugubrosa), and NEEDLE MINERS were reported in increased numbers.

At present, the most pressing problem in CALIFORNIA is an epidemic of WESTERN PINE BEETLE in young-growth pine near McCloud. Localized outbreaks of other BARK BEETLES--such as FIR ENGRAVER, MOUNTAIN PINE BEETLE, DOUGLAS-FIR BEETLE--occurred but did not reach epidemic dimensions. The CALIFORNIA FLATHEADED BORER (Melanophila californica) continued to destroy Jeffrey pine in the southern part of the State. Jeffrey pine and lodgepole pine in El Dorado County suffered from an infestation of PINE NEEDLE SCALE (Phenacaspis pinifoliae). Damage from defoliating insects was minor.

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1/ This summary is the highlights section of the "Forest Insect Conditions in the United States - 1968" 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 226 in this issue of the CEIR.



MOUNTAIN PINE BEETLE in lodgepole pine was the main problem in the Intermountain States. The long-standing epidemic on the Teton National Forest, which started to decline in 1967, continued to lessen. On a noncontrol area of the Targhee National Forest, beetle populations were reduced by natural factors. In another area chemical control reduced tree killing and slowed migration into adjoining beetle-free stands. In a third area some tree-killing occurred when a control program was abandoned. Infestations increased on the Bridger National Forest and Yellowstone National Park, WYOMING. There was some slight buildup in MOUNTAIN PINE BEETLE populations in ponderosa pine throughout the entire Intermountain Region. In 1968, areas infested by SPRUCE BUDWORM (Choristoneura fumiferana) broadened, the largest increases being on the Payette and Bridger National Forests. ENGELMANN SPRUCE BEETLE also increased generally in portions of southern IDAHO and western WYOMING, but most other BARK BEETLES and DEFOLIATORS remained about as they were in 1967.

The northern Rockies experienced a general upsurge of both DEFOLIATORS and BARK BEETLES. MOUNTAIN PINE BEETLE caused losses in mature lodgepole, ponderosa, and white pine stands, particularly in the Kaniksu National Forest, IDAHO, and along the foothills of the Big and Little Snowy Mountains, MONTANA. Unburned slash and windthrown Engelmann spruce trees in the Flathead National Forest, Montana, contributed to a severe outbreak of ENGELMANN SPRUCE BEETLE there. In 1968 an epidemic of SPRUCE BUDWORM covered a total of 4.2 million acres of Douglas-fir and true fir forests in IDAHO and western MONTANA. SPRUCE BUDWORM and a FIR CONEWORM (Dioryctria abietella) destroyed a large amount of Douglas-fir seed in some areas of MONTANA. LARCH CASEBEARER spread through larch stands in western MONTANA, northern IDAHO, and eastern WASHINGTON, and was discovered for the first time in Glacier National Park, MONTANA.

The most important insect pest of the central Rockies was the BLACK HILLS BEETLE (Dendroctonus ponderosae) which increased in numbers on the Black Hills, Roosevelt, and San Juan National Forests. More than a quarter of a million acres are now infested. ENGELMANN SPRUCE BEETLE populations were low but were still a threat to over-mature Engelmann spruce in COLORADO and WYOMING. Areas of SPRUCE BUDWORM defoliation broadened, but damage did not increase, and no suppression is planned.

Throughout the Southwest, ENGELMANN SPRUCE BEETLE populations showed a trend toward epidemic proportions. On the Santa Fe National Forest, NEW MEXICO, this beetle emerged from scattered blowdown and attacked standing trees. There were other currently active ENGELMANN SPRUCE BEETLE centers on the Carson National Forest, New Mexico, and on the Apache National Forest, ARIZONA.

#### Situation in Southern and Southeastern States

BARK BEETLES were the major concern in the South and Southeast with the SOUTHERN PINE BEETLE (Dendroctonus frontalis) again the most important pest. Populations were abundant in LOUISIANA, and new outbreaks occurred in the coastal plains of NORTH CAROLINA and in the Great Smoky Mountains National Park. In TEXAS, pine losses were the greatest since 1962. The outlook improved in MISSISSIPPI, ALABAMA, SOUTH CAROLINA, and VIRGINIA where SOUTHERN PINE BEETLE numbers declined. The BLACK TURPENTINE BEETLE (D. terebrans), which infested stumps and residual trees in logging areas of LOUISIANA, MISSISSIPPI, and TEXAS in 1967, subsided to the point where chemical control is now not necessary. Drought contributed to a buildup of ENGRAVER BEETLES (Ips spp.) in several areas. New infestations of BALSAM WOOLLY APHID (Adelges piceae) appeared in the Fraser fir forests of the southern Appalachians. SAWFLIES, FALL WEBWORM (Hyphantria cunea), and a variety of nuisance pests were evident in many localities.

#### Situation in the Lake and Central States and the Northeast

SPRUCE BUDWORM remained a major problem in the Northeastern States. In MINNESOTA about 500,000 acres of spruce-fir type are infested. Control may be needed in some recreation areas in 1969. SPRUCE BUDWORM remained active on over 80,000

acres near Oxbow, MAINE. Except in Lower MICHIGAN, JACK-PINE BUDWORM (*Choristoneura pinus*) populations were static in the Lake States. Outbreaks of PINE TUSSOCK MOTH (*Dasychira plagiata*) are recurring in MINNESOTA and WISCONSIN. SARATOGA SPITTLEBUG (*Aphrophora saratogensis*) populations are increasing in those two States and also in MICHIGAN and MAINE. Damage by BALSAM WOOLLY APHID continued in the fir stands of northern New England. A mixed population of FALL CANKERWORM (*Alsophila pometaria*) and OAK LEAF TIERS (*Croesia* spp.) defoliated over one million acres of oak in PENNSYLVANIA, NEW JERSEY, and WEST VIRGINIA. Several species of OAK LEAF ROLLERS damaged red oaks over a 360-square mile area in Lower MICHIGAN. SADDLED PROMINENT (*Heterocampa guttivitta*) again heavily defoliated hardwoods from the Lake States to New England. A disease reduced SADDLED PROMINENT populations in PENNSYLVANIA and Upper MICHIGAN; however, this insect is expected to increase in some areas of NEW YORK in 1969. The FOREST TENT CATERPILLER (*Malacosoma disstria*) continued to defoliate large acreages of aspen in MINNESOTA and MICHIGAN. BEECH SCALE (*Cryptococcus fagi*) moved into MASSACHUSETTS and NEW YORK causing mortality to sawtimber-size stands. Hardwood BORERS continue to damage oaks from MARYLAND to MISSOURI. The annual loss caused by these BORERS in Missouri is estimated at \$2,000,000.

### Suppression Activities

Continuing the trend of the past few years, bark beetles were the major target of control efforts in the Nation during 1968. Although the direct control effort against the mountain pine beetle in lodgepole pine stands of the intermountain West was reduced, it remained the largest bark beetle project in the country. Studies and continuous assessments of the direct frontal attack on this outbreak have led to realignment to emphasize salvage and harvest. In the future, less dependence will be placed on a direct control program.

In the South and Southeast the Forest Service joined with the States of North Carolina, Mississippi, Louisiana, and Texas in efforts to suppress the destructive southern pine beetle on Federal, State, and private forested lands. By the end of 1968, timely salvage logging, cutting and burning, or chemically treating infested trees had resulted in good control on all areas except in Texas and parts of Louisiana.

Only a minor amount of control work was needed on other bark beetles during 1968. Outbreaks of Douglas-fir beetle, spruce beetle, western pine beetle, and mountain pine beetle in ponderosa pine were handled by salvage and commercial thinning sales with minimum reliance on chemical treatment.

Control projects to suppress defoliating insects involved less acreage in 1968 than in other recent years. Only about 33,500 acres were sprayed, and of this total over 17,000 acres were treated in pilot control studies. One study (in cooperation with the Maine Forest Service) was made to evaluate the effectiveness of an organophosphate against the spruce budworm. The results were not satisfactory.

A carbamate that shows promise as a replacement for DDT for budworm control, was again tested in 1968 in Montana. The nonpersistent chemical was applied at the rate of 1 ounce in 1 pint of carrier per acre. The spray was applied by aircraft equipped with the aerosol spray system developed by Forest Service engineers. Control results were unsatisfactory, but this was not considered due to the ineffectiveness of the insecticide. Plans are to retest this carbamate in 1969 at a dosage rate of 2.4 ounces in one-half gallon of carrier.

Thorough and timely evaluations of jack-pine budworm outbreaks on National Forests in northern Michigan and Wisconsin led to the cancellation of a 174,000-acre aerial spray project, based mainly on a last minute natural reduction of the budworm population.

In other suppression activities, new outbreaks of pine shoot moth in eastern Washington and eastern Oregon were handled by both spraying and destruction of infested trees. Pine reproduction on 1,200 acres of the Coconino National Forest, Arizona, was aerially treated with dimethoate to prevent damage by the southwestern pine tip moth. A grasshopper infestation in young pine plantations on Mt. Shasta in northern California was aerially treated with malathion. The Agricultural Research Service handled this 4,200-acre project. Saratoga spittlebug was successfully controlled on 1,000 acres in Maine and on 1,900 acres in Wisconsin and Upper Michigan. Additional cooperative projects included white-pine weevil control in New York, larch sawfly in Maryland, European pine sawfly in Pennsylvania, Nantucket pine tip moth in Missouri, and pine tortoise scale control in Wisconsin.

Pest suppression projects are summarized in the following tabulation:

Pest Control Accomplishments in the United States, 1968

<u>Insect</u>	<u>Location</u>	<u>Trees Treated</u>	<u>Acres Sprayed</u>
Southern pine beetle	South and Southeast	266,104	
Black turpentine beetle	South and Southeast	40,431	
Black Hills beetle	Colorado, South Dakota, and Wyoming	17,555	
Mountain pine beetle	Idaho, Wyoming, and Utah	474,974	
White-pine weevil	New York	483,600	
Saratoga spittlebug	Wisconsin	111,750	
Balsam woolly aphid	North Carolina	26,255	
Spruce budworm	Idaho and Maine		33,560
Bark beetles <sup>1/</sup>	California, Oregon, and Washington	45,606	
Miscellaneous	Entire United States	<u>8,413</u>	<u>4,115</u>
Total		1,474,688	37,675

<sup>1/</sup> Reported in various combinations of western pine beetle, mountain pine beetle, Jeffrey pine beetle, ips, flatheaded borers, etc.

REGIONAL AND AREA OFFICE ADDRESSES

U.S. FOREST SERVICE

<u>Region</u>		<u>Region</u>	
1	U.S. Forest Service Federal Building Missoula, Montana 59801	6	U.S. Forest Service P.O. Box 3623 Portland, Oregon 97208
2	U.S. Forest Service Federal Center, Building 85 Denver, Colorado 80225	10	U.S. Forest Service Federal Office Building P.O. Box 1628 Juneau, Alaska 99801
3	U.S. Forest Service Federal Building 517 Gold Avenue, S.W. Albuquerque, New Mexico 87101	<u>Area</u>	
4	U.S. Forest Service Federal Office Building 324 - 25th Street Ogden, Utah 84401	NA	Northeastern Area U.S. Forest Service 6816 Market Street Upper Darby, Pennsylvania 19802
5	U.S. Forest Service 630 Sansome Street San Francisco, California 94111	SA	Southeastern Area U.S. Forest Service 50 Seventh Street Atlanta, Georgia 30323

SHADE TREES

Highlights:

FOREST TENT CATERPILLAR defoliated more than 300,000 acres of hardwoods in Michigan and 75,000 acres in Minnesota. GREAT BASIN TENT CATERPILLAR caused less damage to cottonwood in Utah than for several years. FALL WEBWORM increased in northern Indiana, was widespread in Virginia, and caused heavy defoliation at Bandelier National Monument in New Mexico; populations continued to increase in the Willamette Valley of Oregon. Several DEFOLIATORS damaged sugar maple in Vermont. Larvae of a TORTRICID MOTH caused heavy defoliation of oaks on 500,000 acres in east-central Pennsylvania. ELM LEAF BEETLE caused heavy defoliation of elms in several areas. An outbreak in northern Utah was the worst ever. ASIATIC OAK WEEVIL has spread to the better hardwood areas of Missouri and caused some heavy damage. LOCUST BORER caused severe damage in northern Utah. A BEECH SCALE-NECTRIA complex caused a loss of over 7 million board feet of beech on 2 million acres in Vermont. BIRCH LEAF MINER caused more damage than normal in Wisconsin.

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EASTERN TENT CATERPILLAR (Malacosoma americanum) tents and feeding occurred by May 6 in RHODE ISLAND; tents reached maximum size by May 23. Larvae were widespread throughout VIRGINIA in the spring. By mid-April hatch was completed across the entire range in OHIO, and webbing and defoliation were conspicuous on wild cherry and apple in some southern areas. Larval infestations continued through April and most of May. About the second week of June moth emergence began in the central and southern areas. Hosts included apple, wild cherry, flowering crab apple, quince, and hawthorn. Large populations in counties adjoining the Ohio River were not so common in 1968 as in 1966 and 1967. Disease and parasitism may have contributed to the decline. Populations were heavier, however, in other counties in the southern half of Ohio and in some east-central counties. Eastern tent caterpillar in southern INDIANA declined sharply relative to the heavy numbers of 1965 through 1967. Hatch in WISCONSIN began by April 12; pupation was underway by June 7. Defoliation occurred mostly on chokecherry, apple, and mulberry trees. In ARKANSAS the light numbers of mid-April remained light.

FOREST TENT CATERPILLAR (Malacosoma disstria) populations remained very low in VERMONT. This pest defoliated more than 300,000 acres of mixed hardwood stands in Antrim, Charlevoix, and Kalkaska Counties, MICHIGAN. Not so severe infestations were noted in Wexford and Grand Traverse Counties. Other infestations in the Lower peninsula did not reach severe defoliation proportions in 1968 but may in 1969. The area of heavy defoliation in MINNESOTA was smaller than that in 1967. Defoliation was heavy on about 75,000 acres and ranged from very light to light on about 2 to 3 million acres of Populus sp. and hardwoods such as birch and ash. About 7 million acres covering about 300 townships in northeastern Minnesota are involved. No controls, other than individual efforts, are projected for 1969. While light in many MONTANA communities, forest tent caterpillar was heavy at Havre, Hill County; Chinook, Blaine County; Dillon, Beaverhead County; and Bozeman, Gallatin County. Forest tent caterpillar in UTAH was lighter than normal generally, but susceptible hosts were damaged in several canyons.

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) caused less damage to cottonwood foliage in Washington, Grand, San Juan, and southern Emery Counties, UTAH, than in several years. A TENT CATERPILLAR (M. incurvum discoloratum) was heavy on poplar in Clark County, NEVADA, in March and April. Local abundance of M. constrictum in Marion County, OREGON, indicated a great increase in population.

MIMOSA WEBWORM (Homadaula anisocentra) was reported in 18 new IOWA counties from 3 different areas in 1968. Damage to honeylocust was quite severe. In INDIANA second-generation damage to honeylocust was more widespread than for several years. The southern districts had the heaviest infestations, up to 60 percent browned foliage. In OHIO honeylocust defoliation was particularly heavy and widespread, up to 80-90 percent in late July and early August. By the first week of June early instars had begun feeding on honeylocust in the east-central area. In mid-July severe and widespread defoliation began to appear. By the first week of August second-generation larvae were present. Mimosa webworm ranged moderate to heavy in most of MARYLAND and was common throughout VIRGINIA. Numbers in central and western TENNESSEE were heavy from early August into fall. Severe damage was localized. Mimosa webworm was again the major pest of mimosa trees throughout ALABAMA. Light activity in OKLAHOMA began in mid-July. This pest was present in at least 21 counties in the north-central, northeastern, central, east-central, and southeastern areas. Leaf damage ranged 70-90 percent in all but marginal areas. Mimosa webworm extended its range in CALIFORNIA into Tehama County.

FALL WEBWORM (Hyphantria cunea) webbing in RHODE ISLAND was evident by July 28 with many large tents by September 3. Numbers in OHIO did not start to increase until late July and early August. About the third week of August larval numbers were near their seasonal peak, and webbing was extremely common through much of central to eastern Ohio. By early September larvae were approaching full growth. Numbers in southwestern INDIANA were lighter than in 1967 on hickory, walnut, and wild cherry trees. In northern Indiana populations increased slightly from the

low levels of 1967. Webs were first observed in mid-July in the southern areas and in late July in the north. Fall webworm was widespread throughout VIRGINIA. Webs and defoliation became noticeable in August throughout TENNESSEE. Defoliation was heavy on redbud and oaks, especially in the central and in some western areas of Tennessee.

Fall webworm appeared in mid-May in southern ARKANSAS. Infestations were lighter than normal, especially in the northwestern area. Numbers in MISSOURI were lower in 1968 than in 1967; some parts of the southwestern area had moderate to heavy damage on individual trees. The first generation in KANSAS was numerous during June and early July, but the second generation was no greater than in past years. Fall webworm was light on most ornamentals and heaviest on cottonwoods and wild plums in southwestern, central, and northern NEBRASKA. Defoliation in NEW MEXICO was heavy on cottonwoods and willows at Bandelier National Monument near Los Alamos, San Miguel County, and occurred to shade trees throughout most of the State. Populations are still increasing in the Willamette Valley of OREGON. Many trees were almost completely defoliated, and new adults were seen at lights in Salem in late May.

YELLOW WOOLLYBEAR (Diacrisia virginica) was very abundant in shelterbelts in the northeastern and east-central parts of MONTANA. HICKORY TUSSOCK MOTH (Halisidota caryae) larvae in TENNESSEE damaged forest and shade trees in Johnson County during early July. Halisidota sp. was moderately abundant with light sycamore defoliation in PENNSYLVANIA in August. SYCAMORE TUSSOCK MOTH (Halisidota harrisii) larvae were reported on sycamore in RHODE ISLAND on September 4.

SADDLED PROMINENT (Heterocampa guttivitta) along with GREEN-STRIPED MAPLEWORM (Anisota rubicunda), and PINK-STRIPED OAKWORM (A. virginensis) defoliated 1,612 acres of sugar maple, beech, and yellow birch trees in the Groton State Forest of VERMONT late in the season. Saddled prominent larvae in PENNSYLVANIA defoliated more than half of 1,500 acres in Wayne County. Smaller, localized areas were infested throughout the northeastern quarter of the State. Defoliation ranged moderate to heavy on 50,000 acres. VARIABLE OAK LEAF CATERPILLAR (H. manteo) defoliated 80-90 percent of the oaks over several square miles of Worcester County, MARYLAND. YELLOW-NECKED CATERPILLAR (Datana ministra) was heavier on pin oaks in northern INDIANA during August than for the past 5 years. RED-HUMPED CATERPILLAR (Schizura concinna) in CALIFORNIA was much lighter in 1968 than in 1967.

LINDEN LOOPER (Erannis tiliaria) defoliated up to 40 percent of 100 acres of sugar maples in Hazen's Notch, VERMONT, in the spring. FALL CANKERWORM (Alsophila pometaria), primarily, defoliated about 15,351 acres of red maples and elms in the wetlands of the Champlain Valley, Vermont. It was associated with linden looper, SPRING CANKERWORM (Paleacrita vernata), and ELM SPANWORM (Ennomos subsignarius). Fall cankerworm partly defoliated a wide area of northeastern PENNSYLVANIA with less damage than in 1967. Defoliation in Lackawanna, Luzerne, and Wyoming Counties was about half that of 1967. A GEOMETRID MOTH (Physoctegania pustularia) aroused much concern in Pennsylvania in late June and early July when thousands of moths descended upon homes in the evenings. The greatest moth numbers occurred in Schuylkill, Berks, Dauphin, Perry, Mifflin, and Northumberland Counties. Some red maples were defoliated in Dauphin County. Spring cankerworm in SOUTH DAKOTA defoliated elms near Pickstown, Charles Mix County, and Spearfish, Lawrence County, in late May and early June. Some controls were applied. Eulype hastata caused minor defoliation of white birch in the northern Black Hills of South Dakota late in August. Adults and larvae of fall cankerworm were found on cottonwoods at Mildred, Prairie County, MONTANA.

A TORTRICID MOTH (Croesia sp.) caused 80 percent defoliation to the pin oaks along Merrit Parkway in Fairfield County, CONNECTICUT. C. semipurpurana continued heavy in large areas of PENNSYLVANIA, especially through the east-central section. Larvae heavily defoliated about 0.5 million acres of oaks. Oak mortality was 20-25 percent in this area. Archips semiferanus extensively damaged oaks

with some tree mortality in the northeastern Lower Peninsula of MICHIGAN. Severity should continue in 1969, but controls are expected only for high value trees.

DOGWOOD BORER (Thamnosphacia scitula) was common on ornamental plantings in CONNECTICUT and was widespread and damaging to 50 percent or more of the trees in lawn and street plantings in ALABAMA. LILAC BORER (Podosesia syringae syringae) infested ash trees in the northern, central, and eastern counties of MONTANA. A CLEARWING MOTH (Aegeria tibialis) heavily damaged poplar trees in Mono County, CALIFORNIA.

The following Lepidoptera were also troublesome. MAPLE TRUMPET SKELETONIZER (Epinotia aceriella) was unusually common on shade trees in NEW HAMPSHIRE, and SATIN MOTH (Stilpnotia salicis) completely defoliated ornamental poplars in several areas of the State. In VERMONT satin moth defoliation was noted in Addison County and on individual poplars scattered throughout the State. OAK SKELETONIZER (Bucculatrix ainsliella) was heavy in areas of New Haven County, CONNECTICUT. Heavy numbers of BAGWORM (Thyridopteryx ephemeraefomis) infested several tree species, including sycamore, throughout DELAWARE. It also heavily defoliated many sweetgums, locusts, and willows along a 6-mile roadside area in Prince Georges County, MARYLAND. PALMERWORM (Dichomeris ligulella) was unusually heavy in scattered but extensive locations in south-central, southeastern, east-central, and northeastern OHIO. Primarily oaks were infested; the amount of defoliation varied. By July 3 pupation was underway in northeastern Ohio.

Other troublesome Lepidoptera were reported in two States in the western area. CARPENTERWORM (Prionoxystus robiniae) has become a threat to shade trees in an increasing number of MONTANA communities. It now occurs in McCone, Garfield, Fallon, Hill, Blaine, Lewis and Clark, Park, and Gallatin Counties. Larvae of MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) in Montana infested elms heavily in Chouteau, Yellowstone, Hill, Rosebud, Teton, and Liberty Counties. Evidence of a LYONETIID MOTH (Paraleucoptera albella) in Montana was again prevalent in Valley, Judith Basin, Broadwater, and Hill Counties. Damage by larvae of a NOCTUID MOTH (Oncocnemis punctilinea) to ash in NEVADA ranged medium to heavy in Clark and southern Nye Counties in April, and damage by BOXELDER LEAF ROLLER (Gracillaria negundella) to boxelder was heavy in Eureka and Lander Counties and moderate in Elko County in August and September.

ELM LEAF BEETLE (Pyrrhalta luteola) was unusually abundant and persisted late in the year in CALIFORNIA. Migrating adults created household problems. Numbers were heavy throughout its range in NEVADA, which was increased to include Esmeralda County. This pest is now known from all counties except Elko and White Pine. This leaf beetle was unusually numerous in many UTAH communities, and an outbreak in Cache County was considered the worst ever. First adults appeared on Chinese elms at Tucson in Pima County, ARIZONA, on March 15, and first instars with many egg masses by April 5. Heavy numbers occurred at Page, Coconino County, from mid-April through May in Mohave County during June, and during July and August in Pima, Pinal, and Coconino Counties, and the Salt River Valley of Maricopa County.

Elm leaf beetle in NEW MEXICO defoliated Siberian elms in 6 northwestern counties, 2 southwestern counties, one south-central county, and one southeastern county. This leaf beetle seriously damaged elms throughout the northern, Rolling Plains, and Trans-Pecos areas of TEXAS. In OKLAHOMA it damaged Siberian elms from early April through September. Defoliation was moderate to heavy in most areas. Elm leaf beetle continued to be the most serious shade tree pest in KANSAS. The heaviest damage in MISSOURI occurred on Chinese elms in the metropolitan areas. From central to northern ALABAMA this pest continued to defoliate and seriously damage elms in lawn and street plantings. Heavy infestations occurred by August 8 in RHODE ISLAND. Damage to elms in VERMONT was very heavy at Essex Junction, Chittenden County, and moderate at Springfield and Woodstock, Windsor County.

The following chrysomelid beetles were also troublesome. ALDER FLEA BEETLE (Aitica ambiens) severely defoliated alder in coastal areas of Lane and Lincoln Counties and at various locations along the crest of the Cascades in OREGON. COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) were heavy on cottonwood in Inyo County, CALIFORNIA, and were reported from scattered areas over MONTANA. ELM CALLIGRAPH (Calligrapha scalaris) was occasionally a pest in OKLAHOMA and caused less damage in KANSAS in 1968 than in 1967. LOCUST LEAF MINER (Xenochalepus dorsalis) heavily damaged black locust trees throughout MARYLAND as it has done in the last 3 years. IMPORTED WILLOW LEAF BEETLE (Plagioderma versicolora) was conspicuous throughout the Eastern Shore and southern sections of Maryland. This beetle was common on willow in CONNECTICUT. Adults were on willow by May 16 and on elm by June 13 in RHODE ISLAND. Many infested willow by September 11. Imported willow leaf beetle heavily damaged willows throughout NEW HAMPSHIRE.

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) was very abundant in dead and dying American elms in Canyon and Ada Counties in IDAHO during August. This beetle became active in OKLAHOMA in mid-April. Emergence of first-generation adults was well underway April 29 in Lancaster County, NEBRASKA. The second brood appeared about mid-August. Smaller European elm bark beetle was not found in any new counties of MINNESOTA in 1968. Populations were about the same as in 1967, but the number of Dutch elm disease cases increased sharply.

POPLAR-AND-WILLOW BORER (Cryptorhynchus lapathi) damaged and killed willows in MONTANA in areas along the Little Blackfoot River; the Clark Fork near Deer Lodge, Powell County; Sourdough Creek near Bozeman, Gallatin County; and in several areas near Kalispell, Flathead County. ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) was reported as a new State record for ARKANSAS and in 8 new counties in MISSOURI in 1968. In Missouri this weevil has spread to the better hardwood-growing regions; damage was heavy in some areas. Overwintered adults of a LEAF-MINING WEEVIL (Odontopus calceatus) in south-central OHIO were feeding on the budding leaves of yellow-poplar in early May; eggs and larvae were also present. During May adults and larvae moderately defoliated yellow-poplar and sassafras in the southern area. Numbers were not so damaging in general in 1968 as during 1966 and 1967.

LOCUST BORER (Megacyllene robiniae) damage in UTAH was severe in Salt Lake and Davis Counties. Poplars and willows were damaged in scattered localities, but several thousand boxelder trees were defoliated in the northern area with especially severe damage in the lower areas of Wellsville, Logan, Blacksmith Fork, High Creek, and other canyons in the Cache Valley. Normal numbers of TWIG GIRDLER (Oncideres cingulata) were active in November in ARKANSAS. Locust borer lightly infested black locust by July 23 in RHODE ISLAND. Dead leaves and "flagging" oak twigs throughout Rhode Island by August 21 indicated high numbers of TWIG PRUNER (Elaphidionoides villosus).

BRONZE BIRCH BORER (Agrilus anxius) caused considerable damage to ornamental birch in Pendleton, Umatilla County, OREGON. The infestation has been present for several years. Some trees are now responding to cultural and chemical controls.

GIANT BARK APHID (Longistigma caryae) was reported in RHODE ISLAND on elm by August 23 and was numerous on willow by September 11. Occurrences in ARKANSAS were heavier and more widespread than in 1967. Early in January, oak was infested. During April and May, honeydew became a problem on cars in many areas. Giant bark aphid was heavy on oak, hickory, and sycamore trees in scattered areas of OKLAHOMA during April, May, and November. Giant bark aphid was heavy on a few sycamore trees during May at Sedona, Coconino County, ARIZONA.

The following aphids were also troublesome. PAINTED MAPLE APHID (Drepanaphis acerifoliae) appeared in ARKANSAS as early as mid-August, became heavy by October, and remained until frost. ELM LEAF APHID (Myzocallis ulmifolii) was an occasional pest in OKLAHOMA. This aphid and WOOLLY ELM APHID (Eriosoma americanum) in UTAH ranged from normal to very numerous. In Utah, painted maple aphid



was light on silver maple, Pemphigus spp. galls were conspicuous on cottonwood leaves and petioles, and Lachnus salignus was below normal. In NEVADA, Chaitophorus sp. and Pterocomma bicolor developed medium to heavy infestations on poplar in Clark County in March and April, and Prociphilus fraxinifolii was heavy on ash trees in the west-central area in April and May. Woolly elm aphid, painted maple aphid, Lachnus salignus, and POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) were some of the predominant aphids in CALIFORNIA. Poplar petiole gall aphid was also the predominant poplar gall maker in MONTANA. Infested trees were found in areas of Stanford, Judith Basin, Sheridan, Liberty, Madison, Teton, Cascade, Phillips, and Blaine Counties.

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) was not a serious problem in MONTANA. This soft scale caused some concern on shade trees in Johnson County, TENNESSEE, in late July and was unusually heavy on maples in sections of Anne Arundel and Baltimore Counties, MARYLAND. CALICO SCALE (Lecanium cerasorum) found in DELAWARE in 1964, is becoming a serious pest on several ornamentals and shade trees, such as dogwood, maple, and sweetgum.

EUROPEAN ELM SCALE (Gossyparia spuria) did not occur so often as previously in CALIFORNIA, but normal numbers infested trees in UTAH, and in NEBRASKA populations remained high in central, southern, southwestern, northern, and northwestern areas. BEECH SCALE (Cryptococcus fagi) and a fungus Nectria coccinea var. faginata were the main factors behind beech mortality on about 2 million acres in VERMONT. A recent survey indicates a loss of 7,655,523 board feet. C. williamsi, recently discovered in Vermont, is lightly distributed throughout the range of sugar maple in the State.

TEA SCALE (Fiorinia theae) was heavy on large hemlocks in the Greenwich area of Fairfield County, CONNECTICUT. Several heavy infestations of OBSCURE SCALE (Melanaspis obscura) were noted on oaks in New Castle County, DELAWARE. OYSTER-SHELL SCALE (Lepidosaphes ulmi) was heavy on elms in SOUTH DAKOTA at Rapid City, Pennington County, and Spearfish, Lawrence County, and damage was heavy on lilac, cotoneaster, and willow trees in all areas of WYOMING. Oystershell scale numbers in UTAH were normal and commonly damaged willows and other susceptible shrubs.

CICADAS (Magicicada spp.) of Brood VIII in OHIO emerged from the ground in late May and were still emerging by the third week of June. In early July adults were still present in the emergence area in Columbiana, Trumbull, Mahoning, Jefferson, Portage, and Carroll Counties. In the second week of June oviposition damage began in the east-central area; by the end of June wilting or "flagging" and twig breakage were obvious. Although birds destroyed large numbers of many isolated populations, some areas continued to support active populations throughout June; Brood VIII, however, did not cause a significant amount of damage in eastern Ohio. Brood VIII of PERIODICAL CICADA (M. septendecim) appeared on schedule in PENNSYLVANIA in 12 western counties. Although numbers were moderately abundant, injury to forest trees was not serious. The earliest emergence occurred on May 14 in Westmoreland County with the latest on June 9 in Venango County.

A PLANT BUG (Orthotylus chlorionis) damaged honeylocusts for the past two years in MICHIGAN and is expected to continue to be of major concern in town, park, and home plantings. ASH PLANT BUG (Neoborus amoenus) was common on ash in UTAH and heavy on trees in Jefferson and Gallatin Counties, MONTANA. A COREID BUG (Leptocoris rubrolineatus) was very abundant on maple in Hood River and Jackson Counties, OREGON, and was very heavy and a considerable nuisance in CALIFORNIA. A LACE BUG (Leptopypha barberi) infested ash trees in San Diego and Fresno Counties, California.

BIRCH LEAF MINER (Fenusa pusilla) damage to shade trees appears less than usual in NEW HAMPSHIRE, but ornamental birch continues to be heavily infested state-wide. Birch leaf miner adults were flying by May 6 in RHODE ISLAND and caused much less damage to birch than in past years. ELM LEAF MINER (F. ulmi) larvae

mined leaves by June 13 in Rhode Island. Birch leaf miner was common in CONNECTICUT while MOUNTAIN-ASH SAWFLY (Pristiphora geniculata) showed an increase in New Haven County. The birch leaf miner infestation was general by June 6 in the southern two-thirds of WISCONSIN. Adults began emerging in Dane County by June 28. Damage was heavier than normal statewide with the most severe damage occurring in the southeastern quarter of the State.

AN ERIOPHYIID MITE (Aceria fraxinivorus) in ARIZONA killed several small modesto ash trees and severely damaged several others in an area of northern Tucson, Pima County. It was collected by G. Wene and J. May on May 17, 1968, and determined by H.H. Keifer. A heavy infestation was found on ash on July 24 in RHODE ISLAND.



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

CORN LEAF APHID appearing on barley in Imperial County, California. (p. 235).

GREENBUG increasing in Rolling Plains of Texas. Appearing on barley in Imperial County, California. (p. 235).

EUROPEAN CORN BORER overwintering larval surveys indicate high winter survival in Maryland, Illinois, and Colorado. (p. 235).

NANTUCKET PINE TIP MOTH surveys in northern Alabama indicate numerous pupae in pines. Damaged 2-year-old pines in Haywood County, Tennessee. (p. 238).

COMMON CATTLE GRUB adults active and annoying cattle in Payne County, Oklahoma. (p. 239).

Detection

A SPHECID WASP reported for first time in Hawaii. This is a new Western Hemisphere record but the species is not known to occur in the continental United States. (p. 241).

Other State records include TEPHRITID FLIES from Wisconsin and Oregon, a WHITEFLY in Texas, and LESSER MEALWORM from Wisconsin (p. 242); and an EPIDERMOPTID MITE from Connecticut (p. 253).

Some First Occurrences of Season

A LEAFHOPPER in Washington, GREAT BASIN TENT CATERPILLAR in Arizona, SPRING CANKERWORM in Minnesota, WESTERN SUBTERRANEAN TERMITE in Oregon, COMMON CATTLE GRUB in Oklahoma, HORN FLY in Oklahoma, PINK BOLLWORM in California.

Forecast

CITRUS RUST MITE infestations on mature fruit expected to increase in Florida. APHIDS expected to increase through mid-April in same area. (p. 237).

Special Reports

Summary of Insect Conditions in the United States - 1968.

Man and Animals (pp. 243-252).  
Households and Structures (pp. 252-254).  
Stored Products (pp. 254-255).  
Beneficial Insects (pp. 255-258).  
Weather of Year (pp. 259-261).  
List of Contributors (pp. 261-262).

Distribution of Face Fly (map). (p. 245).

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WEATHER BUREAU'S 30-DAY OUTLOOK

APRIL 1969

The Weather Bureau's 30-day outlook for April is for temperatures to average above seasonal normals over the western third of the Nation. Below normal temperatures are expected over most of the eastern half of the country, with greatest departures over the northern Mississippi Valley. Near normal temperatures are in prospect over the mid-Atlantic States and in a narrow band over the western Plains. Precipitation is expected to exceed normal over most of the South, the Tennessee Valley, and the Ohio Valley. Subnormal precipitation is indicated over the Great Basin and Southwest, as well as the northern Plains and northern Mississippi Valley. Near normal totals are in prospect along the Pacific northwest coast and the eastern slopes of the northern Rockies, from the southern Plains to the Great Lakes, and along the Atlantic Coast.

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

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WEATHER OF THE WEEK ENDING MARCH 31

HIGHLIGHTS: Pleasant sunny weather continued over the West with a rising temperature trend. In the East, the skies were cloudy, the weather was disagreeably cold, wet, and windy.

PRECIPITATION: Clear, sunny weather prevailed over the West during the week. Light rains fell along the northern Pacific coast as far south as Eureka, California, over the weekend. A storm centered over the Missouri Ozarks early Monday morning moved northeastward arriving at northern Maine by Wednesday. Heavy snow fell in the central and southern Rocky Mountains. An inch or two of snow fell from the northern Great Plains to the Great Lakes with locally heavy rain from the Ozark Mountains across the Ohio River Valley to Maryland and south-  
Weather of the week continued on page 242.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - NEBRASKA - Averaged less than 1 per linear foot in 40 grain fields in Hayes, Hitchcock, Chase, Dundy, and Red Willow Counties. Light, averaged about 0.5 larva per alfalfa crown, in about 25 fields in Hayes, Hitchcock, Chase, Dundy, and Red Willow Counties. (Andersen). Three of 16 alfalfa fields in Dawson County had 1-8 per 10 square feet. (Manglitz). COLORADO - Larvae on wheat in Weld and Morgan Counties. Up to 1 per linear foot of drill row in Milliken area, 0-2 in Hudson and Prospect Valley areas. Feeding light to date. (Johnson). OKLAHOMA - Ranged 2-5 per 10 linear feet in wheat and alfalfa in Greer County. Light to moderate in alfalfa in Beckham County. (Okla. Coop. Sur.).

**BEEF LEAFHOPPER (*Circulifer tenellus*)** - UTAH - Active on *Cheirinia repanda* and *Erodium cicutarium* west of Snowville, Box Elder County. (Knowlton, Mar. 22).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - CALIFORNIA - Appearing on barley in El Centro and Holtville, Imperial County. (Cal. Coop. Rpt.). TEXAS - Light on barley in Brewster County. (Neeb).

**GREENBUG (*Schizaphis graminum*)** - MISSISSIPPI - Light, about 20-30 per 100 sweeps, in 30-acres of winter wheat in Attala County. (Dinkins, Mar. 21). ARKANSAS - Survey negative in northwest area. (Boyer). TEXAS - Survey made in 15 panhandle counties and number per row foot as follows: Carson 500; Gray 500; Roberts 50; Ochiltree 10; Lipscomb 10; Hemphill 100; Hutchinson 20; Hansford 20; Armstrong 1,200; Donley 3,500; Childress 300; Collingsworth 300; Wheeler 200; Hale 400; and Floyd 3,000. (Daniels, Mar. 20-26). Increased activity observed in Baylor, Childress, Foard, Knox, Motley, and Wilbarger Counties; populations heavy in each county. Light to moderate damage in Wichita County. Still problem in counties near Lubbock. Spraying in several areas of Rolling Plains. (Boring). OKLAHOMA - Counts per linear foot as follows: Tillman and Cotton Counties, 100-200 in some fields; Jackson and Harmon Counties, 20-100; Greer and Blaine Counties, moderate; Custer and Washita Counties, 10-20; Cleveland County, light. (Okla. Coop. Sur.). NEBRASKA - None observed in 40 fields in Hayes, Hitchcock, Chase, Dundy, and Red Willow Counties. (Andersen). NEW MEXICO - Light to 100+ per linear foot in barley at Roswell, Chaves County. (Mathews). Very light in small grains near Lovington, Lea County. (Nielsen). ARIZONA - Very light on barley, oats, and wheat in Yuma, Yuma County. (Ariz. Coop. Sur.). CALIFORNIA - Appearing on barley in El Centro and Holtville, Imperial County. (Cal. Coop. Rpt.).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - ARKANSAS - Survey negative in northwest area. (Boyer). NEW MEXICO - Up to 40 per 50 sweeps in alfalfa in Mesilla Valley, Dona Ana County. (Elson).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER (*Ostrinia nubilalis*)** - MARYLAND - Overwintering populations heavy in Wicomico and Dorchester Counties. Ranged 1-8 per plant in stubble. (U. Md., Ent. Dept.). ILLINOIS - Survey in 9 counties indicates winter survival of 77 percent. (Ill. Ins. Rpt.). COLORADO - Live larvae in cornstalks checked in Prospect Valley area, Weld County. (Johnson).

## SMALL GRAINS

**PALE WESTERN CUTWORM (*Agrotis orthogonia*)** - NEBRASKA - Hatching in Dundy and Chase Counties. Trace damage appearing. (Andersen).

**A LEAFHOPPER (*Keonolla confluens*)** - WASHINGTON - First observed in flight at Yakima, Yakima County, March 15. (Landis).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Ranged 40-50 per 100 sweeps in wheat and oats in northwest areas; no increase. (Boyer).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Heavy in small grains in Foard County. (Boring).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Infested 2 of 8 small-grain fields checked at Lovington, Lea County; damage minor to foliage. (Nielsen).

#### TURF, PASTURES, RANGELAND

CHINCH BUG (Blissus leucopterus) - KANSAS - Bunch grass samples for spring survey collected late February from a total of 55 counties in central and eastern districts. Total of 173 samples collected. Average number per square foot by district as follows: Northeast 0, east-central 11, southeast 63, north-central 29, central 77, and south-central 62. (Wilde, Martinez, Redding, Simpson). This replaces note in CEIR 19(13):212. (PPC).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Larger numbers moving from hibernation at Yakima, Yakima County. (Landis, Mar. 21). UTAH - L. elisus active on rangeland at Snowville, Box Elder County March 21. (Knowlton).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - INDIANA - Larval samples on new growth alfalfa in southeastern area negative. (Huber, Mar. 22). ILLINOIS - First and second instars averaged 33 per square foot in 3 to 4-inch alfalfa in southeastern section. (Ill. Ins. Rpt.). TENNESSEE - Hatch began week of March 21 in Blount and Knox Counties. (Mullett). MISSISSIPPI - Averaged 20 larvae per square foot in 3 acres of Oktibbeha County alfalfa. (Dinkins, Mar. 21). Larvae per 200 stems by county: Pontotoc 39, Oktibbeha 19, Marshall 16. Adults per 10 square feet by county: Pontotoc 3, Oktibbeha 3, Marshall 2. (Pitre). ARKANSAS - Survey negative in northwest area. (Boyer). NEVADA - Adults active, mating, and laying eggs in Reno and Sparks area, Washoe County. (Bechtel).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larval averages per 100 sweeps of alfalfa: 150 at Yuma, Yuma County, 500 in Salt River Valley, Maricopa County. Controls applied to some fields. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Larval counts 22 per square foot in alfalfa in southeastern area. (Ill. Ins. Rpt.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Heavy decline in Salt River Valley of Maricopa County; averaged 100 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Light, 3-50 per 50 sweeps, in alfalfa in Mesilla Valley, Dona Ana County. (Elson). ILLINOIS - Averaged 4 per square foot in southeastern area. (Ill. Ins. Rpt.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Large numbers, 14 per 10 sweeps, in weeds near one alfalfa field. Very few in alfalfa in Mesilla Valley, Dona Ana County. (Elson). ARIZONA - Counts per 100 sweeps: 10 adults in Salt River Valley, Maricopa County; 40 nymphs at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

ONION MAGGOT (Hylemya antiqua) - TEXAS - Damaging onions and peas in Kemp, Henderson County. (Finch).

SALT-MARSH CATERPILLAR (Estigmene acrea) - FLORIDA - Full-grown larvae abundant in old fields of tomatoes and beans overgrown with weeds at Homestead, Dade County. (Habeck et al.).

## DECIDUOUS FRUITS AND NUTS

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - Observations March 11 indicate only 2 percent alive in hibernation at Wenatchee, Chelan County; 70+ percent survival expected. (Anthon, Smith).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Dormant sprays begun March 24 in north-central area; adults laying eggs. Up to 8 adults per tray. Reduction in treated orchards ranged 70-90 percent in lower Yakima Valley. First scattered eggs found in upper Yakima Valley. (Burts, Johnson).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - First nymphs noted March 17 in orchard in upper Yakima Valley; on March 19, 72 percent of eggs viable, 28 percent collapsed, and 10 percent hatched at Yakima, Yakima County. Lack of pruning in freeze-damaged orchards resulted in unusually large numbers of eggs in lower Yakima Valley. (Johnson, Powell).

APPLE APHID (Aphis pomi) - WASHINGTON - First eggs hatched March 18 at Parker Heights, Yakima County. (Johnson).

PEACH SILVER MITE (Aculus cornutus) - WASHINGTON - Mortality 99 percent in Rock Island area, Chelan County, March 25. (Anthon, Smith).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - OREGON - Overwintering forms on buds of pear trees in Jackson County. (Berry).

## CITRUS

Citrus Insect Situation in Florida - Mid-March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 72 (norm 61) percent of groves; 52 (norm 40) percent economic. Above normal and in high range. Infestations on leaves and fruit similar, while increase expected on mature fruit and decrease on mature leaves. Spring leaves likely to harbor important infestations after mid-April. Highest districts south, west, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 33 (norm 31) percent of groves; 15 (norm 14) percent economic. Near normal in low range. Increase started, expected to continue. Predicted moderate to heavy for 20-25 percent of groves. Highest districts central and north. CITRUS RED MITE (Panonychus citri) infested 34 (norm 39) percent of groves; 10 (norm 12) percent economic. Slightly below average for this date, in low range. Gradual increase expected, about 15 percent of groves likely to develop moderate to heavy infestations. Highest districts east, west, and south. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) present in 7 percent of groves as light infestations. Slight increase expected. GLOVER SCALE (Lepidosaphes gloverii) infested 69 (norm 80) percent of groves; 5 (norm 16) percent economic. PURPLE SCALE (L. beckii) infested 67 (norm 78) percent of groves; 5 (norm 9) percent economic. YELLOW SCALE (Aonidiella citrina) infested 78 (norm 62) percent of groves; 3 (norm 12) percent economic. BLACK SCALE (Saissetia oleae) infested 21 (norm 30) percent of groves; 6 (norm 13) percent economic. CHAFF SCALE (Parlatoria oleae) infested 34 (norm 61) percent of groves; 1 (norm 9) percent economic. An ARMORED SCALE (Unaspis citri) infested 18 percent of groves; 8 percent moderate to heavy. All above scales at low or moderate levels in all districts. Activity below average for this date, little change expected before mid-April. All populations below normal March levels except U. citri. WHITEFLIES increased, still at low to moderate levels; of little concern. MEALYBUGS below normal and very low. APHIDS present in 10 percent of groves, near average for this date; strong increase expected to occur through mid-April. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CALIFORNIA RED SCALE (Aonidiella aurantii) - ARIZONA - Two additional infestations reported from Yuma, Yuma County. All infestations treated March 18. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Heavy in one lemon grove at Yuma; eggs and adults average about 80 per leaf. (Ariz. Coop. Sur.).

## ORNAMENTALS

BLACK THREAD SCALE (Ischnaspis longirostris) - FLORIDA - Adults on 4 of 15 Gardenia jasminoides plants at Perrine, Dade County, March 4. (Dillon, Simpson). This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Collected on myrtle, Myrica rubra, at Gainesville, Alachua County, February 10 by G.W. Dekle. This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

AN ARMORED SCALE (Diaspis boisduvalii) - TENNESSEE - Moderate to heavy on orchids in 3 greenhouses in Hamilton County. (Bogard). FLORIDA - Collected on Zamia floridana at Gainesville, Alachua County, February 26 by G.W. Dekle. This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Survival of overwintered eggs high on cedars and other shrubs from Shelby County north to State line. (McQueen).

A SLUG (Veronicella moreleti) - TEXAS - Collected in nursery in Hidalgo County by J.I. Locklar, March 29, 1968; and in nursery in Willacy County by R. Kloepping, April 11, 1968. Determinations by W.J. Byas. (PPC).

## FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Numerous pupae overwintered in tips of isolated 2 to 8-year-old pine trees in street and highway plantings in Madison, Morgan, and other northern counties. (McQueen). TENNESSEE - Damage heavy in 2-year-old pine stand in Haywood County. (White). VIRGINIA - Infestation ranged 90-100 percent in loblolly and Scotch pine Christmas tree plantation in King William County. All observed buds contained pupae. (Weidhass, Andrews).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TENNESSEE - Aerial survey located several isolated small spots in Roane, Anderson, Campbell, and Union Counties. New faders not present, only old kills. (Applegate).

BLACK PINE-LEAF SCALE (Nuculaspis pini) - CALIFORNIA - Medium on pine nursery stock in Saratoga, Santa Clara County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - VIRGINIA - Very light on few trees in Scotch pine Christmas tree plantation in Buckingham County; trees 2 to 3 feet high. (Weidhass, Baldwin).

SPRUCE SPIDER MITE (Oligonychus ununguis) - ARIZONA - Heavy on Italian cypress at Tucson, Pima County. Many trees turning brown. (Ariz. Coop. Sur.).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - ARIZONA - Heavy in cottonwood trees at Tucson, Pima County. (Ariz. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - MINNESOTA - First female moths of season reported from St. Paul, Ramsey County. (Minn. Ins. Rpt.).

OBSCUR E SCALE (Melanaspis obscura) - MARYLAND - Heavy on oak planting in Silver Spring, Montgomery County. Causing dieback on many red and scarlet oaks in wooded areas in Greenbelt, Prince Georges County. (U. Md., Ent. Dept.).

## MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - WYOMING - Averaged 6 per head in untreated animals at Laramie, Albany County, and 9 per head at Torrington, Goshen County, March 10-11. Emergence of larvae peaked about March 15 at Laramie. (Lloyd, Parshall). OKLAHOMA - Averaged 0.1 per head in steers in Payne County and light in Mayes County. Adults active and annoying cattle in Payne County. First report of year. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Light, less than 10 per head, on steers in Payne County. First report of year. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - TENNESSEE - Annoying in home in Jefferson County. (Mullett).

CATTLE LICE - MISSISSIPPI - Light to moderate on 50 head of beef cattle in Oktibbeha County. (Dinkins, Mar. 21).

HORSE BITING LOUSE (Bovicola equi) - MISSISSIPPI - Heavy on several horses in Oktibbeha County. Treatment required. (Combs).

## HOUSEHOLDS AND STRUCTURES

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - OREGON - Alate forms in flight in Jackson County. (Berry). WASHINGTON - First reports of winged forms, probably this species, in houses in Wenatchee, Chelan County, March 17. (Rushmore).

CLOVER MITE (Bryobia praetiosa) - NEVADA - Heavy migrations into homes in southern Washoe County. (Nev. Coop. Rpt.). UTAH - Entering homes in Salt Lake City and Murray area of Salt Lake County. (Knowlton, Mar. 22). TENNESSEE - Heavy in small office building in Knox County. Controls applied. (Applegate). DELAWARE - Many infestations in homes in several areas. (Boys).

## BENEFICIAL INSECTS

LADY BEETLES - WASHINGTON - First flights of season as follows: Hippodamia convergens (convergent lady beetle) March 11 and H. apicalis March 16 at Kiona, Benton County; Coccinella novemnotata March 16 at Burbank, Walla Walla County. (Landis). OREGON - Adults of Adalia bipunctata (two-spotted lady beetle) very abundant and feeding heavily upon aphids on ornamental maple in Portland, Multnomah County; mating. Moderate numbers of convergent lady beetle adults flying in hills near Falls City, Polk County. (Westcott). ARIZONA - Convergent lady beetle larvae averaged 30 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Lady beetles increasing in alfalfa near Roswell, Chaves County; ranged 3-8 per square foot, 50 percent larvae. (Mathews). Averaged 1 per 50 sweeps in alfalfa in Mesilla Valley, Dona Ana County. (Elson). ARKANSAS - First convergent lady beetle adults of season March 28. Ranged 20-30 per 100 sweeps in wheat and oats in northwest area. (Boyer).

HONEY BEE (Apis mellifera) - ARIZONA - Late spring caused heavy loss of overwintering colonies. Negligible amount of pollen available. Lack of brood depleted many colonies in Yuma and Maricopa Counties. Major shortage expected for citrus pollination. Many colonies destroyed in Salt River Valley because of heavy fowlbrood outbreak. (Ariz. Coop. Sur.).

FLOWER BUGS (Orius spp.) - ARIZONA - Averaged 40 adults per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

GREEN LACEWINGS (Chrysopa spp.) - ARIZONA - Averaged 30 larvae per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.).

A PHYTOSEIID MITE (Zetzellia mali) - WASHINGTON - Examination of duff in prune orchards in lower Yakima Valley indicates poor winter survival. (Anthon, Smith, Mar. 21).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TENNESSEE - Survey completed in Pickwick Dam and Counce area in Hardin County. Boats used to survey shoreline from Mississippi State line to Pickwick Dam. Survey negative. (Turpin). Surveys in Bradley, De Kalb, Giles, Hamilton, Lincoln, Maury, and Rhea Counties negative. (Harris et al.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - First nonsterile moth of 1969 season taken in sex lure trap at Anza Ranch, Borrego Springs, March 7. This is 19 days earlier than in 1968 when first record of season in Thermal, Riverside County. (Cal. Coop. Rpt.).

A SEED CHALCID (Megastigmus pistaciae) - CALIFORNIA - Studies reinitiated at Chico. Caged nuts, checked daily, showed no adult emergence to March 28. Of nuts on ground 90 percent moldy and rotted; may not support seed chalcid. Thirty stickyboard traps placed in two pistachio orchards outside Plant Introduction Station in Butte County. (Cal. Coop. Rpt.).

WHITE GARDEN SNAIL (Theba pisana) - CALIFORNIA - Herbicides applied to vegetation in vacant lots within infested area of Manhattan Beach, Los Angeles County, to eliminate food supply and increase bait acceptance; 5 properties treated. Inspection showed treatment successful. Second baiting completed. (Cal. Coop. Rpt.).

WOOLLY WHITEFLY (Aleurothrix floccosus) - CALIFORNIA - Survey completed on 40 city blocks in San Diego, San Diego County; 29 infested. Confirmed infested blocks now 600. Survey centered in area between or adjacent to older infestations. Treated 296 trees on 116 properties. One live infestation recorded during check of 28 sprayed properties; mortality 96 percent in this infestation. (Cal. Coop. Rpt.).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 3/22-27, BL - Armyworm (Pseudaletia unipuncta) 1, black cutworm (Agrotis ipsilon) 5, granulate cutworm (Feltia subterranea) 14, salt-marsh caterpillar (Estigmene acrea) 2. TEXAS - Brownsville - 3/8-21, 2BL, 42-82°F, precip. .08 - Armyworm 25, black cutworm 56, cabbage looper (Trichoplusia ni) 1, corn earworm (Heliothis zea) 75, granulate cutworm 4, pale-sided cutworm (A. malefida) 107, tobacco hornworm (Manduca sexta) 3, tomato hornworm (Manduca quinque maculata) 1, variegated cutworm (Peridroma saucia) 7, yellow-striped armyworm (Prodenia ornithogalli) 1. TEXAS - Waco - 3/17-27, BL - Armyworm 9, granulate cutworm 3, variegated cutworm 14.

#### CORRECTIONS

CEIR 19(10):149 - SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ARKANSAS - First sentence should read: Detection flights by U.S. Forest Service and Arkansas Forestry Commission personnel made in Ashley County, February 24, 1969.

CEIR 19(13):212 - CHINCH BUG (Blissus leucopterus) - KANSAS - Delete note; figures in error. See page 236 in this issue for corrected note. (PPC).

HAWAII INSECT REPORT

New State Record - Two specimens of a SPHECID WASP (Pison punctifrons Shuckard) collected at Ewa, Oahu, determined by J.W. Beardsley; one collected in March 1960, the other in August 1961. This is fifth species of genus to occur in State; probably not recognized earlier because of superficial resemblance to other species. Apparently all species of genus prey on small spiders. P. punctifrons is widespread in Southeast Asia, the Philippines, and Micronesia. This wasp may construct either free cells, or partition holes in timber, and provisions the cells with small spiders. (Beardsley). This is a new Western Hemisphere record, but the species is not known to occur in the continental United States. (PPC).

General Vegetables - BEAN FLY (Melanagromyza phaseoli) larvae trace to light in seedling snap beans at Waimanalo and Waianae, Oahu. Only 1-5 percent of seedlings in some fields heavily infested; adults light on foliage. Adults medium on leaves of seedling yard-long beans on farms at Waimanalo and in backyards at Ewa; larvae light in leaves and stems. Larval damage and adults medium in backyard snap beans at Waikapu, Maui. (Funasaki, Ah Sam). LEAF MINER FLIES (Liriomyza spp.), GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and CARMINE SPIDER MITE (Tetranychus cinnabarinus) light to heavy in many fields of snap beans, cucumbers, and tomatoes in Waianae, Waimanalo, and scattered plantings in other areas on Oahu; expected to be troublesome on these and several other crops for next six months. (Yamamoto, Sato). Two adults of a STINK BUG (Plautia stali) found on buds of beans; one at Waianae, Oahu, on long beans and other at Waimanalo on snap beans. This stink bug, a pest of fruits and beans in Southeast Asia, repeatedly collected at light in many areas, sometimes in large numbers, since January 1968. However, no significant infestations found to date on fruit trees, beans, or other plants. (Suzukawa, Mitchell). GREEN PEACH APHID (Myzus persicae), carmine spider mite, and greenhouse whitefly light to medium on most eggplants in Waianae, Waimanalo, Pearl City, Punaluu, and Koko Head, Oahu. (Funasaki).

Fruits - SOUTHERN GREEN STINK BUG (Nezara viridula), mostly adults, heavy on foliage and fruits in 5 acres of mixed citrus and on cheeseweed in Kihei, Maui. No apparent damage to citrus. Eggs of Trichopoda pennipes (a tachina fly) on 77 percent of 200 adults collected. (Miyahira). PURPLE SCALE (Lepidosaphes beckii) heavy on bark of 3-year-old citrus trees in Lihue, Kauai. (Sugawa). A SOFT SCALE (Coccus acuminatus) moderate on mountain-apple trees in Hilo, Hawaii; sooty mold noticeable on leaves. (Yoshioka). An APHID (Pentalonia nigronervosa) spotty and heavy in some banana fields at Waimanalo, Waiahole, Kaneohe, and in backyards at Laie, Oahu. Infestations mostly between leaf axils of young plants. BLACK THREAD SCALE (Ischnaspis longirostris), RED WAX SCALE (Ceroplastes rubens), and an ARMORED SCALE (Phenacaspis cockerelli) light to medium on leaves of 5 acres of mango in Kihei, Maui. (Miyahira).

Beneficial Insects - A PTEROMALID WASP (Anysis alcocki), a parasite of scale insects purposely introduced from the Philippines in 1964, previously reported attacking only Ceroplastes cirripediformis (barnacle scale). In January both sexes reared from Saissetia coffeae (hemispherical scale) on asystasia, and males only reared from Asterolecanium bambusae (a pit scale) on bamboo, in Honolulu, Oahu. New host records in Hawaii. (Beardsley).

Miscellaneous Insects - Survey of 300-acre grass area at Hickam Air Force Base, Honolulu, Oahu, revealed only 2 third-instar nymphs of a GRASSHOPPER (Oedaleus abruptus). Area cooperatively treated March 12-13 by Federal and State personnel. (Olson). Adult male of a LONGHORN GRASSHOPPER (Euconocephalus nasutus) picked up at large on farm at Waianae is sixth known specimen taken to date on Oahu. (Konishi).

## INSECT DETECTION

### New State Records

A SPHECID WASP (Pison punctifrons Shuckard) - HAWAII - Two specimens collected at Ewa, Oahu, determined by J.W. Beardsley; one collected in March 1960, the other in August 1961. Apparently all species of this genus prey on small spiders. This is first record for Western Hemisphere. P. punctifrons is not known to occur in the continental United States. (p. 241).

TEPHRITID FLIES - WISCONSIN - Procecidochares atra collected in ammonia bait traps in cherry orchards in Door County July 1968. Determined by G.C. Steyskal. (Conrad). OREGON - The following species collected by K. Goeden and determined by F.L. Blanc: Aciurina thoracica in Klamath County August 6, 1966; Tephritis opacipennis in Deschutes County June 6, 1963; Trupanea femoralis in Klamath County June 6, 1966, and in Jackson County June 7, 1966. (Westcott).

LESSER MEALWORM (Alphitobius diaperinus) - WISCONSIN - Found in turkey litter at Barron, Barron County, December 12, 1968. Determined by T.J. Spilman. (Conrad).

A WHITEFLY (Aleuroplatus quercusaquaticae) - TEXAS - Found attacking post oak near Houston, Harris County, August 12, 1968, by R.M. Eads. Determined by L.M. Russell. (Eads).

AN EPIDERMOPTID MITE (Dermatophagoides pteronyssina) - CONNECTICUT - Heavy in rug and upholstered furniture in home in Meriden. (p. 253).

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Weather of the week continued from page 234.

ward to Arkansas and the Carolinas. Snow mixed with rain fell along the western edge of the precipitation area and blustery winds, gusting to 30 to 45 m.p.h. from the Dakotas to Texas and eastward to the middle Atlantic added to the people's misery. Tornadoes struck in Virginia Monday night, killing 1 person, injuring several, and destroying or severely damaging 15 to 20 homes and several apartment buildings. A new storm pushed into the northern Great Plains on Thursday. Light rains from Missouri to Illinois preceded the storm surge which dumped fresh snow from Minnesota to Upper Michigan, 5 inches at Minneapolis. Flurries fell from the northern Rocky Mountains to the Dakotas. Northern and western New York received 3-6 inches of new snow about midweek.

TEMPERATURE: Pleasant sunny weather continued over most of the West. A rising temperature trend produced the warmest temperatures of the year in California. Thermal, California, registered 97° on Friday and Saturday afternoon. In contrast, cold air spilled southward over the central and eastern States. Tallahassee, Florida, registered 28° Thursday morning, setting a new low-temperature record for so late in the season. Cool temperatures over the northern Great Plains, low 40's in the afternoon and below freezing at night, slowed the melting of the deep snow cover in the Red River of the North Valley and the valleys of the Big Sioux and other tributaries of the Big Muddy. As the weekend approached, a fresh blast of arctic air swept southward across the central Great Plains, tumbling temperatures to below zero as far south as northeastern Nebraska and northern Iowa.

FLOOD SITUATION AND OUTLOOK: The northern tributaries of the middle Missouri River are rising rapidly due to snow melt and will exceed flood stage during the next few days. Principal tributaries are the Little Sioux, Floyd, James, and the Big Sioux. The snowpack has not yet begun to thaw in the upper Mississippi and the Red River of the Northern basins, and the flood potential remains high in those areas. (Summary supplied by Environmental Data Service, ESSA.)



SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1968  
(Continued from page 232)

MAN AND ANIMALS

Highlights:

MOSQUITOES were annoying in many areas of the United States during 1968 and were heavier than usual in some areas. FACE FLY was found for the first time in California and Nevada and is now known to occur in most counties of Montana. Face fly was annoying to livestock in many areas and is the most troublesome fly species of livestock in Maryland. HOUSE FLY was numerous about poultry houses in Utah and was of much concern around hog and poultry operations in Alabama. SCREW-WORM was the worst in the Southwest since 1962, with a total of 9,877 confirmed cases. HORN FLY was heavy in many areas of Texas and southern Illinois and remained the most important pest of range cattle in North Dakota. STABLE FLY was very annoying to untreated cattle in Iowa and annoyed cattle in the Boise Valley of Idaho for the first time in several years. HORSE FLIES, DEER FLIES, and BLACK FLIES were annoying in some areas. CATTLE LICE were problems in some areas, and several species were serious in Alabama. SHEEP BITING LOUSE was an important pest in Texas. AMERICAN DOG TICK populations were much lower than in 1967 in Wisconsin. WINTER TICK was heavier than in many years in Oklahoma.

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MOSQUITOES (*Aedes* spp.) were heavy throughout VERMONT. In southern NEW HAMPSHIRE a heavy spring brood of *Aedes* spp. emerged in early May. *Culex* spp. and *Aedes* spp. were prevalent throughout RHODE ISLAND by July 9 and continued a nuisance throughout the summer. Mosquitoes were more abundant in CONNECTICUT in 1968 because of a wet spring. In DELAWARE the three major species, SALT-MARSH MOSQUITO (*Aedes sollicitans*), *A. vexans*, and *Culex pipiens*, were not so abundant as last season. Mosquito populations in MARYLAND were 26 percent lower in 1968 than in 1967. Of all the females collected from 21 traps in 16 counties, *Aedes sollicitans* accounted for 24.8 percent, and *Culex* spp. represented 30.5 percent. Female *Culex* spp. decreased from 57 percent of the total in 1967.

*Psorophora confinnis* was relatively more abundant in the Palm Beach County area of FLORIDA because of more rain in 1968. The species was most active in late spring and during summer. The mosquito nuisance was greater than usual and serious all summer in the Sanford area of Seminole County. At a large dairy near Green Cove Springs, Clay County, the entire pasture area had to be treated in September. *A. sollicitans* was the worst in about 10 years in the panhandle section. Probably reflecting an early spring drought and several summer storms, *A. taeniorhynchus* peaked in extreme southeastern Florida in late May and in the central east coast area during June and July. Salt marsh *Aedes* were more abundant during September and October in the western area where a dry summer was followed by locally heavy rains and possibly some peak tides late in the season. The number of cases of equine encephalitis (36) was twice that of 1967. One human in the Homestead area of Dade County, Florida, was infected with Venezuelan encephalitis during September.

COMMON MALARIA MOSQUITO (*Anopheles quadrimaculatus*) probably transmitted 4 confirmed cases of human malaria in Lee County, ALABAMA. These cases were the first reported in the State since 1960 by the Alabama Department of Health. *Aedes sollicitans* and other mosquitoes were annoying throughout the season, especially along the coastal areas and lakes. Various species, as usual, severely annoyed man and animals in all low areas of ARKANSAS. Numbers in OKLAHOMA were generally light. *Culiseta inornata* was fairly common in April and October. *Culex pipiens* complex and *Aedes* spp. caused occasional trouble during fall in Oklahoma.

Floodwater mosquitoes in most of OHIO were exceptionally heavy and annoying during June. Heavy rains in May left standing water in depressions. Mosquitoes, mostly Aedes vexans, reached very annoying levels in northern INDIANA because of extremely wet conditions in late May; by mid-July annoyance was severe in the central and northern areas. Populations were described as "worst ever" and "worst in 15 years" during 1968. Mosquitoes in MICHIGAN were of primary concern after July. The enormous numbers made camping and other outdoor activities unpleasant. Chemical controls statewide were only partly effective because large community control projects and water management are needed. The first NORTHERN HOUSE MOSQUITO (Culex pipiens pipiens) in WISCONSIN was caught in the Mazomanie blacklight trap by April 5. By May 17, FLOODWATER MOSQUITO (A. sticticus) was biting in Iowa County. By June 14, biting of man and cattle was severe in all counties. Late in June heavy rains provided breeding pools. Not until the first week of August did biting become localized. A. vexans was by far the most numerous biter in Wisconsin with A. sticticus second.

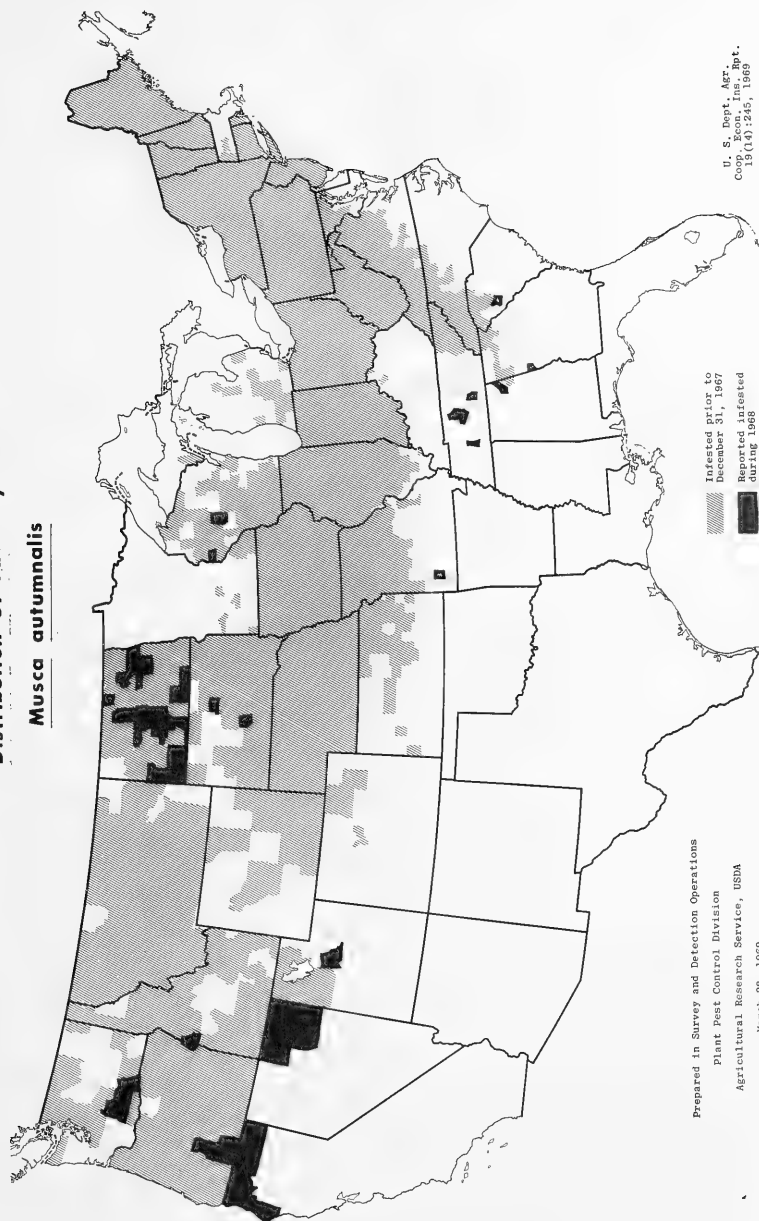
The first spring Aedes spp. and A. vexans in MINNESOTA emerged May 11-17. By June 15, adults had sharply increased with warmer weather. Nuisance, particularly in the southern half of the State, was high. In late June cooler weather restricted activity somewhat. In late June Mansonia perturbans appeared, remained in significant numbers until its peak in mid-July, and then declined in August. Very heavy rains from late June through August led to widespread mosquito breeding and high nuisance levels. Adult control programs by municipalities were often unsuccessful. Peaks were noted during the weeks ending July 13 and August 17. A. vexans was predominant throughout the season. By August 9, A. trivittatus was significant. After August 23 declining temperatures restricted activity. By September 13 the diapause level of Aedes eggs was 65 percent. The 1968 season in Minnesota may be considered the worst mosquito year of the past 10 years with 1967 being a close second.

Mosquitoes were severe throughout IOWA in 1968. Many cities and towns sprayed or fogged. The first activity in NEBRASKA was reported April 9 in Lancaster County. Problems were fewer statewide than in 1967, but locally heavy infestations occurred, particularly in the northwestern panhandle. In August a case of equine encephalitis was reported from Chadron, Dawes County. In SOUTH DAKOTA much more ultra low volume organic phosphate was used to control horn fly (Haematobia irritans), face fly (Musca autumnalis), and mosquitoes than in 1967 with an estimated 400,000 head of cattle treated. Mosquitoes were heavy in most areas of NEW MEXICO after heavy summer rains. Because of the threat of encephalitis, the area along the Rio Grande from Belen, Valencia County, to Velarde, Rio Arriba County, was treated, as well as the river valley from Espanola to Abiquiu. Heavy mosquito populations throughout WYOMING annoyed man and animals. Heavy rains flooded many areas. Populations were heaviest in Teton, Lincoln, Sublette, and Albany Counties. Mosquitoes were among the three most troublesome and common pests of livestock in UTAH during 1968 and were a problem in homes. Populations throughout NEVADA were generally low because of drought. Outbreaks of several species of Aedes and two species of Culex did occur in localized areas. Numbers were higher than normal and irritating in many local CALIFORNIA areas. Aedes dorsalis was very abundant and severely annoyed cattle in Langel Valley, Klamath County, OREGON, during June. Sixty-five cases of equine encephalitis in horses were reported in 1968 compared with 20 cases in 1967. Cases were reported from Crook, Deschutes, Douglas, Grant, Jackson, Josephine, Klamath, Lake, Morrow, Wasco, and Washington Counties. The single Washington County case was the first reported in 13 years. Most cases occurred in Jackson County. Mosquitoes were generally less abundant than last year in Oregon.

FACE FLY (Musca autumnalis) was collected in 1968 for new State records in CALIFORNIA and NEVADA. In Nevada light to medium populations developed in north-central Elko County during summer. Face fly was much less of a problem than during the summer of 1967 in WASHINGTON. Counts ranged 1-5 per beef animal at Prosser, Benton County, in July, 4-5 per head in Whitman County, and were

# Distribution of Face Fly

## Musca autumnalis



generally low in the lower Yakima Valley. The parasitic nematode (Heterotylenchus autumnalis) infested about 34 percent of the face flies examined. Counts of 50 per head, common in 1967, were rare in 1968. Newly emerged face fly adults were observed on cattle in northern IDAHO by May 31. Counts ranged 0-26 flies per face on several beef herds. Adults averaged 14 per face on untreated Boundary County cattle in mid-July but were very low or absent on pasture cattle in the southeastern area in early July and in the southwestern area in early August. Annoying numbers were observed on range and pasture cattle in widely separated areas of Idaho in late July and early August. Many areas which experienced economic numbers in 1967 did not in 1968. A cool, wet August suppressed development for the rest of the summer. Face fly has been in MONTANA only 5 years but is known to occur in all but 7 of the 56 counties. Fewer flies appeared on the faces of livestock in 1968 than in 1967. By late summer H. autumnalis had parasitized more than 40 percent of the face fly population. In the fall, face flies annoyed householders by entering homes in large numbers. No face flies were observed or reported in WYOMING during 1968. In northern UTAH this pest was common, and populations and annoyance were normal.

Face fly activity in NEBRASKA increased in June and peaked in late August to early September. Populations in SOUTH DAKOTA were lower than in 1967. There were usually one to three per head from July until mid-August when up to 35 per head of stock were observed in Brookings, Charles Mix, and Yankton Counties. New county records were established in Jones and Potter Counties, although this pest was presumed to have been there for several years in low numbers. Use of an ultra low volume organic phosphate to control horn flies, face flies, and mosquitoes continued on a larger scale than in 1967, with an estimated 400,000 head of cattle treated. Face fly populations throughout most of NORTH DAKOTA were noneconomic. However, up to 30 per face annoyed animals in the sand hills area of Ransom and Richland Counties. Reported in 23 new counties in 1968, face fly is now recorded in all but Williams and Divide Counties. Face fly was troublesome in most areas of IOWA. In ILLINOIS counts averaged 33 per animal in August in the central section, with a State average of 9.8 per animal. Face fly was severely annoying on pasture cattle from mid-July through mid-August throughout INDIANA. In the southern areas, counts ranged 11-62 per face, but in the central and northern areas populations ranged 15-100+ per face and averaged 40 per face. Face fly was the heaviest since the survey program in Indiana began in 1964. Face fly adults had emerged from hibernation to annoy cattle in southern OHIO with the first warm weather of early April. In April and early May, 6 and 7 per face were reported. However, numbers did not become significant until mid-July when populations increased rapidly. During the last half of July and August up to 50 flies per face, "tear streaking", and tightly clustered groups of cattle were reported. Face fly appears to be annoying cattle farther north each year in MICHIGAN.

Face fly is the most troublesome fly of MARYLAND livestock. High numbers, 40-150 per head, commonly infested cattle and horses in the central sections in 1968. Controls on beef cattle were not satisfactory. A daily spray program on dairy cattle did not prevent moderate to heavy infestations in the field. Face fly was a severe nuisance in western VIRGINIA. In TENNESSEE face fly was reported in Coffee, Davidson, Decatur, and Williamson Counties for new county records. Annoyance to cattle was high in many eastern areas.

HOUSE FLY (Musca domestica) occurred in seasonal outbreaks while it was otherwise normal in CALIFORNIA. Numbers were above normal in late summer in several UTAH communities and especially numerous about some poultry houses and on many farms. Annoyance in OKLAHOMA occurred around homes and barns from early March to mid-November, and this pest was troublesome in IOWA. House fly adults became numerous in some dairy barns in WISCONSIN late in May. Early in August a marked increase occurred. With longer and cooler August nights annoying numbers entered houses and restaurants statewide. House fly was an annoying and serious health hazard throughout ALABAMA. Large numbers entered homes near dairy barns and poultry houses. Annoying numbers of adults were of considerable concern around hog production and poultry operations in Alabama. In FLORIDA house fly

was present at all times throughout Palm Beach County. House fly was highest in cattle and horse barns and abundant in pastures around molasses and concentrate feed troughs where they would settle on cattle and feed on punctures made by *Haematobia irritans* (horn fly). Large numbers of house fly occurred in Bradford County because of inadequately treated manure in large scale poultry operations. All stages heavily infested chicken houses by August 20 in RHODE ISLAND, but the usual numbers were present elsewhere during summer.

The 1968 season was the worst for SCREW-WORM (*Cochliomyia hominivorax*) outbreaks since 1962 when the United States Department of Agriculture, the States, and the Southwest Animal Health Research Foundation launched the cooperative eradication program. Prior to the resurgence, cases had dropped from 50,850 the first year to only 872 in 1967. In 1968, confirmed cases totaled 9,877; Texas had 9,268, Arizona 405, California 135, and New Mexico 69. In 1967 Texas had 835 cases, Arizona 23, California 14, and New Mexico none. A total of 2,942,889,000 sterile flies were released in the United States during 1968.

There were 19,452 laboratory-confirmed cases of screw-worm in the Mexico portion of the barrier zone. A total of 4,211,947,000 sterile screw-worm flies was released over Mexico.

Strangely enough, 1968 also included the longest screw-worm free period on record, 101 days, which immediately preceded the 1968 outbreak. Intensive eradication efforts had eliminated screw-worm from the United States; however, a large native screw-worm population spread northward from Mexico into the Southwest, causing a peak of 4,155 cases during October.

Since November, cases have dropped off sharply, but officials warn that this is due to cold weather rather than a lessening of the screw-worm menace.

Veterinarians of the Agricultural Research Service attribute the screw-worm resurgence to two major causes: (1) unusually wet and mild weather throughout the Southwest which favored rapid screw-worm spread and hindered eradication efforts, and (2) relaxed preventive measures by many ranchers. If the border region has a mild winter and these conditions continue, they fear an even worse outbreak in 1969.

Program officials are urging all animal owners to inspect their stock regularly, report suspected infestations, treat all wounds with approved smears, and spray herds with prescribed pesticides. Larval samples should be sent to the Screw-worm Eradication Laboratory, Mission, Texas, for identification. Branding and animal surgery should be done between now and early spring while the screw-worm threat is at a low ebb.

In addition to the outbreak and the unusual weather, other program highlights were: The largest production and distribution of sterile screw-worm flies ever achieved, ranging from 96 million to nearly 200 million per week from June through November. The death of a 41-year-old Texas woman from a screw-worm infestation, the first such case in many years. A drastic cutback in sterile fly production in December to conserve program resources, which had been strained by the unusually intensive eradication efforts during the height of the 1968 outbreak.

COMMON CATTLE GRUB (*Hypoderma lineatum*) larvae were found in only 2 of 141 animals examined December 10 on the range cattle experiment station at Ona, Hardee County, FLORIDA. At Gainesville, Alachua County, one first instar infested 6 percent of beef and 9 percent of dairy cattle in early October. Infestations in dairy cattle had increased to 4 percent by late November with 1.3 grubs per infested animal. In mid-December, first to third instars averaged 6 (peak 22) per infested animal in 73 percent of the beef cattle and 4 (peak 16) in 16 percent of the dairy cattle. In Palm Beach County, counts in 1968 were less than in previous years. Grubs ranged 0-46 per head in animals examined January 19 and October 30 and averaged 2.68 and 4.0 per head on those dates, respectively.

Although statewide in ALABAMA and especially important in beef cattle, common cattle grub populations and damage ranged light to medium, probably because of better and widespread use of proper pesticides. Common cattle grub ranged 3-55 (average 19) per back in untreated cattle in January in ARKANSAS. Fall infestations were later and lighter than normal. In OKLAHOMA, larvae were present in backs of cattle through early March, adults were active during March and April, and grubs appeared again in early November. First common cattle grubs of the season in IOWA were found in the backs of cattle during the week of February 9. CATTLE GRUBS (*Hypoderma* spp.) populations were normal in UTAH and near normal in NEVADA during 1968. The occurrences of common cattle grub and NORTHERN CATTLE GRUB (*H. bovis*) were normal in CALIFORNIA. Shipments of cattle from out of State accounted for most infestations.

Cattle grub egg laying activity was heavy in northern IDAHO and in the Bruneau area throughout June. Common cattle grub and northern cattle grub were active in 36 counties of MONTANA. Cattle grubs appeared in the backs of cattle in western NORTH DAKOTA by February 22 and were still evident by May 10. Surveys at livestock auctions at Dickinson, Stark County, and at Mandan, Morton County, showed 39 percent of the animals infested with 1-43 (average 7.9) grubs per back. Populations equaled those of 1967, but the percent of infested animals decreased from 59 in 1967 to 39 in 1968. Infestations in western North Dakota were light in 70, medium in 20, and heavy in 8 percent of the infested animals. Northern cattle grub appeared in the backs of cattle in central and west-central IOWA in early March, and infested animals were first reported at locker plants at the same time.

HORN FLY (*Haematobia irritans*) ranged moderate to heavy, 20-300 per head, on cattle in all the central counties of MARYLAND. Controls reduced numbers somewhat on dairy stock. In Palm Beach County, FLORIDA, moderate numbers infested cattle from January to March. Increase brought the average per head to more than 400 by mid-May and more than 500 by the end of June. Populations peaked at 700 per head on October 29. In 1967, a much drier year, a high of only 560 flies was reached on November 10. In the Gainesville area, Alachua County, counts ranged 300-400 per head on beef and dairy cattle at the end of August and then dropped to less than 50 per head by late October. Late in the season counts were higher on beef than on dairy cattle. Annoying and damaging numbers in ALABAMA occurred mainly on beef herds where proper controls were not applied. Numbers in ARKANSAS were lighter than normal, 100-150 per head, by mid-June but became normal for the rest of 1968. Horn fly activity in OKLAHOMA lasted from late March through mid-November. The highest counts, 600-1,500 per head, occurred from late June to early July and in September. While heavy numbers in TEXAS infested cattle throughout many areas, infestations were heaviest in the Trans-Pecos area.

Horn fly was numerous throughout MICHIGAN with counts as high as 400 per head in August. Counts in southern INDIANA peaked in mid-July and ranged 100-800 (average 200) per head. The generally light counts in the west-central, central, and northern districts peaked in mid-August and ranged 25-50 per head. Counts in the east-central district were the highest with an average of 250-300 per head in mid-August. Horn fly populations averaged 555 per animal in southern ILLINOIS in August, but the State average was 141.2 per animal. This fly was troublesome in most of IOWA. Counts in NEBRASKA increased steadily from May through August; the highest counts, 600-1,000 per head, occurred in late August and early September.

Horn fly populations in SOUTH DAKOTA followed the pattern of 1967 with high counts from mid-June through September. Flies averaged 175 per side on untreated cows east of the Missouri River until the end of July and then increased to 200-250 per side on cows until heavy frosts in September. Peak counts were up to 700 per side on cows and 1,000 on bulls. Use of an ultra low volume organic phosphate to control horn fly, face fly, and mosquitoes continued on a larger scale than in 1967 with an estimated 400,000 head of cattle treated. Horn fly remained the most important pest on range cattle in NORTH DAKOTA. Low

numbers built up to economic levels by the end of the season. Counts of 40-700 per head annoyed untreated cattle throughout WYOMING. In UTAH this was one of the three most troublesome and common pests of livestock. Horn fly infestations were near normal in NEVADA.

STABLE FLY (*Stomoxys calcitrans*) appeared in significant numbers on some west FLORIDA beaches the last half of August as usual. During September and October flies were numerous on some beaches and low elsewhere. The season was over by November 1, somewhat earlier than in the last several years. Occasionally a problem on cattle in VIRGINIA, stable fly was generally light. High numbers in southwestern PENNSYLVANIA from mid-June to late July annoyed cattle and workmen in dairy barns. Counts in central ILLINOIS peaked in August and averaged 34 per head; the State average was 8.2. Stable fly in IOWA was very annoying to untreated herds in mid and late summer. Adults in Lancaster County, NEBRASKA, were first seen on March 8, the earliest record of activity in the State, and last seen on November 22. A buildup in June reached 8-10 per leg in feedlots on June 27 and highs of 30-35 per leg from late July through August 10. Activity then declined. Stable fly was active from early April to late November in OKLAHOMA, counts ranged up to 20 per head in mid-April but were generally less than 10 per head during the rest of the season. This pest was common but normal in numbers and annoyance in UTAH. Stable fly harassed cattle in the Boise Valley of IDAHO for the first time in several years. Stable fly was unusually abundant in parts of the Willamette Valley of OREGON during fall.

HORSE FLIES were unusually prevalent and irritating in CALIFORNIA. These pests were very low in most areas of OREGON although a few instances of severe annoyance were reported in Klamath County. Horse flies were common in UTAH, but populations and annoyance were normal. *Hybomitra frontalis* and *Tabanus* spp. annoyed man and animals throughout WYOMING with heaviest populations observed in Teton, Sublette, and Albany Counties. STRIPED HORSE FLY (*Tabanus lineola*) was present in economic numbers on several cattle herds in Steele, Foster, and Sheridan Counties, NORTH DAKOTA. *Tabanus* spp. were annoying to cattle in OKLAHOMA from late April to late September. Populations were heaviest, 20-35 per head, in mid-June and early September. The common species were *T. lineola* complex, *T. sulcifrons*, and BLACK HORSE FLY (*T. atratus*). Horse flies were very heavy in several areas of TEXAS. Heaviest infestations were reported from the Coastal Plains near Angleton, Brazoria County. *Tabanus* spp. were heavier than usual over most of southwestern TENNESSEE during early summer. *Tabanus* spp. were common but not numerous by July 9 in RHODE ISLAND, but counts were increasing on July 17 and July 24.

DEER FLIES were common but normal in UTAH. *Chrysops* spp. annoyed man and animals throughout WYOMING with largest populations noted in Teton, Sublette, and Albany Counties. Deer flies in MINNESOTA were extremely numerous especially in wooded areas. *Chrysops* sp. began annoying humans in early June in southern Dane County, WISCONSIN. Increase was gradual until late July and then rapid during hot weather. Severe for a few weeks, annoyance then subsided in late August. In RHODE ISLAND *Chrysops* spp. were striking and biting on July 9; they were fairly numerous July 17, July 24, and August 7.

BLACK FLIES in NEW HAMPSHIRE began to be active in late April; numbers were about average. *Simulium* sp. in RHODE ISLAND was common and biting on July 9. Complaints about black flies in CONNECTICUT increased probably because of a wet spring producing better breeding locations. *Prosimulium* sp. in PENNSYLVANIA was abundant and annoying in late April in the Pocono resort area. *Simulium* sp. was very numerous in Forest and Warren Counties of the Cook Forest Park during June. Annoyance in both areas, however, was much less severe than in the past few years. Black flies were not important except in localized areas in the northern counties of WISCONSIN where numbers were heavy sporadically through the summer. In mid-July TURKEY GNAT (*S. meridionale*) emerged very heavily over much of the State. Biting of humans was common July 12-19 within 25 miles of the Wisconsin and Mississippi Rivers. Black flies in MINNESOTA were probably more abundant

than in past years. Several Simulium spp. were taken from a horse's ear in MONTANA, and great numbers were found around a meat packing plant near Missoula, Missoula County.

These Diptera were also annoying. HORSE BOT FLY (Gasterophilus intestinalis) was common and above normal in UTAH and was active in late September and October in OKLAHOMA. Abundant numbers of a MARCH FLY (Dilophus sp.) in some areas of the FLORIDA Peninsula and of another MARCH FLY (Plecia nearctica) in the northern area in June, late September, and early October were a driving hazard for motorists. A BITING MIDGE (Culicoides furens) remained the principal species in coastal FLORIDA. C. tissoti was abundant and biting people at Orange City, Volusia County, in late March; heavy numbers in western Gainesville, Alachua County, forced baseball fans at City Park to use repellents during April. Culicoides spp. in RHODE ISLAND were common and biting on July 10.

A LOUSE FLY (Lipoptena mazamae) was active on deer in east-central OKLAHOMA from mid-January to mid-September. Numbers ranged up to 3,000 per head from mid-August to mid-September. SHEEP KED (Melophagus ovinus) averaged 150 per head on shorn lambs in Lancaster County, NEBRASKA, March 8. Many flocks in UTAH were treated to control the usual numbers of sheep ked. Sheep ked was widespread in MONTANA. Another species of Melophagus was found infesting deer in the Gallatin Forest.

CATTLE TAIL LOUSE (Haematopinus quadripertusus) in FLORIDA was heavy on practically all beef cattle at Ona, Hardee County, in early December; numbers were much lighter in the Gainesville area, Alachua County. None were observed on dairy animals surveyed. Most scattered infestations in Palm Beach County were found during the cooler months of 1968. SHORT-NOSED CATTLE LOUSE (H. eurysternus), LONG-NOSED CATTLE LOUSE (Linognathus vituli), and CATTLE BITING LOUSE (Bovicola bovis) were serious cattle pests in ALABAMA. Range beef cattle, especially, lost weight and vitality during the critical late winter months. In ARKANSAS heavier than normal numbers of a WRINKLED SUCKING LOUSE (Solenopotes capillatus) in the northwestern area and of long-nosed cattle louse, 3-6 per square inch, infested cattle in February. Cattle lice were moderate to heavy in most areas of OKLAHOMA through early April. Short-nosed cattle louse and long-nosed cattle louse were most common with an occasional cattle biting louse. Fall activity began in early November. Lice were severe on cattle during winter in MICHIGAN. Short-nosed cattle louse, long-nosed cattle louse, cattle biting louse, and S. capillatus were light on most animals in IOWA during January and February. Practically all cattle herds in MONTANA are usually infested to some degree with lice, especially the short-nosed cattle louse. Cattle lice in UTAH were among the three most troublesome and common pests of livestock. Lice were near normal in NEVADA. Short-nosed cattle louse was unusually heavy on cattle in a few instances in CALIFORNIA.

HOG LOUSE (Haematopinus suis) moderately infested a herd of young hogs in NEW HAMPSHIRE. Numbers in FLORIDA were light on swine in Suwannee County in mid-October. Although present throughout ALABAMA, hog louse was not a serious problem for swine produced under well managed conditions. Infestations in ARKANSAS were spotted and heavier than normal. Light to heavy numbers in OKLAHOMA occurred through late May and in early September. Hog louse was a pest in IOWA.

A SMOOTH SUCKING LOUSE (Linognathus africanus) killed many deer at Lebec, Kern County, CALIFORNIA. Lice were among the most common pests on poultry in UTAH, especially in many farm flocks. CHICKEN BODY LOUSE (Menacanthus stramineus) infestations were varied and heavy in some areas of ARKANSAS. SHEEP BITING LOUSE (Bovicola ovis) was an important pest in TEXAS.

FLEAS in households and other structures were more numerous than usual in NEW HAMPSHIRE. Annoyance from PULICID FLEAS (Ctenocephalides spp.) in RHODE ISLAND peaked about July 29 and continued into September. CAT FLEA (C. felis) was especially troublesome in DELAWARE homes throughout most of 1968. Cat flea and DOG FLEA (C. canis) were annoying in ALABAMA homes all year, and control efforts



were continuous and difficult. Cat flea infestations were common in OKLAHOMA homes during summer and numerous in CALIFORNIA residences.

BALD-FACED HORNETS, YELLOW JACKETS, Polistes spp. and other stinging wasps were more numerous in 1967 and 1968 than they were in the previous 2 years in MONTANA. Nestings on and near homes were reported from 27 counties. Polistes spp. were one of most common insects invading homes in OKLAHOMA. Wasp problems in MINNESOTA seemed much more prevalent than usual. Several species of Vespa were very abundant from early August to mid-October throughout PENNSYLVANIA. Stings were numerous. Many yellow jackets entered classrooms in many elementary schools during October.

AMERICAN DOG TICK (Dermacentor variabilis) caused some annoyance by May 10 in RHODE ISLAND, was more prevalent in CONNECTICUT during summer, and annoyed homeowners in Montgomery and Prince Georges Counties in MARYLAND. Activity was common throughout the northern two-thirds of WISCONSIN by May 3. Complaints increased sharply with the opening of the trout season, but numbers were generally much lower than in 1967 although locally high numbers occurred in Ashland, Iowa, Chippewa, and St. Croix Counties. Annoyance was minor after late June. American dog tick was active in MINNESOTA in late April, was most common on dogs in north-central OKLAHOMA during April and May, and was an important pest in TEXAS. American dog tick in UTAH was common but normal in numbers and annoyance in range areas.

PACIFIC COAST TICK (Dermacentor occidentalis) infestations in CALIFORNIA were severe and localized with some tick paralysis involved. The number of incidences of BROWN DOG TICK (Rhipicephalus sanguineus) increased in California. WINTER TICK (D. albipictus) was heavy on several species of animals in western NORTH DAKOTA during March and on livestock in eastern OKLAHOMA during January and early February. Fall activity in the latter State began in mid-November with heavier than normal numbers in many areas in late November and December. LONE STAR TICK (Amblyomma americanum) was reported every month except January in Oklahoma; counts were heaviest from June to September in the east-central area. GULF COAST TICK (A. maculatum) was common on Oklahoma cattle (mostly on the ears) in southern Mayes County in late May and early June. BLACK-LEGGED TICK (Ixodes scapularis) infested deer during spring and fall in Oklahoma.

EAR TICK (Otobius megnini) occurred in localized and heavy outbreaks in CALIFORNIA and caused concern for several UTAH ranchers. RELAPSING-FEVER TICK (Ornithodoros turicata) was an important pest in TEXAS.

NORTHERN FOWL MITE (Ornithonyssus sylviarum) ranged light to moderate in a large laying flock in NEW HAMPSHIRE. This mite heavily infested hundreds of chickens, weakening many and killing some, during January and February at Gainesville, Alachua County, FLORIDA. Northern fowl mite was reported as a new county record in Pike County, ARKANSAS. It was found for the first time on turkeys. Up to 1,000 per bird were found in the northwestern area in late May. Unspecified MITES in UTAH were among the most common pests on poultry, especially in many farm flocks.

TROPICAL RAT MITE (Ornithonyssus bacoti) was an important pest in TEXAS. CHIGGER MITES (Eutrombicula spp.) were annoying in north-central, northeastern, east-central, and southeastern OKLAHOMA from mid-June to early August. An ITCH MITE (Sarcoptes scabiei bovis) was positively identified on only one animal in Big Horn County, MONTANA, but a temporary quarantine was established in the area surrounding the range where the animal had grazed. All animals were treated that could have had contact with the infested animal or with the pastures where it had grazed. MANGE MITES (Chorioptes spp.) infested 1,126 cattle herds (mostly dairy herds) of 6,705 herds examined in VERMONT. Sarcoptes spp. infested 12 of these herds.

BROWN RECLUSE SPIDER (*Loxosceles reclusa*) continued to be reported from homes in many areas of OKLAHOMA. Three bites were reported in 1968. Specimens were identified from several widely separated areas of ALABAMA. Brown recluse spider was reported for the first time from Edgar, Clark, Crawford, Jasper, Effingham, Shelby, Madison, Marion, Union, Gallatin, White, Hamilton, and Christian Counties, ILLINOIS, and from Clark, Vanderburgh, Dubois, and Knox Counties, INDIANA.

#### HOUSEHOLDS AND STRUCTURES

##### Highlights:

SUBTERRANEAN TERMITES were major structural pests in Delaware, Oklahoma, and Virginia. Infestations increased in some areas. COCKROACHES were troublesome in dwellings, and EUROPEAN EARWIG was of some concern in the Northeast. CLOVER MITE was annoying in several areas.

EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*) caused an increasing number of complaints and infestations in CONNECTICUT. In DELAWARE *R. flavipes* was perhaps the major economic pest, as in past years. Numerous infestations were reported in the spring and early summer. Infestations of *R. flavipes* in MARYLAND were well above normal in 1968. Most infestations were reported from the central and southern counties. Eastern subterranean termite continued as the major structural pest throughout ALABAMA. Swarms in OKLAHOMA began in early March. In CALIFORNIA unspecified TERMITE infestations were about normal. Infestations of WESTERN SUBTERRANEAN TERMITE (*Reticulitermes hesperus*) and another SUBTERRANEAN TERMITE (*R. tibialis*) in NEVADA were more numerous than normal in Clark, Douglas, Humboldt, and Washoe Counties. Western subterranean termite caused problems of varying seriousness in every county of UTAH. In IDAHO *R. hesperus* and *R. tibialis* activity reports were more numerous and more widespread than usual. One panhandle county and 7 southern counties reported activity in homes. *R. tibialis* is native to the Bitterroot Valley and the Clark Fork Valley south of Billings, MONTANA. However, infestations occur in places remote from these areas. Activity increased in 1967 and 1968 with 12 new infestations reported in scattered locations. *Reticulitermes* sp. caused damage to a small building near Edgemont, Fall River County, SOUTH DAKOTA. In IOWA *Reticulitermes* sp. was a structural pest. Swarming in NEW HAMPSHIRE of unspecified TERMITES was first reported March 31. Severe damage to one home was reported at Newmarket, Rockingham County, and infestations were reported from several other locations. In RHODE ISLAND the winged stage of *Reticulitermes* sp. was troublesome from mid-May through July. *Reticulitermes* sp. was the most important structural insect in VIRGINIA in 1968, and reports were widely distributed.

BROWN-BANDED COCKROACH (*Supella supellecillum*), ORIENTAL COCKROACH (*Blatta orientalis*), GERMAN COCKROACH (*Blattella germanica*), and AMERICAN COCKROACH (*Periplaneta americana*) were common in homes in UTAH, and brown-banded cockroach now occurs nearly statewide. These same cockroaches and SMOKY-BROWN COCKROACH (*Periplaneta fuliginosa*) were the predominant species and widespread in ALABAMA. German cockroach was the most important. A WOOD COCKROACH (*Parcoblatta pennsylvanica*), German cockroach, oriental cockroach, and brown-banded cockroach were reported throughout the season in MICHIGAN. The number of unspecified cockroach infestations increased in CONNECTICUT. German cockroach and brown-banded cockroach were the 2 most common species in CALIFORNIA. Several light infestations of German cockroach were reported in MONTANA and were most frequently reported in INDIANA during 1968. German cockroach and oriental cockroach were common in IOWA.

A WEEVIL (*Trachyphloeus bifoveolatus*) continued as one of the more frequent complaints in western WASHINGTON; it was commonly collected in homes west of the Cascade Mountains from Clark County northward to Whatcom County, especially in February and October. In western OREGON adults were very abundant in homes.

FULLER ROSE WEEVIL (Pantomorus cervinus) bored holes almost through heater pipes of polyethylene in groves at Winter Haven in Polk County, FLORIDA. Damage was widespread in June. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) entered homes in western MONTANA communities. First reports in WISCONSIN of B. ovatus were received from one northern and one central county by June 21. Occurrences in homes increased the last week of July and were locally numerous statewide, mainly in the central counties. Strawberry root weevil adults, as in 1967, were reported entering homes in July 1968 in INDIANA. Adults of a JAPANESE WEEVIL (Calomycterus setarius) moved into buildings in NEW HAMPSHIRE in late August. Infestations increased in late July in motels and homes in WISCONSIN and continued into September.

ELM LEAF BEETLE (Pyrhalta luteola) entered homes in UTAH and was quite a problem in a number of communities and much of Salt Lake County. In OKLAHOMA and IOWA elm leaf beetle was a common pest in homes. FURNITURE CARPET BEETLE (Anthrenus flavipes) and other carpet beetles were abundant throughout MICHIGAN, and A. flavipes was a common pest in IOWA. BLACK CARPET BEETLE (Attagenus piceus) is well distributed throughout CONNECTICUT and commonly occurs in IOWA. DRUGSTORE BEETLE (Stegobium paniceum) had about the usual number of infestations, and BROWN SPIDER BEETLE (Ptinus clavipes) was heavy locally in CALIFORNIA. Heavy adult migrations of a LONG-HORNED BEETLE (Oncideres rhodosticta) occurred September 11-23 at Willcox, Cochise County, ARIZONA. SOUTHERN LYCTUS BEETLE (Lyctus planicollis) caused very heavy damage to one home each in Ormsby and Washoe Counties, NEVADA. In CONNECTICUT adult Lyctus sp. emerged from oak flooring in year-old houses, and undetermined species from timbers and furniture. A CERAMBYCID BEETLE (Callidium sp.) emerged from native oak paneling in a Guilford home.

CLOVER MITE (Bryobia praetiosa) showed a decline in 1968 from 1967 in NEW HAMPSHIRE. Clover mite entered homes in RHODE ISLAND and became a problem in new housing in urban areas of CONNECTICUT. In DELAWARE, VIRGINIA, and TENNESSEE clover mite was troublesome in homes during the spring. In MICHIGAN clover mite was heavy in April and May, and common in IOWA. Clover mite entered homes during the spring at Cody, Thermopolis, and Laramie, WYOMING, while in UTAH it was common in offices and schoolrooms. Clover mite was less of a problem than in previous years in CALIFORNIA. An EPIDERMOPHTID MITE (Dermatophagoides pteronyssina) was heavy on a rug and upholstered furniture, apparently causing a skin reaction to an infant, at Meriden, New Haven County, CONNECTICUT. This is a new State record.

EUROPEAN EARWIG (Forficula auricularia) reports increased rapidly in late June in NEW HAMPSHIRE. European earwig has become more numerous and of greater annoyance inside and outside of homes in VERMONT. In RHODE ISLAND European earwig complaints were numerous about June 6 and increased by August 2. While widespread in CONNECTICUT, this earwig was a greater nuisance in homes. European earwig caused no damage although numbers increased in PENNSYLVANIA; it was a nuisance in many locations throughout the State. In CALIFORNIA European earwig was more widespread but entered fewer homes.

BLACK CARPENTER ANT (Camponotus pennsylvanicus) workers were a common problem in NEW HAMPSHIRE, and some structural damage was noted. Most of the infestations of C. pennsylvanicus involved small numbers; however, nearly all infestations were located on second and third floor rooms. In IOWA black carpenter ant was a structural pest. Camponotus sp. in RHODE ISLAND was troublesome in the wing stage from May 10 into August and was one of most common pests invading homes in OKLAHOMA. Camponotus sp. caused much concern to many homeowners at locations in Gallatin, Stillwater, Richland, Yellowstone, Ravalli, and Flathead Counties, MONTANA.

BOXELDER BUG (Leptocoris trivittatus) was normal and common in homes, offices, and schoolrooms in UTAH, while infestations were twice as numerous in MONTANA compared with 1967. A COREID BUG (L. rubrolineatus) caused much concern at many locations in CALIFORNIA. Unusual infestations of a LYGAEID BUG (Nysius raphanus)

occurred early in the year and late in summer in CALIFORNIA. In ARIZONA, migrations of *Nysius* spp. were heavy in the Salt River Valley of Maricopa County during late May and lighter at Benson in Cochise County, Stafford in Graham County, and Tucson in Pima County during late May and early June.

Unspecified MILLIPEDS were especially migratory and annoyed homeowners in MICHIGAN. In PENNSYLVANIA millipedes were by far the most common household pests in 1968. Problems occurred statewide, were locally heavy in all sections, and peaked from late August to late October. Millipedes entered homes in large numbers in the Winchester area of Frederick County, VIRGINIA. Enormous numbers of a CRICKET (*Nemobius fasciatus*) occurred in downtown areas in north-central Virginia during August; this was the heaviest occurrence since 1947. In the State of CALIFORNIA there were many complaints due to *Gryllus* spp.

## STORED PRODUCTS

### Highlights:

GRANARY WEEVIL infested stored grain in Montana for the first time since 1965. RICE WEEVIL was serious in stored corn and grain sorghum in Alabama. SAW-TOOTHED GRAIN BEETLE was more numerous in Montana than usual. FLAT GRAIN BEETLE was a problem in several seed warehouses in Florida. INDIAN-MEAL MOTH was serious in feed storage buildings in New Mexico and was common in northern Missouri.

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GRANARY WEEVIL (*Sitophilus granarius*) infested stored grain at Huntley, Yellowstone County, MONTANA. This was the first known infestation of this weevil in the State since 1965. RICE WEEVIL (*S. oryzae*) was one of the most common pests of stored products in UTAH and was one of 3 common pests of stored grain and household cereal products in MISSOURI. Rice weevil was a serious pest of stored corn and grain sorghum in central and southern ALABAMA. Immatures and adults of rice weevil were heavy in 2,000 bushels of shelled corn in a metal bin at Live Oak, Suwannee County, FLORIDA, during May.

Several DERMESTID BEETLES, *Trogoderma simplex*, *T. parabile*, and *T. ornatum*, were common and occasionally heavy in seed and warehouses in CALIFORNIA. LARDER BEETLE (*Dermestes lardarius*) was one of the most common stored product pests in UTAH. In SOUTH DAKOTA, larvae and adults of larder beetle were unusually heavy in 800 bushels of stored sorghum on a farm near Carpenter, Beadle County. Controls were applied. *T. parabile* larvae collected from stored barley at Fargo, Cass County, on August 1, 1967, were reported for a new State record in NORTH DAKOTA. Larder beetle was a common pest in IOWA, abundant throughout the season in MICHIGAN, of considerable annoyance in many VERMONT households, and heavier in NEW HAMPSHIRE in 1968 than during the past 3 years.

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) was one of the most common pests in UTAH. Ordinarily reported only a few times each year in MONTANA, it was noted in many places in 1968. This pest was one of the most common insects entering homes in OKLAHOMA, one of the 3 common pests of stored grain and household cereal products in MISSOURI, and a common pest in IOWA. Many reports were received throughout VIRGINIA. Many complaints occurred throughout CONNECTICUT where more than the usual number of packaged goods were found infested when first opened. Several infestations of saw-toothed grain beetle in homes were reported during spring in NEW HAMPSHIRE.

RUSTY GRAIN BEETLE (*Cryptolestes ferrugineus*) was one of 2 major pests of stored products in OREGON, and it heavily infested stored barley and wheat dairy feed in Clark County, NEVADA. FOREIGN GRAIN BEETLE (*Ahasverus advena*) was common in IOWA and unusually numerous in homes in late summer in INDIANA. Adults of FLAT GRAIN BEETLE (*Cryptolestes pusillus*) infested large quantities of Argentine Bahia grass seed (*Paspalum notatum* var. *saurae*) in seed warehouses at Orlando,

Bartow, and Dade City, FLORIDA, during November. Controls were applied to this seed as well as a railroad boxcar of seed.

RED FLOUR BEETLE (Tribolium castaneum) was heavy in stored barley and wheat dairy feed in Clark County, NEVADA. CONFUSED FLOUR BEETLE (T. confusum) was heavy in an unused overhead conveyer system in Maricopa County, ARIZONA. Larvae dropped into newly processed milo planting seed below. The premises were fumigated in late January. In UTAH red flour beetle and confused flour beetle were common in stored products. YELLOW MEALWORM (Tenebrio molitor) infested grain at Glasgow, Valley County, and cereal at Helena, Lewis and Clark County, MONTANA. Red flour beetle and confused flour beetle were common pests in IOWA. The latter species was one of 3 common pests of stored grain and household cereal products in MISSOURI.

CIGARETTE BEETLE (Lasioderma serricorne) was the predominant pest of foods in kitchen pantries throughout ALABAMA in 1968, was one of the major species damaging stored goods in TEXAS, and was common in homes throughout VIRGINIA. In DELAWARE an unusually large number of cigarette beetle infestations occurred in homes, mostly in dried cereal products.

A HAIRY FUNGUS BEETLE (Typhaea stercorea) was one of 2 major insects in OREGON. DRUGSTORE BEETLE (Stegobium paniceum) increased greatly in pantry supplies in CALIFORNIA. LESSER GRAIN BORER (Rhyzopertha dominica) heavily infested stored barley and wheat dairy feed in Clark County, NEVADA, for the second record in this county. Lesser grain borer in ARIZONA was very heavy in stored grain sorghum in late January at Yuma, Yuma County, and was one of the major stored products pest in TEXAS. Controls were required for COWPEA WEEVIL (Callosobruchus maculatus) in a commercial grain and seed company in September at Orlando, Orange County, FLORIDA.

INDIAN-MEAL MOTH (Plodia interpunctella) was one of 2 more frequently reported pests of stored products in CALIFORNIA. This pest in UTAH was one of the most common in stored products. Indian-meal moth appeared to be a serious problem in several feed storage buildings during surveys for khapra beetle (Trogoderma granarium) throughout NEW MEXICO. Indian-meal moth larvae damaged stored milo in September in NEBRASKA, but infestations were generally not so common as in 1967. Larvae of this phycitid moth were the most common stored product pests in IOWA. Infestations in the northern half of MISSOURI were common in stored corn, wheat, and some soybeans in late summer and fall. Immatures and adults of Indian-meal moth heavily infested 2,000 bushels of shelled corn in a metal bin at Live Oak in Suwannee County, FLORIDA, during May. Indian-meal moth was the most prevalent pest of stored products in CONNECTICUT.

MEDITERRANEAN FLOUR MOTH (Anagasta kuehniella) was one of 2 more frequently reported stored-product pests in CALIFORNIA, and ALMOND MOTH (Cadra cautella) was frequently reported. Both species were major pests of stored products in TEXAS. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) infested shelled and ear corn throughout MISSOURI during spring and summer. A large amount of corn harvested last fall (1967) was apparently infested in the field. In ALABAMA almond moth was the more important of the stored peanut pests, and Angoumois grain moth was a serious storage pest for feed manufacturers and of stored peanuts, corn, and grain sorghum.

## BENEFICIAL INSECTS

### Highlights:

LADY BEETLES were effective in controlling economic populations of pea aphid on alfalfa in Nevada and Kansas and on peas and alfalfa in Wisconsin. These insects and GREEN LACEWINGS were also effective during the outbreak of greenbug on sorghum in Kansas. Green lacewings were effective in controlling pea aphid on alfalfa in Kansas and aphids on other crops in several areas.

CONVERGENT LADY BEETLE (Hippodamia convergens) adults were observed clustered for overwintering on the north fork of Ahtanum Creek, at about 2,800 feet elevation in Yakima County, WASHINGTON, on October 31. A LADY BEETLE (Scymnus intrusoides) was collected September 9 in Grant County, Washington, for a new State record. Another LADY BEETLE (Anatis rathovni) was unusually abundant in Curry, Union, and Wallowa Counties, OREGON. Lady beetles, mostly convergent lady beetle, helped to reduce economic numbers of Acyrtosiphon pisum (pea aphid) and kept other pea aphid populations noneconomic in NEVADA. Lady beetles held most cotton pests at low levels in the State. Convergent lady beetle adults and larvae ranged moderate to heavy on alfalfa, barley, corn, cotton, safflower, sugarbeets, and sweetpotatoes in ARIZONA from April through July. VEDALIA (Rodolia cardinalis) adults were released in a large citrus grove on the west side of the Salt River Valley in Maricopa County, Arizona, in early June. By early September this coccinellid had controlled the heavy infestation of Icerya purchasi (cottony-cushion scale) in this grove. Unspecified lady beetles were some of the most beneficial species in UTAH, and adults and larvae were numerous in WYOMING on alfalfa, corn, sugarbeets, and potatoes. Various species kept aphid populations low on corn and sorghum in southeastern Wyoming. Lady beetles were heavy on alfalfa, sainfoin, grain, ornamentals, and in shelterbelts in MONTANA.

Lady beetles and other beneficial insects helped to control the outbreaks of pea aphid on alfalfa and of Schizaphis graminum (greenbug) on sorghum in KANSAS. Losses would have been much higher otherwise. Lady beetle adults and/or larvae in IOWA ranged moderate to high through the growing season. In WISCONSIN adults and larvae, mostly convergent lady beetle, were heavy enough by August to control Rhopalosiphum maidis (corn leaf aphid) with the aid of syrphid fly larvae, Orius insidiosus (a flower bug), and weather. Lady beetles helped to stabilize pea aphid numbers on peas and alfalfa in the State. In OKLAHOMA convergent lady beetle, active from mid-January to mid-December, was especially high during the greenbug outbreak on sorghum in late July and August. Convergent lady beetle was an important predator in ARKANSAS from April through June. Aestivation occurred earlier than usual in late May. Coleomegilla maculata was also an important predator beginning in April but continuing through the year. In ALABAMA convergent lady beetle and C. maculata fuscilabris were the more important of the numerous lady beetles on cotton, grain, vegetables, and in other situations. They controlled aphids mostly. Convergent lady beetle was frequently encountered and C. maculata was common throughout the growing season in VIRGINIA.

MELYRID BEETLES (Collops spp.) were some of the most common beneficial insects in UTAH. Collops spp. kept most cotton pests low in NEVADA and were heavy in ARIZONA on alfalfa in May in Graham County and on alfalfa, cotton, and sorghum from mid-June through mid-July in Cochise, Maricopa, and Pinal Counties. Approximately 200 adults of a FLEA BEETLE (Altica carduorum) were released on Canada thistle in southwestern WISCONSIN. A LEAF BEETLE (Agasicles sp.) in FLORIDA has now spread by artificial and natural means to all areas where alligatorweed is located. Control is satisfactory, but results vary. Evaluation continues.

BRACONIDS (Aphidius pulcher and A. smithi) in WASHINGTON heavily parasitized pea aphid in April east of Umapine, Walla Walla County. Counts averaged 12-20 per 100 sweeps with a maximum of 100+ per 100 sweeps on alfalfa. Aphidius spp. helped to reduce economic numbers of pea aphid and kept other pea aphid populations noneconomic in NEVADA. Lysiphlebus testaceipes in OKLAHOMA parasitized greenbug from late March to late April. Numbers were highest in late April. Lysiphlebus sp., other braconids, and other beneficial insects in KANSAS eventually played a major role in controlling the outbreaks of pea aphid on alfalfa and of greenbug on sorghum. Losses would have been much higher otherwise. Braconids, especially L. testaceipes, were the most important parasites of aphids on cole crops, cotton, and grain in ALABAMA. Microctonus aethiops was released and recovered in NEW HAMPSHIRE.

ICHNEUMON WASPS were some of the most common beneficial insects in UTAH. Dicaelotus sp. and Centeterus sp. were reared from pupae of Walshia miscocolorella (a walshiid moth) collected in 1968 at Lincoln, Lancaster County, NEBRASKA. Bathyplectes curculionis was reported as a new State record in ARKANSAS. Adults of B. curculionis were recovered and adults of B. anura were collected in Montgomery County, VIRGINIA. B. curculionis and B. contracta were released in NEW HAMPSHIRE. B. curculionis was recovered in this State and from earlier release sites in VERMONT.

Hymenopterous parasites effectively held most cotton pests at low levels in NEVADA and controlled up to 50 percent of the aphids in ARKANSAS, especially on cereal and forage crops. Parasites were active on the warmest days of winter in Arkansas. A MINUTE EGG PARASITE (Trichogramma minutum) was one of the most important parasites of bollworm and tobacco budworm eggs in cotton in ALABAMA. A EULOPHID WASP (Tetrastichus incertus) was recovered from earlier release sites in VERMONT and was also recovered in NEW HAMPSHIRE.

HONEY BEE (Apis mellifera) in ARIZONA was in better condition in mid-March than at this period in 1967. Honey production declined markedly throughout UTAH because of frost-damaged alfalfa blossoms and other flowers. Nearly 3 percent of the 11,000 colonies inspected in MONTANA were infected with American foulbrood. The 1968 honey season in KANSAS was near average although dry conditions in the western area substantially cut some averages. Of 2,240 hives inspected, 125 hives were treated for or destroyed because of American foulbrood and 544 hives in the northern area were found with nosema disease. As of July 1, 1968, honey bee colonies in ALABAMA were recorded at 91,000, a 5 percent decline from 1967. The 174,000 colonies of 1956 have been declining steadily. Colony condition in OHIO on July 1 was better than in 1967 but still below average. Most colonies wintered well. Heavy rains in May and excessive swarming lowered earlier favorable prospects of honey production. In MICHIGAN the number of honey bees has increased by nearly 20,000 colonies in the last 4 years. Research on the pollination requirements of blueberries and cucumbers greatly increased rental of bees for these crops. Honey bee swarmed throughout RHODE ISLAND on May 20.

LEAFCUTTING BEES (Megachile spp.) were unusually abundant around ornamentals in CALIFORNIA. In central and northern NEVADA more reliance was placed on Megachile rotundata and less on honey bee for pollination of alfalfa. M. rotundata emerged in IDAHO on June 1 in the Arena Valley near Parma, on June 26 at Jerome (14 days earlier than in 1967), and on July 1 in Moscow.

ALKALI BEE (Nomia melanderi) adults in OREGON were first seen flying the first week of June in Umatilla County; very few females were seen. Males were emerging from their burrows in mid-June in Malheur County. Freshly emerged Zodion obliquefasciatum (a conopid fly) and Heterostylum robustum (a bee fly) were also noted. N. nevadensis arizonensis was abundant around safflower at Yuma, Yuma County, ARIZONA.

LACEWINGS kept most cotton pests low in NEVADA. Adults in ARIZONA were found all year on alfalfa in the Salt River Valley, Maricopa County. GREEN LACEWINGS (Chrysopa spp.) were among the most common beneficial insects in UTAH. Chrysopa spp. numbers in WYOMING were small and scattered in 1968. All stages of Chrysopa spp. occurred statewide in MONTANA on crops, ornamentals, and weeds. Green lacewings and other beneficial insects eventually played a major role in controlling outbreaks of pea aphid on alfalfa and of greenbug on sorghum in KANSAS. Losses would have been much higher otherwise. Lacewings were common but not high throughout the growing season in IOWA. In ARKANSAS 10-15 Chrysopa spp. adults in 100 sweeps were present by April 12 on alfalfa; larvae were found on April 19. In ALABAMA larvae of GOLDEN-EYE LACEWING (C. oculata) were one of the more important aphid predators on corn, grain sorghum, cotton, ornamental shade trees, and vegetables.

DAMSEL BUGS kept most cotton pests low in NEVADA. Nabis ferus in ARIZONA was numerous from mid-June through mid-October on alfalfa in Cochise, Graham, and Pinal Counties; adults were active all year in Maricopa and Yuma Counties. Nabis alternatus, N. ferus, and other species were some of the most common beneficial insects in UTAH. Adults and nymphs of Nabis spp. in WYOMING were moderate on alfalfa throughout the season. Several species were collected on alfalfa throughout south-central MONTANA. Nabis spp. were common on cotton and alfalfa during summer in OKLAHOMA and were general predators throughout 1968 in ARKANSAS, where counts reached 150-200 in 100 sweeps of alfalfa in late May. Nabis spp. ranged moderate to high in IOWA throughout the growing season.

ANTHOCORID BUGS in WASHINGTON were heavier than usual in infestations of Tetranychus mcdanieli (a spider mite) on apples at Yakima, Yakima County, in August. BIG-EYED BUGS (Geocoris spp.) and MINUTE PIRATE BUGS kept most cotton pests low in NEVADA. Geocoris spp. were heavy on alfalfa in ARIZONA from April through October and on cotton in June in Salt River Valley, Maricopa County; FLOWER BUGS (Orius spp.) were heavy on alfalfa in May and June in Cochise and Maricopa Counties. Geocoris spp., Orius tristicolor, and O. insidiosus were some of the most common beneficial insects in UTAH. Fairly numerous on corn early in the season, O. insidiosus helped to suppress corn leaf aphid in WISCONSIN. In ARKANSAS, O. insidiosus was the major predator on corn and sorghum, and Geocoris spp. were the major predators on sunflowers; both were lower than normal on cotton. G. punctipes and Orius spp. were perhaps the more important Hemiptera in ALABAMA attacking eggs and larvae of bollworms and tobacco budworms on cotton, corn, tomatoes, soybeans, and beans. A STINK BUG (Euthyrhynchus floridanus) in FLORIDA preyed on adults of Diaprepes abbreviatus (West Indian sugarcane root borer) in the Apopka area of Orange County during October, but their effect is unknown.

SYRPHID FLIES effectively held most cotton pests at low levels in NEVADA. Larvae of an unspecified syrphid fly were moderate and fed on aphids infesting barley in early March and were active in citrus groves in mid-April in the Salt River Valley in Maricopa County, ARIZONA. Larvae of SARCOPHAGID FLIES on grasshoppers and of syrphid flies were some of the most common beneficial insects in UTAH. Syrphid flies were extremely active throughout MONTANA around shrubs, flowers, and weeds. Larvae of syrphid flies in ALABAMA were among the more important predators of aphids on corn, grain sorghum, cotton, ornamental shade trees, and vegetables.

PHYTOSEIID MITES, particularly Typhlodromus spp. and Zetzellia spp., showed promise in partially controlling phytophagous mites in OREGON, but definite difficulties arose in using integrated mite control in Hood River County. Typhlodromus sp. controlled Tetranychus mcdanieli in several Wasco County cherry orchards in August but was not so effective in Jackson County.



## WEATHER OF THE YEAR 1968<sup>1/</sup>

Weather conditions in the United States during 1968 were mostly favorable, and suffering, deaths, and damage from unfavorable weather were generally near normal. The crop season set a new high in total production, as higher crop yields tended to offset lower acreages, surpassing last year's record yields per acre in most instances.

**COLD SPELLS:** The first half of January was extremely cold in the eastern half of the conterminous United States. Temperatures fell to 50°F below zero in the eastern North Dakota and northwestern Minnesota area and to 40°F below in sections of northern New England with below zero readings as far south as northern Texas, Arkansas, and Tennessee, and readings in the 20's along the middle gulf. Temperatures did not rise above 0°F during the first 10 days of January in much of the extreme northern Great Plains. Nantucket Harbour (Massachusetts) froze over; this previously occurred during the coldest winter of record in the Northeast in 1917 and 1918. Ice conditions in the Chesapeake Bay were the worst since 1963.

A freeze on April 13 caused damage of several millions of dollars to fruit in western Oregon. Another late spring freeze caused \$1 million damage to fruit in Ohio on May 6. Severe freezes occurred deep in the Florida Peninsula on December 15-17, with frosts in the suburbs of Miami. The damage, however, appears to have been mostly light to citrus and moderate to vegetables, but severe to some tender vegetables.

**HOT SPELLS:** Heat waves were less frequent and severe than usual. The most significant was hot, humid weather over the Southeast the last week of July and in most of the Middle Atlantic States the first 25 days of August.

**SNOWSTORMS:** From January 6 to 8 snowfall of 3 to 20 inches over New England was blown by 60 m.p.h. winds into drifts that reached 20 feet in some instances, paralyzing transportation and closing schools in many areas. Many buildings in Massachusetts collapsed under the weight of snow and ice.

Heavy snow and windblown drifts between January 13 and 16 from the Mississippi River to the Appalachians delayed transportation, closed schools, and resulted in over a dozen deaths from overexertion, mostly in the area from the Virginias to southern Michigan.

Snowstorms that reached blizzard proportions overspread the northern and central Great Plains, upper Mississippi Valley, and upper Lakes region on December 18-19 and 21-22. Snowfall, reaching depths of 1 to 2 feet in some areas, was blown in drifts of 5 to locally 20 feet high by strong winds that exceeded 60 m.p.h. in some areas. Traffic was brought virtually to a standstill in many areas.

**HAILSTORMS:** These storms were frequent, particularly in the midcontinent, and total damage appeared to be near normal.

On April 27 hail damage in Marshall and Harrison Counties, Texas, was estimated at \$1,350,000.

Hail up to 4 inches in diameter in Iowa City, Iowa, on May 15 caused property damage of more than \$3,500,000.

The worst hailstorm in 55 years occurred at Oklahoma City and surrounding county areas on May 23-24; losses from hail, rain, and lightning were placed at \$20 million.

<sup>1/</sup> Prepared by L.H. Seamon, Climatologist, Environmental Data Service, Environmental Science Service Administration, Washington, D.C.

Hailstorms caused \$1,200,000 damage in Big Spring, Texas, on May 5 and crop losses of \$1 million in the vicinity of Littlefield, Texas, on June 9.

Hail losses of \$2.5 million occurred in Lapeer and St. Clair Counties, Michigan, on July 5.

TORNADOES: Tornadoes were fewer during 1968 than in 1967, but the total number and loss of life and property were near normal.

On May 15, 37 tornadoes were scattered through 9 States. The most destructive tornado of the year occurred on this date in Iowa when 13 persons were killed, 450 injured, and property losses were estimated up to \$30 million at Charles City. This storm damaged or destroyed many farmsteads and rural homes along its path, and also injured 12 persons and caused \$1.5 million property damage in Elma. Another tornado, also on May 15, passed through Oelwein and Maynard, Iowa, killing 5 persons, injuring 156, and destroying property estimated at \$21 million, most of which occurred in Oelwein.

The worst of 6 tornadoes in Arkansas on May 15 passed through Tuckerman, Jonesboro, Fairview, and Nettleton. A high school at the latter location was almost completely destroyed. The storm killed 34 persons, injured 350, and destroyed 164 homes. Damage was in the millions of dollars. Another tornado killed 7, injured 24, and caused \$500,000 damage at Oil City, Arkansas, on this date.

Some other tornadoes, less destructive than those already listed included the following. On April 3, one death, six injuries, and property damage in excess of \$1 million occurred at Paragould, Arkansas. On April 19 a tornado killed 14 persons, injured 270, and damaged or destroyed over 400 homes and 69 business units in Greenwood, Arkansas. A Kentucky tornado on April 23 passed through Pendleton, Bracken, and Mason Counties killing 5 persons, injuring 360, and destroying 200 houses, 3 churches, and 175 barns.

TROPICAL STORMS (HURRICANES): Tropical storm Candy moved inland near Port Aransas, Texas, on June 23 with near hurricane force winds, tides 3 to 4 feet above normal along the coast, and heavy rains from Texas to northern Illinois. Texas was hardest hit with over \$2 million crop damage and \$625,000 property damage.

Hurricane Gladys moved northeastward across the northern portion of the Florida Peninsula on October 18 and 19. Damage, mainly in the Tampa Bay and Ocala area, was estimated at \$6,700,000. Five- to 8-foot storm tides washed out roads and destroyed buildings along the miles of beaches from Venice to Cedar Keys, Florida. However, Gladys' rains greatly benefited North Carolina by relieving droughty conditions.

DROUGHTS: Prolonged serious droughts were lacking in 1968. However, a few areas were affected by moderate to locally extreme drought. In western sections of the central Great Plains precipitation was less than half of normal during the winter and early spring, resulting in reduced yields of small grains in that area. Drought was extreme in southern Alabama from late June to August and moderate to severe in adjacent southern portions of Mississippi and Georgia.

FLOODS: Flash flooding in central Texas resulted from heavy rains on January 18 and 19. Damage was estimated at about \$3 million in the San Antonio area, and 5 deaths were reported. On January 5 a flash flood in the Pearl Harbor area on the Hawaiian island of Oahu caused damage estimated at \$2.5 million.

Heavy rains up to 7 inches on March 17 to 19 with snowmelt and breaking up of river ice in southern New England caused disastrous floods in southern New England. Thousands were evacuated from their homes, many thousands of homes were seriously damaged, and 32,000 phones were out. Damage was estimated at well over \$100 million.

On April 8 to 10, heavy rains in west-central and northern Louisiana totaling up to 12.62 inches caused flooding of 80,000 acres and washed out roads and bridges. Damage near Natchitoches, Louisiana, was estimated near \$1 million.

Disastrous floods occurred in New Jersey when up to 7 inches or more of rain fell on May 28 to 30. Over 2,000 families were evacuated in the State's worst flood since 1936, and 7 persons drowned. Damage was estimated at \$133 million.

Heavy rains during May from Texas and Oklahoma to Ohio and Pennsylvania caused flooding of many rivers. Flooding in the Wabash and Ohio River Basins continued into June, and damage for the two months was estimated at \$12 million for the Wabash and \$40 million for the Ohio.

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W.P. Boyer	R.E. Munson
CALIFORNIA	L.L. Peters
R.M. Hawthorne	A.H. Hagge
COLORADO	MONTANA
T.E. Johnson	R. Pratt
A.D. Bulla	NEBRASKA
DELAWARE	D.L. Keith et al.
P.P. Burbutis	NEVADA
R.W. Lake	R.C. Bechtel
FLORIDA	NEW HAMPSHIRE
F.W. Mead et al.	D.W.S. Sutherland
HAWAII	NEW MEXICO
G. Funasaki	G.L. Nielsen
IDAHO	NORTH DAKOTA
L.E. O'Keeffe	W.J. Brandvik
ILLINOIS	OHIO
H.B. Petty	R.I. Rose
R. Randell	OKLAHOMA
R. Meyer	D.C. Arnold
INDIANA	OREGON
R.T. Huber	R.L. Westcott
R.E. Dolphin	PENNSYLVANIA
IOWA	S.G. Gesell
G.B. Mast	RHODE ISLAND
KANSAS	G. Field
J.H. Simpson	SOUTH DAKOTA
MARYLAND	P.A. Jones
J.L. Hellman	

TENNESSEE  
R.B. Quillin

TEXAS  
L.R. Green

UTAH  
G.F. Knowlton

VERMONT  
J.W. Scott  
G.B. MacCollom

VIRGINIA  
W.A. Allen  
C.B. Dominick  
R.N. Hofmaster  
C.H. Hill  
M.L. Bobb

WASHINGTON  
J.T. Pennell et al.

WISCONSIN  
M.S. Conrad

WYOMING  
A.E. Parshall

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Included in the "Summary of Insect Conditions in the United States - 1968" are the following special reports:

1. The highlights section of Forest Insect Conditions in the United States - 1968, compiled by the Forest Service, U.S. Department of Agriculture.
2. Screw-worm (Cochliomyia hominivorax) Summary compiled by Animal Health Division, U.S. Department of Agriculture.
3. The highlights section of the weekly weather summary for the United States - 1968, compiled by the Environmental Data Service, U.S. Department of Commerce.



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VOL. 19 No. 15

April 11, 1969

*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

**Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**



## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG increasing on wheat in Curry, Roosevelt, and Lea Counties, New Mexico. (p. 265).

BEEF LEAFHOPPER heavy on sugarbeets in Cochise County, Arizona. (p. 265).

ENGLISH GRAIN APHID increased in northwest Arkansas. (p. 265).

BROWN WHEAT MITE damage medium to heavy in wheat in some areas of Roosevelt and Curry Counties, New Mexico. (p. 266).

NANTUCKET PINE TIP MOTH adults emerging and laying eggs from southern to central Alabama. (p. 268).

Some First Occurrences of Season

TARNISHED PLANT BUG in Arkansas; SEED-CORN MAGGOT in Maryland; CHANGA in Florida; ALFALFA WEEVIL larvae in Maryland, Tennessee, and Alabama, and overwintering adults in Wyoming; CLOVER HEAD WEEVIL larvae in Alabama; IMPORTED CABBAGEWORM adults in Oregon; EYE-SPOTTED BUD MOTH overwintering larvae in Oregon; APPLE APHID nymphs in Virginia; EASTERN TENT CATERPILLER in Alabama; STRAWBERRY ROOT APHID in Maryland; COMMON CATTLE GRUB adults in Oklahoma; GREEN LACEWINGS, BIG-EYED BUGS, and DAMSEL BUGS in Arkansas.

Special Reports

An Infestation of Trogoderma glabrum (Herbst) in Cigarettes. (p. 270).

Gypsy Moth Quarantine Map. Centerfold.

Reports in this issue are for the week ending April 4 unless otherwise indicated.

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Gypsy Moth Quarantine Map. Centerfold.

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WEATHER OF THE WEEK ENDING APRIL 7

HIGHLIGHTS: Most of the Nation warmed considerably last week. Moderate to heavy showers occurred over parts of the Central and East early and late in the week.

PRECIPITATION: Widespread sunshine prevailed early last week with only a few showers along the northern Pacific coast and in the northern Rocky Mountains. Light snow flurries occurred from the northern Great Lakes to the Appalachians, and light snow or freezing drizzle fell in the upper Mississippi River Valley. At midweek a few showers and thunderstorms occurred along a cold front that stretched from Arkansas to New England. Shower activity increased over the central Great Plains late Thursday and Friday with drizzle and fog extending over the northern Great Plains to the Canadian border. The weekend brought moderate to heavy showers to parts of the Central and South. The first tornadoes of the season in Missouri caused minor damage but no casualties. Two tornadoes occurred in Oklahoma. Precipitation totals exceeded an inch from extreme eastern Kansas to New York, over most of Louisiana, and along the Pacific coast. Only light sprinkles occurred from the intermountain region to the western edge of the Great Plains.

TEMPERATURE: Widespread sunshine brought the warmest weather of the season to much of the Nation. Only the Pacific Coast States and eastern New England averaged cooler than the previous week. Most of the area from the Rocky Mountains to the Appalachians averaged 12° or more warmer than last week. Parts of the northern and central Great Plains averaged 16° to 23° warmer. The western edge of the northern and central Great Plains averaged 8° to 15° above normal. Temperatures averaged below normal along the Pacific coast and from Minnesota eastward across the Great Lakes region to the Northeast. The warm temperatures melted much of the snow in the northern Great Plains. Streamflow increased and flooding occurred in low-lying areas and along river bottoms. (Summary supplied by Environmental Data Service, ESSA.)

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - WYOMING - Ranged 0-5 per square foot in 10 alfalfa fields in Platte and Goshen Counties. None found in wheat. (Burkhardt). COLORADO - Larvae on winter wheat in Logan, Sedgwick, and Phillips Counties. Counts up to 1 per linear foot of drill row. Fourth and fifth instars in western parts of Logan County. Feeding evidence light. (Johnson). NEBRASKA - Ranged 0-5, averaged less than 1, per linear foot in 35 wheatfields in Scotts Bluff, Banner, Morrill, Cheyenne, Kimball, and Deuel Counties. Most larvae half to two-thirds grown. (Hagen, April 1, 2).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - This species and Acyrtosiphon pisum (pea aphid) common on alfalfa at Gainesville, Alachua County. Population trend not known, partly due to recent cutting which reduced foliage. (Fla. Coop. Sur.). ARKANSAS - Survey negative in northwest area. (Boyer). NEW MEXICO - Generally light in alfalfa in Roosevelt and Dona Ana Counties. (N.M. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEVADA - Heavy, with some yellowing in 20 acres of one variety of barley in field trials at Bunkerville, Clark County. (Nev. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - ARKANSAS - Very low, ranged 5-10 in 100 sweeps on wheat in northwest area. (Boyer). OKLAHOMA - Counts per linear foot in wheat by county as follows: Jackson 70-90; Tillman 100-200; Cotton 150-175; Washita 30-36; Caddo 5-10; Payne 25; Ellis 1; Alfalfa, Grant, Garfield, Kingfisher, and Bryan light to absent. (Okla. Coop. Sur.). NEW MEXICO - Increasing on wheat in Curry, Roosevelt, and Lea Counties. One field at Portales 3,000+ per linear foot; wheat being killed. Some control applied to irrigated wheat around Clovis. (Mathews et al.). WYOMING - None found on wheat in Platte and Goshen Counties. (Burkhardt).

BEEF LEAFHOPPER (Circulifer tenellus) - ARIZONA - Heavy; many fields of sugarbeets being treated in Cochise County. (Ariz. Coop. Sur.). UTAH - C. tenellus and Aceratagallia sanguinolenta (clover leafhopper) present in small numbers on alfalfa and young mustard in Curlew Valley, Box Elder County. (Knowlton, Apr. 2). OREGON - Overwintering adults light in eastern Malheur County first week of April. Averaged 0.08 per square foot in 108 stops. Counts higher in Cow Hollow area west of Adrian; averaged 0.13 per square foot. Observations made throughout Bureau of Land Management reseeding, adjacent range, and cropland margins in the Ontario, Vale, and Nyssa areas. Principal weed hosts include timbermustard, flintweed, pepperweed, Russian-thistle, and smotherweed. (Larson et al.).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Moderate to heavy on many citrus trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Hatch nearly complete April 1-2; very little injury evident to date in 35 fields in Scotts Bluff, Banner, Morrill, Cheyenne, Kimball, and Deuel Counties. Activity delayed due to cool weather. (Hagen). WYOMING - None found in wheat in Goshen and Platte Counties. (Burkhardt).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ARIZONA - Moderate to heavy in barley in Cochise and Graham Counties. (Ariz. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Increased, averaged 300-400 in 100 sweeps on wheat in northwest area. (Boyer). MISSISSIPPI - Light on 20 acres of winter wheat in Webster County. (Dinkins).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - First adults of season averaged 12-15 in 100 sweeps in wheat in northwest areas. (Boyer).

SEED-CORN MAGGOT (Hylemya platura) - MARYLAND - Ranged 7-12 per 25 sweeps in 30 acres of small grain in Dorchester County. (U. Md., Ent. Dept.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Averaged 70 per linear foot on wheat in Cotton County; up to 5 per linear foot in Kingfisher County. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Damage medium to heavy in some wheatfields in Rogers area, Roosevelt County, and near Clovis, Curry County. (Mathews et al.).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Winter survival quite high. Some reports of 70-90 percent survival; highest in northern and southern areas. (Ill. Sur. Bull.).

#### TURF, PASTURES, RANGELAND

CHANGA (Scapteriscus vicinus) - FLORIDA - First heavy adult emergence of season coming to lights at Gainesville, Alachua County. (Fla. Coop. Sur.).

A HARVESTER ANT (Pogonomyrmex owyheei) - UTAH - Active in Curlew Valley range areas of Box Elder County. (Knowlton, Apr. 2).

#### FORAGE LEGUMES

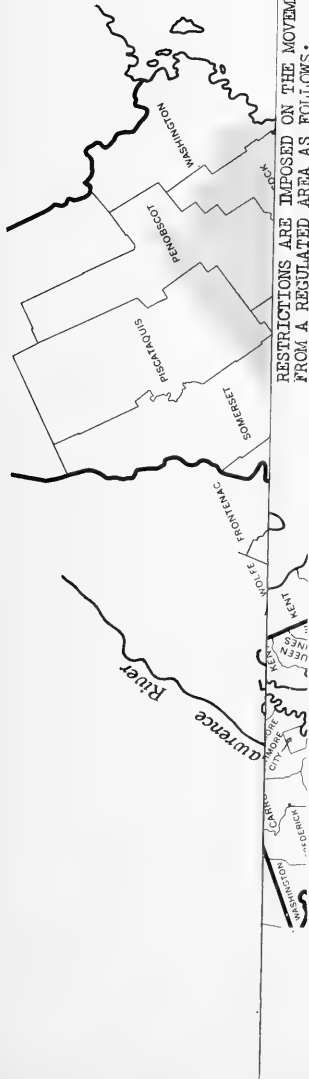
ALFALFA WEEVIL (Hypera postica) - MARYLAND - First larvae of season on alfalfa near Vienna, Dorchester County. Adults in central counties laying eggs. Infestations extremely light. (U. Md., Ent. Dept.). OHIO - No larvae reported. (Richter). INDIANA - Egg counts per 100 stems by county: Dearborn 126; Shelby 33; Wayne 29; Tippecanoe 31; and Steuben 94. (Huber, Mar. 12-22). TENNESSEE - First larvae of season on alfalfa in Hardeman County. Light damage to date. (Johnson, Locke, Mar. 21). Larval counts 12-14 per square foot in alfalfa in Loudon and Monroe Counties. (Bennett). ALABAMA - Early instars on burclover, vetch, and crimson and white clovers in highway plantings in Lee, Macon, and Montgomery Counties. Heaviest on burclover, with white clovers next. (McQueen). ARKANSAS - Survey negative in northwest area. (Boyer). WYOMING - Overwintering adults active in Platte and Goshen Counties. (Burkhardt). UTAH - Adult survival appears high in plant duff at Snowville, Washakie, and Plymouth, Box Elder County. (Knowlton, Mar. 31).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Early instars on crimson clover leaves along highway right-of-way in Lee, Macon, and Montgomery Counties. (McQueen).

CLOVER LEAF WEEVIL (Hypera punctata) - OKLAHOMA - Larvae 9 per square yard on alfalfa in Payne County. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - ARKANSAS - Little increase, ranged 8-10 per square foot in vetch and alfalfa in northwest area. (Boyer). OKLAHOMA - Averaged 20 per square yard on alfalfa in Payne County. Light in Washita County. (Okla. Coop. Sur.). NEW MEXICO - Generally light in alfalfa over State. One field in Portales area, Roosevelt County, showed heavy damage on seedling alfalfa. (N.M. Coop. Rpt.).

CONCHUELA (Pitiedia ligata) - ARIZONA - Adults averaged 10 per 100 sweeps of alfalfa at Cottonwood, Yavapai County. (Ariz. Coop. Sur.).



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.

IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PEST CONTROL 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.

U. S. DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL RESEARCH SERVICE  
 PLANT PEST CONTROL DIVISION AND  
 CANADIAN DEPARTMENT OF AGRICULTURE  
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SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

Revised January 27, 1969

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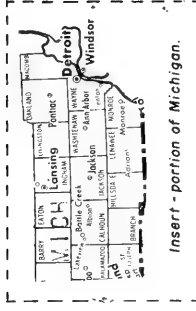
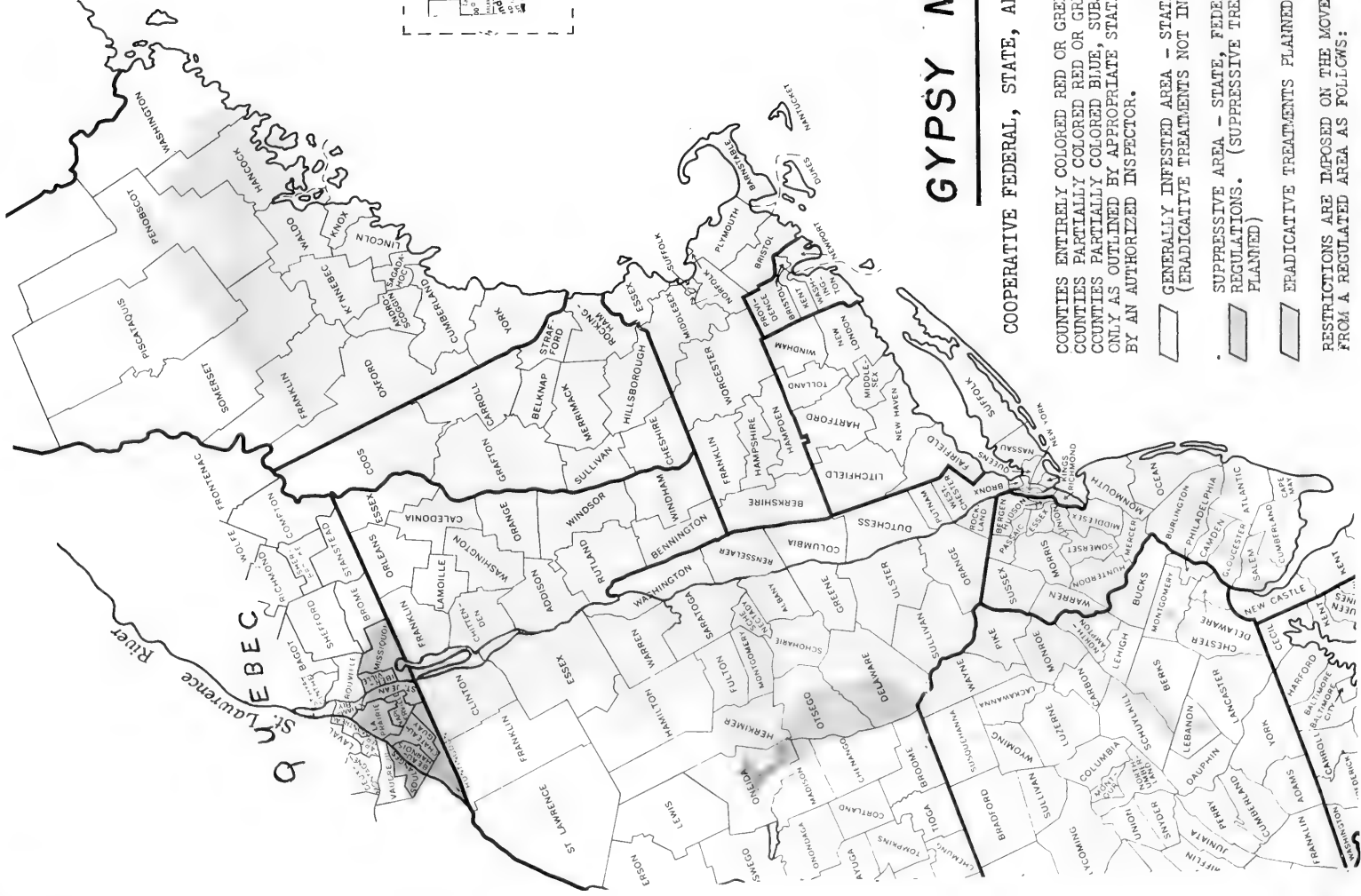
THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED.

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.\*  
Boughs, 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.\*
2. Timber and timber products, including but not limited to lumber, planks, poles, logs, cordwood, and pulpwood.  
Lumber is exempt if dressed or sawed four sides with ends clipped and free of surface bark, or if kiln dried, provided such lumber is shipped direct after processing and the waybill or other shipping document is marked to show that the lumber was shipped immediately after processing.\*  
Manufactured wood products, such as shingles, flooring, furniture, handles, etc., are exempt.\*  
Shavings, sawdust, wood flour, excelsior, and cedar bedding are exempt.\*
3. Stone and quarry products.

Stone and quarry products are exempt if processed by grinding or pulverizing.\*  
Mined, quarried, or manufactured stone and quarry products are exempt if shipped direct from establishments specifically approved by the Director.\*\*

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

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



# GYPSY MOTH

## COOPERATIVE FEDERAL, STATE, AND CANADIAN QUARANTINES

COUNTIES ENTIRELY COLORED RED OR GREEN ARE COMPLETELY REGULATED.  
 COUNTIES PARTIALLY COLORED RED OR GREEN ARE PARTIALLY REGULATED.  
 COUNTIES PARTIALLY COLORED BLUE, SUBJECT TO STATE REGULATIONS ONLY AS OUTLINED BY APPROPRIATE STATE QUARANTINE OR AS REQUIRED BY AN AUTHORIZED INSPECTOR.

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

SUPPRESSIVE AREA - STATE, FEDERAL, AND CANADIAN REGULATIONS. (SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)

ERADICATIVE TREATMENTS PLANNED WHERE NECESSARY.

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<sup>o</sup>
5. BLUE INTO ANY OTHER AREA<sup>oo</sup>

<sup>o</sup> When it is determined by the inspector that a hazard of spread exists.

<sup>oo</sup> Only when required by State quarantine regulations or by an authorized inspector.

IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PEST CONTROL 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.

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 COOPERATING WITH AFFECTED STATES

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

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## SUGARBEETS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate in many fields in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - OREGON - First adult flying April 1 in Klamath Falls, Klamath County. (Schuh). Several adults observed in northern Willamette Valley weeks ending March 21 and 28. (Westcott).

## DECIDUOUS FRUITS AND NUTS

PEACH TREE BORER (Sanninoidea exitiosa) - FLORIDA - Damaged peach trees in local areas of Alachua County. (Fla. Coop. Rpt.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - FLORIDA - Damaged peach trees in local areas of Alachua County. (Fla. Coop. Sur.).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OREGON - Overwintering larvae on Italian prune in Dallas area of Polk County March 28. (Brown).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Overwintering larvae maturing in southern and central counties; some pupation in old shucks under trees. Infestations about same as past years. (McQueen).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - No living adults on peach trees at Gainesville, Alachua County; 5-7 percent of eggs unhatched; crawlers numerous; most nymphs in first sedentary stage; no second sedentary stage nymphs observed. Collected and determined by L.C. Kuitert March 3. About 60 percent of female scales on peaches at Monticello, Jefferson County, with eggs; no crawlers or sedentary stages observed. Collected and determined by W.H. Whitcomb March 24. (Fla. Coop. Sur.).

APPLE APHID (Aphis pomi) - VIRGINIA - First instar nymphs on buds of apple (1-2 per bud) noted in Charlotte County. (Allen).

## CITRUS

CALIFORNIA RED SCALE (Aonidiella aurantii) - ARIZONA - Nine infestations in Glendale area, Maricopa County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Light and general in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Heavy in open citrus blooms in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

MULBERRY WHITEFLY (Tetraleurodes mori) - ARIZONA - Light to moderate on many citrus trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## SMALL FRUITS

STRAWBERRY ROOT APHID (Aphis forbesi) - MARYLAND - Light on 0.5 acres of strawberries near Mardela Springs, Wicomico County. (U. Md., Ent. Dept.).

BLUEBERRY BUD MITE (Aceria vaccinii) - FLORIDA - All stages on blueberries, Vaccinium sp., at Melrose, Alachua County. (Kuitert, Mar. 25).

## FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Adults emerging and laying eggs from southern areas to central areas. Heavy damage to 3 to 8-foot loblolly pines along Interstate 85 in Macon and Montgomery Counties. (McQueen).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - First and second instars in tents with 25-100 per group in many wild cherry trees and few apples from gulf coast area through central area. (McQueen).

A WHITEFLY (Tetraleurodes stanfordi) - ARIZONA - Heavy on carob, Ceratonia siliqua, in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Seven cases reported in U.S. March 30 to April 5 as follows: Texas - Starr 6, Live Oak 1. Total of 170 cases reported in portion of Barrier Zone in Republic of Mexico March 23-29 as follows: Sonora 60, Chihuahua 16, Coahuila 1, Nuevo Leon 8, Tamaulipas 85. Total of 3 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 30,368,000; Mexico 118,800,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - IOWA - H. lineatum (common cattle grub) and H. bovis (northern cattle grub) averaged 4.4 per head (range 0-17) on 27 head of native cattle in Butler County; 21 of 27 animals infested. Three H. bovis grubs and 2 H. lineatum grubs collected. None on six 2-year-old animals in the same lot. (Iowa Ins. Sur.). NORTH DAKOTA - Grub counts on 987 animals showed 11 per cent infested; averaged 6.7 grubs per infested animal. Surveys made in Morton, Stark, Williams, Ward, and Ramsey Counties March 30 to April 3. (Brandvik, Kaatz). OKLAHOMA - H. lineatum adults annoying cattle in several counties in north-central, central, south-central, and southwestern areas. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 25-30 per head on cattle in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - MISSISSIPPI - Highest numbers of adults collected in Hancock County: Culex salinarius 354, Culiseta inornata 122, Anopheles crucians 122; highest larval count C. restuans 125. (Dinkins).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - IOWA - Light on one lot of beef cows and one lot of calves in Lucas County April 1. Averaged one per 10 parts per animal on both lots. One specimen of Solenopotes capillatus collected during observation of 30 animals. (Iowa Ins. Sur.).

TICKS - OKLAHOMA - Amblyomma americanum (lone star tick) and Dermacentor variabilis (American dog tick) annoying vacationers in eastern area. In Payne County 25 D. variabilis found on dog. (Okla. Coop. Sur.).

## BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - ARKANSAS - First of season averaged 10-15 in 100 sweeps in wheat in northwest area. (Boyer).

BIG-EYED BUGS (Geocoris spp.) - ARKANSAS - First adults of season averaged 5-10 in 100 sweeps in wheat in northwest area. (Boyer).

GREEN LACEWINGS (Chrysopa spp.) - ARKANSAS - First of season averaged 5-10 in 100 sweeps in wheat in northwest area. (Boyer).

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults 1-2 per 10 linear feet of wheat in southwestern area. Light on wheat and alfalfa in north-central area. (Okla. Coop. Sur.).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 3/28-4/3, BL - Beet armyworm (Spodoptera exigua) 2, black cutworm (Agrotis ipsilon) 1, granulate cutworm (Feltia subterranea) 15, salt-marsh caterpillar (Estigmene acrea) 2. MICHIGAN - Livingston County - BL, 4/1-4, 50°-54° F., Fall cankerworm (Alsophila pomataria) 12, green fruitworm (Lithophane antennata) 2, spring cankerworm (Paleacrita vernata) 8. MISSISSIPPI - Stoneville - 3/28-4/4, 2BL, 38°-80° F., precip. .41 - Armyworm (Pseudaletia unipuncta) 16, black cutworm (Agrotis ipsilon) 4, corn earworm (Heliothis zea) 1, variegated cutworm (Peridroma saucia) 10, yellow-striped armyworm (Prodenia ornithogalli) 2. TEXAS - Brownsville - 3/15-28, 2BL, 44°-93° F., precip. 0 - Armyworm 11, black cutworm 26, cabbage looper (Trichoplusia ni) 5, corn earworm 80, granulate cutworm 7, pale-sided cutworm (A. malefida) 185, tobacco budworm (Heliothis virescens) 1, tomato hornworm (Manduca quinquemaculata) 2, variegated cutworm 11, yellow-striped armyworm 1. Waco - 3/27-4/3, BL - Armyworm 42, corn earworm (Heliothis zea) 5, granulate cutworm 9, pink bollworm (Pectinophora gossypiella) 1, variegated cutworm 60, yellow-striped armyworm 1.

#### HAWAII INSECT REPORT

General Vegetables - All stages of CABBAGE APHID (Brevicoryne brassicae), DIAMONDBACK MOTH (Plutella xylostella), and IMPORTED CABBAGEWORM (Pieris rapae) heavy on head cabbages on farm at Pearl City, Oahu. Larvae and adults of P. rapae light in 15 acres of head cabbages at Kula, Maui, elevation 3,000-3,600 feet. (Miyasato, Miyahira). All stages of BEAN FLY (Melanagromyza phaseoli) medium in 0.25 acre of seedling snap beans at Omaopio, Maui; elevation 2,300 feet. Damaged about 20 percent of seedlings. (Miyahira). POTATO TUBERWORM (Phthorimaea operculella) heavy in small eggplant field at Pearl City, Oahu. Over 50 percent of plants completely damaged. (Funasaki).

Fruits and Nuts - Early instars of LARGE MANGO TIP BORER (Bombotelia jocosatrix) medium on terminal foliage of several young mango trees in Hawaii Kai area of Honolulu, Oahu. Generally trace on mango foliage in other areas on Oahu. (Nakao). COCONUT SCALE (Aspidiotus destructor) infestations remain light to heavy on coconut trees in various areas on Oahu. However, pruning of heavily infested fronds in many localities minimized spread to uninfested trees. Heavily infested banana and mountain-apple foliage at Pearl City and Halawa, respectively, also pruned although larvae of LADY BEETLES (Telsimia nitida and Lindorus lophanthae) numerous on foliage. (Funasaki). ORIENTAL FRUIT FLY (Dacus dorsalis) heavy in fallen fruits of false kamani, mockorange, and guava along windward coastal areas on Oahu. Parasites, mostly Opius oophilus (a braconid) emerged from 90 percent of pupae from mockorange, a thin-skinned host. Parasitism not as high from kamani and guava fruits. (Wong).

Ornamentals - CROTON CATERPILLAR (Achaea janata) generally light to medium and damaging some croton hedges in widely scattered areas in Kaneohe, Halawa, and Koko Head, Oahu. Plants recovering in Lanikai where 98 percent of A. janata eggs parasitized by Trichogramma semifumatum (a minute egg parasite). GREEN SCALE (Coccus viridis) medium to heavy on many gardenia plants in Kaneohe, Oahu. Scales on some plants heavily infested with fungus disease. Sooty mold on leaves conspicuous on plants with heavy scale infestations. (Shinbara).

Miscellaneous Insects - Intensive survey of grassy areas at Hickam Air Force Base, Oahu, revealed trace to light numbers of a GRASSHOPPER (Oedaleus abruptus) in 3 small, separate areas. One adult found at focal point, and 6 adults and one nymph found in 2 other areas. Spray operations and surveillance continuing. (Olson).

An Infestation of Trogoderma glabrum (Herbst) in Cigarettes

L.W. Fletcher, D.P. Childs, and J.S. Long<sup>1/</sup>

A review of the literature on the biology and habits of a dermestid, Trogoderma glabrum, indicates that it is a pest on wheat, corn, cereal products, and dried milk. Epidemic infestations on wheat by this species were reported by White and McGregor (1957). They found that T. glabrum was able to develop and maintain large populations in stored wheat and shelled corn at about the same magnitude its close relative the khapra beetle, T. granarium Everts, had in stored barley and grain sorghum in Arizona and California during 1955 and 1956. Laudani (1961), in a review of the life histories of some of the important dermestid species, stated that T. glabrum was a serious pest of dry milk plants.

Recently, a pack of cigarettes was found heavily infested with T. glabrum. Specimens were identified by J.M. Kingsolver, Federal taxonomist. The cigarettes were manufactured in Virginia and sold in Pennsylvania. The source of the infestation could not be determined. The outside wrapper contained a few insect holes. Since the holes could not be identified as entrance or exit, it was impossible to determine whether the infestation occurred before or after the container was sealed. A review of the literature indicates that T. glabrum has not been known to infest packs of cigarettes. Presence of T. glabrum in other products, however, has been reported from Virginia and Pennsylvania.

References cited

- Laudani, H. 1961. Biology and habits of dermestids. Pest Contol 29(10):58-61.  
White, G.D., and McGregor, H.E. 1957. Epidemic infestations of wheat by a dermestid, Trogoderma glabrum (Herbst). J. Econ. Ent. 50(4):382-385.



Cigarettes damaged by T. glabrum

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
19(15):270, 1969

<sup>1/</sup> Market Quality Research Division, ARS, U.S. Dept. Agr.



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

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Plant Pest Control Division  
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United States Department of Agriculture  
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**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

EUROPEAN CORN BORER overwintering survival in stubble from Dane County to Portage County ranged 92 to 96 percent in Wisconsin. (p. 274).

GREENBUG damage increasing in Childress County and damage reported in some northern panhandle counties in Texas. (p. 274).

PALE WESTERN CUTWORM damage appearing in Cheyenne County, Nebraska. (p. 275).

EGYPTIAN ALFALFA WEEVIL larvae increasing in alfalfa in Salt River Valley, Arizona. (p. 276).

ROCKY MOUNTAIN WOOD TICK causing severe outbreak of tick paralysis on 100 yearling steers in Nez Perce County, Idaho. (p. 281).

A WHITE-FRINGED BEETLE damaged about 66 percent of young watermelon seedlings in 40-acre field in Washington County, Florida. (p. 283).

Detection

A MUSCID FLY reported for the first time from Hawaii. This species not known to occur in the continental United States. This is a new Western Hemisphere record. (p. 283).

Other new State and county records on page 284.

Some First Occurrences of Season

ASTER LEAFHOPPER in Florida, POTATO LEAFHOPPER in Illinois, TOBACCO BUDWORM in Alabama. ALFALFA WEEVIL larvae in Texas, Delaware, Virginia, Ohio, and Arkansas; eggs in Nevada; adults in Oregon and Indiana. ALFALFA LOOPER adults in Oregon, PEAR PSYLLA adults in Connecticut, EASTERN TENT CATERPILLAR in Oklahoma and Virginia, STABLE FLY adults in Nebraska, AMERICAN DOG TICK adults in Maryland, NORTHERN HOUSE MOSQUITO adults in Washington.

Forecasts

Second BEET LEAFHOPPER survey in desert breeding areas indicates leafhopper migrations northward remain light to moderate. (p. 273).

POTATO PSYLLID survey of spring breeding areas of Arizona and California indicates a light to moderate potential this season. (p. 273).

SPRING CANKERWORM defoliation expected to be higher and infestation will be more widespread in Minnesota this season. (p. 280).

Special Reports

An Insect Cage Constructed with Aluminum Screen Extrusion Stock. (pp. 285-286).

Reports in this issue are for week ending April 11 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING APRIL 14

HIGHLIGHTS: Warm weather over the northern Great Plains melted the snow rapidly causing extensive flooding. Heavy thunderstorms over the weekend caused considerable flooding in southern and southeastern Texas and in much of Mississippi.

PRECIPITATION: Heavy rains early in the week combined with the snowmelt to send the tributaries of the middle Missouri and upper Mississippi to near or above previous record stages. Torrential downpours fell from southeastern Kansas to southern Illinois on Tuesday and Wednesday. Hail and violent windstorms occurred across the Central States on Wednesday afternoon and evening. Thursday was comparatively calm. Friday and the weekend brought more severe weather, violent thunderstorms and a few tornadoes, to the Deep South. Several persons were injured; no tornado deaths were reported; damages were estimated to exceed \$100,000. Light snow fell in the Rockies in Wyoming and above 8,000 feet in Arizona. Widespread showers occurred over much of the East over the weekend.

TEMPERATURE: The warming trend continued over most of the Nation for the second consecutive week. Afternoon temperatures reached the 80's over the southern Great Plains early in the week and the 60's and 70's in the northern and central Great Plains by Sunday. Almost the entire Nation averaged warmer than seasonal. (Summary supplied by Environmental Data Service, ESSA.)

**SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

Second Beet Leafhopper Survey in Desert Areas of Central Arizona, Southeastern California, Southern Nevada, and Southern Utah - 1969

The second beet leafhopper (*Circulifer tenellus*) survey was conducted in desert spring-breeding areas March 26-30. Host plants were generally more stressed than at the time of the first survey. Lack of appreciable moisture coupled with winds stunted and dried many desert plants. This condition prevailed throughout most of the area regularly surveyed. Therefore, the survey was limited to that area south of the 34th parallel. The outlook for beet leafhopper migrations northward remains light to moderate. (PPC West. Reg.). For results of preliminary survey see CEIR 19(11):171.

Potato Psyllid Survey, Spring Breeding Areas of Arizona and California - 1969

The 1969 spring survey for potato psyllid (*Paratrioza cockerelli*) in the overwintering areas of Arizona and California was conducted March 18-22. Wild *Lycium* spp. over much of the area was defoliated or otherwise showed signs of stress, probably due to lack of moisture. Immature psyllids were numerous at some locations between Blythe and Needles in California.

Comparison of average populations per 100 sweeps on overwintering hosts found during spring surveys from 1962 through 1969 are as follows:

State	District	1969	1968	1967	1966	1965	1964	1963	1962
Arizona	Tucson, Phoenix	407	214	34	73	508	158	715	2236
California	Blythe, Barstow	167	120	8	228	87	100	185	909

Results of the survey indicate a light to moderate migration potential this season. (PPC West. Reg.).

**ARMY CUTWORM (*Chorizagrotis auxiliaris*) - KANSAS** - Averaged less than 1 per linear row foot on wheat in Haskell, Grant, Stanton, Greeley, Wallace, and Thomas Counties. None found in Ford, Gray, Hamilton, Lane, Gove, Logan, Scott, Wichita, Sherman, McPherson, Reno, and Stafford Counties. (Redding, Simpson, Apr. 4). Currently trace to 1 per square foot on wheat in Pawnee, Hodgeman, Finney, Kearny, Grant, Hamilton, Greeley, Wallace, and Logan Counties. (Brooks, Simpson).

**COLORADO** - Larvae 0 to 3 per linear foot of drill row on wheat in northeastern and east-central areas. Counts very light compared to last year and feeding very light to date. (Johnson et al.). **WYOMING** - Larvae 0 to 2 (averaged 0.2) per square foot on Crook County alfalfa. Ranged 0-4 (averaged 0.5) per linear foot on wheat at Yoder and Veteran, Goshen County. Scattered and light in Bordeaux and Slater areas, Platte County. (Parshall). **UTAH** - This species and other cutworm larvae light in alfalfa and rangeland in Curlew Valley, Box Elder County. (Knowlton, Apr. 4).

**ASTER LEAFHOPPER (*Macrosteles fascifrons*) - FLORIDA** - One adult in 100 sweeps of oats, none in 200 sweeps of rye and 100 sweeps of wheat at Gainesville, Alachua County. (Mead). Should peak in May. (Fla. Coop. Sur.). **WISCONSIN** - Absent in all rye fields swept in central part of State. (Wis. Ins. Sur.).

**BEEF LEAFHOPPER (*Circulifer tenellus*) - UTAH** - Present on *Erysimum repanda* west of Snowville, Box Elder County; 1 in 300 sweeps. (Knowlton, Apr. 11).

**CORN EARWORM (*Heliothis zea*) - WASHINGTON** - Less than 5 percent survival of overwintering pupae in Wapato area, Yakima County. (Foiles, Landis, Apr. 4).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Systemics applied to late-planted barley in conjunction with greenbug control at Yuma, Yuma County. (McHenry). NEVADA - Medium to heavy with honeydew on barley in Moapa and Virgin Valleys, Clark County. (Yamashita, Zoller).

GREENBUG (Schizaphis graminum) - CALIFORNIA - Medium on barley at Coalinga and Huron, Fresno County. (Cal. Coop. Rpt.). NEVADA - Variable, spotted, light populations on barley in Moapa and Virgin Valleys, Clark County. (Yamashita, Zoller). ARIZONA - Averaged 250 per linear foot in 40 acres of 18-inch barley in Perryville area, Maricopa County. Systemics applied to late-planted barley at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Averaged 5-30 per linear foot in barley near Carlsbad, Eddy County. (Mathews). Very light in 2 fields in southern Dona Ana County. (Elson). COLORADO - Appearing in Baca County. (Ball). NEBRASKA - One specimen in suction trap at Lincoln, Lancaster County. (Pruess). KANSAS - None found in wheat in Ford, Gray, Haskell, Grant, Stanton, Hamilton, Lane, Gove, Greeley, Wallace, Logan, Scott, Wichita, Sherman, Thomas, McPherson, Reno, and Stafford Counties. (Redding, Simpson, Apr. 4). Currently ranged 1-10 per linear row foot in wheat in Montgomery County. None found in Labette County. (Redding). None found in wheat in Pawnee, Hodgeman, Finney, Kearny, Grant, Hamilton, Greeley, Wallace, and Logan Counties. (Brooks, Simpson). OKLAHOMA - Counts per linear foot in wheat ranged 100-200 in Washita County, 80-100 in Jackson County, and averaged 70 in Stephens County. Moderate to heavy in Bryan, Grady, and Cotton Counties; light in Garvin and Cleveland Counties. (Okla. Coop. Sur.). TEXAS - Damaging in some northern panhandle counties; wheat generally good. Greenbug fairly well under control. Some wheat sprayed. Causing heavy damage in Knox, Wilbarger, Cottle, King, Motley, Foard, Jones (Hamilin area), and Wichita Counties. Damage increasing in Childress County and on late-planted wheat in Archer County. (Boring). ARKANSAS - Increased in northwest area, but still relatively low; 200-300 in 100 sweeps. About one-third parasitized. (Boyer).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Appeared first time this year in alfalfa in southern half of State. (Ill. Ins. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Very light in fields checked. Control results excellent in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - TEXAS - Light to moderate on alfalfa in Wilbarger County. (Boring). NEW MEXICO - This species and Acyrtosiphon pisum (pea aphid) mostly light in alfalfa throughout southern counties. (Mathews, Elson). NEVADA - T. maculata medium on alfalfa in Moapa Valley, Clark County. Some parasitized. (Yamashita, Zoller).

TOBACCO BUDWORM (Heliothis virescens) - ALABAMA - First adults of season observed on potatoes in Mobile County. Egg laying for first generation should occur on clovers and vetches. (Seibels et al.).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation about 4 percent in Sussex County; none noted in New Castle and Kent Counties. (Burbutis). INDIANA - Spring survey of cornstalks made to determine prepupal population levels. Counts averaged 1 live prepupa per 5.8 feet of stalk in Marion County, 6.3 feet in Tippecanoe County, and 7.2 feet in La Porte County. Cornstalk segments averaged 1.63 feet in length; 150 segments sampled per area. (Huber, Apr. 4). ILLINOIS - Surveys indicate survival higher than normal in most areas. Percent survival by district as follows: Northwest 77, northeast 78, west 73, central 64, east 72, west-southwest 80, east-southeast 77, southwest 95, southeast 77. State average 82. (Ill. Ins. Rpt.). WISCONSIN - Overwintering survival very high. Stubble examination from Dane County to Portage County ranged 92 percent to 96 percent. Bird predation less than former years. (Wis. Ins. Sur.).

BLACK CUTWORM (Agrotis ipsilon) - FLORIDA - Damaged 21-acre field of 3 to 4-inch sweet corn; required replanting. Severe spotty damage on 6-inch corn near Island Grove, Alachua County. Determined by D.H. Habeck. (Fla. Coop. Sur.).

#### SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - WYOMING - Ranged 0-2 (averaged 0.4) per linear foot on wheat at Yoder and Veteran areas, Goshen County. Total of 2 larvae in 6 wheatfields at Slater and Bordeaux areas, Platte County. (Parshall). COLORADO - Larvae 0-6 per linear foot on wheat in northeastern area, 0-2 in east-central area. Most larvae second instar, some third and fourth instars found in Arapahoe County. Wheat in east-central area hit hard by disease and lack of moisture; high cutworm population could cause much damage. (Pilcher et al.). NEBRASKA - Ranged 10-12 and 8-10 per linear foot checked in Chase and Perkins Counties, respectively. (Andersen, Hendrix). Damage appearing in Cheyenne County. (Liljegren). KANSAS - No larvae found in wheat in Ford, Gray, Haskell, Grant, Stanton, Hamilton, Lane, Gove, Greeley, Wallace, Logan, Scott, Wichita, Sherman, and Thomas Counties. (Redding, Apr. 4).

ENGLISH GRAIN APHID (Macrosiphum avenae) - CALIFORNIA - Medium on barley at Coalinga and Huron, Fresno County. (Cal. Coop. Rpt.). ARIZONA - Averaged 140 per linear row foot of barley in several fields near Buckeye, Maricopa County. (Ariz. Coop. Sur.). ARKANSAS - Increased in northwest area; 300-400 in 100 sweeps. About 40 percent parasitized. (Boyer). FLORIDA - All stages light on rye, wheat, and oats at Gainesville, Alachua County. (Mead).

AN APHID (Rhopalosiphum padi) - CALIFORNIA - Medium on barley at Coalinga and Huron, Fresno County. (Cal. Coop. Rpt.).

LEAFHOPPERS - FLORIDA - Graminella nigrifrons adults 5 per 100 sweeps of oats, 3 per 100 sweeps of wheat, 1 per 200 sweeps of rye at Gainesville, Alachua County. Homalodisca insolita averaged 1 per 100 sweeps of rye, wheat, and oats at Gainesville. (Mead).

STINK BUGS - FLORIDA - Euschistus servus (brown stink bug) adults 10 in 200 sweeps of maturing rye, but 1 per 100 sweeps on nearby oats and wheat at Gainesville, Alachua County. Nezara viridula (southern green stink bug) adults 16 in 200 sweeps of maturing rye and averaged 1 per 100 sweeps on nearby oats and wheat at Gainesville. (Mead).

WINTER GRAIN MITE (Penthaleus major) - KANSAS - Ranged 2-6 per linear foot of row in wheat in Labette County. (Redding).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Light in wheat in northeastern and east-central areas. No damage evident. (Johnson).

THRIPS - FLORIDA - Frankliniella bispinosa and Haplothrips graminis adults abundant and increasing on rye, wheat, and oats at Gainesville, Alachua County. F. bispinosa dominant. (Mead).

#### TURF, PASTURES, RANGELAND

A BILLBUG (Sphenophorus venatus vestitus) - CALIFORNIA - Adults of this and Sphenophorus phoeniciensis light in lawn turf at Anaheim, Orange County. (Cal. Coop. Rpt.).

SAY STINK BUG (Pitedia sayi) - NEVADA - Adults medium on range plants, especially Stanleya sp., in Clark County. (Yamashita).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - OREGON - Overwintering adults averaged 6 per 10 sweeps in 8 to 10-inch alfalfa on Kiger Island, Benton County, April 8. Dissections of female weevils revealed only small numbers of mature eggs. (Westcott). NEVADA - Newly laid to ready-to-hatch eggs at Fallon area, Churchill County. (Bechtel, Martinelli). UTAH - Active at Tremonton, Box Elder County, and in Millard County alfalfa. (Knowlton, Apr. 7). SOUTH DAKOTA - No adults on sticky-board traps in place through winter near Spearfish, Lawrence County. (Jones, Apr. 4). TEXAS - Detected in Brazos County for first time. Recent surveys revealed low numbers in alfalfa and wild clover in Mumford area and along Navasota River Bottom. Tentative determination of specimens from Grimes and Wharton Counties by H.R. Burke indicates *H. postica* may be more widely distributed. (Board, Green). ARKANSAS - Larvae appeared on alfalfa in extreme northeast area, survey negative in northwest. (Boyer). TENNESSEE - Feeding damage general in alfalfa field at Delrose, Lincoln County; controls planned. (Winsett). MISSOURI - First larvae of season observed in Pemiscot County; first and second instars averaged 25 per 10 sweeps on alfalfa. (Jones). INDIANA - Adults active and laying eggs in south-central district. No larvae April 2. (Hintz). OHIO - First larvae of season in Ross County April 8. (Muntzing). Hatch expected throughout southern area by April 18 if warm weather prevails. (Niemczyk). VIRGINIA - Few larvae noted in scattered locations in Botetourt County. Adults 7 per 100 sweeps. (Allen, Apr. 10). Second instars 3-4 per stem in Hanover County. (Innes, Apr. 8). DELAWARE - First and second instars very light, averaged 2-10 per 100 stalks of alfalfa throughout State. (Burbutis). NEW JERSEY - No eggs, larvae, or adults found on alfalfa in several fields in Gloucester, Salem, and Cumberland Counties. (Ins.-Dis. Newsltr.).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - ARIZONA - Ranged 50-100 per 100 sweeps of alfalfa at Yuma, Yuma County. Averaged 1,000 larvae per 100 sweeps in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (*Hypera punctata*) - ILLINOIS - Averaged 15 larvae per square foot in southern areas first week in April. (Ill. Ins. Rpt.). MARYLAND - Larval injury noticeable to red clover at Fairland, Prince Georges County. Larvae active in 30 acres of alfalfa near Cambridge, Dorchester County. (U. Md., Ent. Dept.).

PEA APHID (*Acrythosiphon pisum*) - NEVADA - Generally light to medium on alfalfa in Moapa Valley, Clark County; building up rapidly. (Yamashita, Zoller). ARIZONA - Moderate to heavy on alfalfa at Safford, Graham County. Average per 100 sweeps of alfalfa as follows: 100 in Salt River Valley, Maricopa County; 2,000 at Yuma, Yuma County. (Ariz. Coop. Sur.). TEXAS - Large numbers detected on alfalfa in Wilbarger County. (Boring). OKLAHOMA - Moderate to heavy in alfalfa in Grady County, light to moderate in Washita County, and light in Garvin County. (Okla. Coop. Sur.). ARKANSAS - Increasing on Pulaski County crimson clover; 700-800 in 100 sweeps. Similar numbers on Washington County alfalfa. (Boyer). KANSAS - None found in alfalfa in Saline, McPherson, Reno, and Pratt Counties. (Simpson, Apr. 4). Currently ranged 25-100 per 10 sweeps in alfalfa in Montgomery County; 5-40 per 10 sweeps in Labette County. None found in Barton County. (Redding). MISSOURI - Averaged 300 per 10 sweeps on alfalfa in Pemiscot County. (Jones). WISCONSIN - Eggs apparently hatched April 6; most in second instar. Noted as far north as Marquette County. Unhatched eggs still present and one third instar nymph found. Alfalfa ranged 1-2 inches high. (Wis. Ins. Sur.).

GREEN PEACH APHID (*Myzus persicae*) - NEVADA - Light to medium on alfalfa in Moapa Valley, Clark County. (Yamashita, Zoller).

TARNISHED PLANT BUG (*Lygus lineolaris*) - OHIO - Overwintering adults active in southern area since third week of March. Common in nearly every field of forage crops in southeast area. Adults averaged 4-5 per 100 sweeps. (Treece).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Increasing in alfalfa in Salt River Valley, Maricopa County; up to 50 per 100 sweeps. Ranged 30-40 per 100 sweeps at Safford, Graham County. (Ariz. Coop. Sur.).

SAY STINK BUG (*Pitiedia sayi*) - ARIZONA - Ranged 20-40 per 100 sweeps of alfalfa at Safford, Graham County. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Ranged 30-100 per 100 sweeps of alfalfa at Safford, Graham County. Averaged 10 per 100 sweeps in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Averaged 4-18 per 50 sweeps in southern Dona Ana County alfalfa. (Elson).

A SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) - NEW MEXICO - Light, minor injury to alfalfa in Albuquerque, Bernalillo County. (Heninger). Averaged 2-6 per 25 sweeps in southern Dona Ana County alfalfa. (Elson).

ALFALFA LOOPER (*Autographa californica*) - OREGON - First adults noted in light trap April 6 in Medford, Jackson County. (Gentner).

#### SUGARBEETS

WIREWORMS - WASHINGTON - *Limonius canus* (Pacific Coast wireworm) adults in flight at Quincy, Grant County, March 25. *Limonius californicus* (sugar-beet wireworm) in flight at Toppenish, Yakima County, March 28. (Foiles, Landis).

#### MISCELLANEOUS FIELD CROPS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Light on safflower at Yuma, Yuma County. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) - ARIZONA - Averaged 400 per 100 sweeps of 18-inch safflower plants in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Moderate to heavy in few fields of potatoes in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

POTATO TUBERWORM (*Phthorimaea operculella*) - ALABAMA - Survey of several thousand plants in numerous fields and few old potatoes near packing sheds in Mobile, Escambia, and Baldwin Counties negative for larvae and moths. (Deakle et al.).

#### CUCURBITS

MELON APHID (*Aphis gossypii*) - ARIZONA - Treatments required on cantaloups at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### GENERAL VEGETABLES

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - No buildup occurred as in 1968, but some fields required treatment in Yuma County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Treatments applied to few lettuce fields in Wellton and Dome area, Yuma County. (Ariz. Coop. Sur.).

## DECIDUOUS FRUITS AND NUTS

PLUM CURCULIO (Conotrachelus nenuphar) - ALABAMA - Overwintered adults emerged in south to central areas and as far north as Montgomery County; laying eggs in small plums, especially wild plums, on roadsides and field borders. (McQueen).

LESSER PEACH TREE BORER (Synanthedon pictipes) - ALABAMA - Adults of this and Sanninoidea exitiosa (peach tree borer) emerging in peach, cherry laurel, and other fruit and ornamentals at Atmore, Escambia County. Should emerge next 7-10 days farther north. (Knowles et al.).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Overwintered larvae active and feeding on opening buds of early pecans in Escambia, Mobile, and other far south counties. None in Dallas and Montgomery Counties. (Knowles et al.).

PEAR PSYLLA (Psylla pyricola) - OREGON - Hatch begun. Appears lowest in many years in unsprayed Jackson County orchards. (Gentner). WASHINGTON - Eggs first noted at Tieton, Yakima County, March 21; controls applied March 11-21. Nymphs at west Wapato, Yakima County, April 2. (Johnson, Wade). IDAHO - Egg laying began in most of Payette County week ending March 21. (Homan). CONNECTICUT - Adults active in most of State. Eggs at Storrs, Tolland County. Egg laying will increase rapidly if warm weather continues. (Kollas, Apr. 8).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Unusually heavy in 3-acre pear orchard at Paso Robles, San Luis Obispo County. (Cal. Coop. Rpt., Apr. 4). IDAHO - Infested many Canyon and Payette County orchards this spring. (Homan).

APPLE APHID (Aphis pomi) - VIRGINIA - Hatched in Carroll, Montgomery, and Botetourt Counties; counts spotty, ranged up to 30 per bud. Generally less than 1 per bud. (Allen). MARYLAND - Hatching and feeding, ranged 6-8 per 20 buds, on new apple foliage at Fairland, Montgomery County. (U. Md., Ent. Dept.).

WESTERN DRYWOOD TERMITE (Incisitermes minor) - CALIFORNIA - Medium in almond trees in 40-acre orchard at Zamora, Yolo County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - IDAHO - Hatch began on south side of fruit trees in Canyon and Owyhee County orchards week ending March 21. Overwintering eggs in most orchards fewer than in past years. (Homan). VIRGINIA - Hatched in Carroll County, less than 1 per bud. (Allen). MARYLAND - Eggs moderate on apple twigs at Fairland, Montgomery County; no hatch observed. (U. Md., Ent. Dept.).

A SPIDER MITE (Tetranychus mcdanieli) - WASHINGTON - Overwintering adults extremely low at Wenatchee, Chelan County. Some predators fairly high. (Hoyt, Apr. 4). IDAHO - Overwintering adults had not moved up into apple trees in Canyon and Payette County orchards week ending March 21. (Homan).

A FRUIT-TREE MITE (Bryobia rubrioculus) - ARIZONA - Heavy on apple tree buds at Sedona, Yavapai County. Determined by D. Tuttle. (Ariz. Coop. Sur.).

## CITRUS

Citrus Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 65 (norm 60) percent of groves; 50 (norm 41) percent economic. Decreased but still in high range and above normal for this date. Further decrease expected through April. Highest districts south, west, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 33 (norm 36) percent of groves; 14 (norm 16) percent economic. In low range and slightly below normal. Increase expected in late April. Highest district central. CITRUS RED MITE (Panonychus citri) infested 29 (norm 43) percent of groves; 9 (norm 17) percent economic. Decreased and expected to remain below normal and in low range.



Highest district east. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 6 percent of groves; less than 1 percent economic. Below normal and in low range. Gradual increase expected through May. GLOVER SCALE (Lepidosaphes gloverii) infested 68 (norm 79) percent of groves; 6 (norm 19) percent economic. PURPLE SCALE (L. beckii) infested 63 (norm 79) percent of groves; 7 (norm 10) percent economic. YELLOW SCALE (Aonidiella citrina) infested 80 (norm 65) percent of groves; 4 (norm 12) percent economic. BLACK SCALE (Saissetia oleae) infested 17 (norm 29) percent of groves; 5 (norm 11) percent economic. CHAFF SCALE (Parlatoria pergandii) infested 36 (norm 65) percent of groves; less than 1 (norm 12) percent economic. All above scales continue low to moderate in all districts. Activity below normal this spring; little increase expected before May. An ARMORED SCALE (Unaspis citri) infested 16 percent of groves; 7 percent moderate or heavy. Above normal for March and will increase. WHITEFLIES infested 58 percent of groves; 12 percent economic. Larvae slightly above normal but still in moderate range. Adults will become numerous. MEALYBUGS below normal and at very low level. Little increase expected before May. APHIDS infested 22 percent of groves; 2 percent economic. Near normal and currently in low range but increasing rapidly. Will increase further until May, but statewide spring infestation expected to be below average. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy on new growth at Yuma, Yuma County. Light on trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Ideal weather aiding buildup, some groves treated at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - OREGON - Light in 75 percent of blackcap raspberry fields treated with a chlorinated hydrocarbon before planting in northern Marion and southern Clackamas Counties. (Rosenstiel).

STRAWBERRY CROWN BORER (Tyloderma fragariae) - TENNESSEE - Adults collected in Knox County. (Williams).

SPIDER MITES (Tetranychus spp.) - OKLAHOMA - Tetranychus sp. heavy; damaged strawberry plants in Tulsa County. (Okla. Coop. Sur.). FLORIDA - T. urticae (two-spotted spider mite) heavy on unsprayed strawberries in one-eighth acre and in unsprayed commercial fields at Bradenton, Manatee County. (Kelsheimer).

#### ORNAMENTALS

A WEEVIL (Rynchophorus cruentatus) - FLORIDA - Continues problem on Canary date palm in nursery at Homestead, Dade County; controls used. Collected and determined by T.L. Stringfellow. (Stringfellow).

ARMORED SCALES - CALIFORNIA - Hemiberlesia lataniae heavy on evergreen pear on hospital grounds at Santa Maria, Santa Barbara County, and Aspidiotus nerii (oleander scale) heavy on Cycas sp. nursery stock at San Diego, San Diego County, week ending April 4. Lineaspis cupressi heavy on juniper nursery stock at Torrance, Los Angeles County. (Cal. Coop. Rpt.).

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) - FLORIDA - Eggs and adults moderate on 850 of 1,000 azalea plants at Mango, Hillsborough County. (Simmons).

## FOREST AND SHADE TREES

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - FLORIDA - Outbreaks begun late last fall still continuing at Tennile, Steinhatchee, and Keaton Beach in Taylor County. About 100 acres of 2 to 8-year-old commercial longleaf pines involved. Killed 500 8-year-old trees; damage still being evaluated; defoliation followed by attacks of Ips sp. (an engraver beetle) and Pissodes sp. (a weevil) in dry weather. N. lecontei eggs to fourth instars heavy on over 600 acres of year-old slash pine. N. lecontei and secondary infestations of probably Pissodes nemorensis (deodar weevil) killed 1,000 year-old slash pines in 1968. Above infestations total over 1,000 acres. Collected and determined by R.C. Wilkinson. (Wilkinson).

WEEVILS - OREGON - Scythropus sp. adults heavy on ponderosa pine needles in forest plantation near Elgin, Union County. (Kline). OHIO - Several Hylobius pales (pales weevil) males and Pissodes approximatus (northern pine weevil) adults collected on Scotch pine stumps cut last fall as Christmas trees in Holmes County. Females of latter species already mated. (Campbell, Apr. 3).

AN OLETHREUTID MOTH (Epinotia subviridis) - CALIFORNIA - Larvae heavy on cypress trees at Laguna Beach, Orange County. (Cal. Coop. Rpt.).

A CONIFER APHID (Cinara sp.) - WISCONSIN - Eggs unusually heavy on red pine needles at western Dane County site. (Wis. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Third instars on wild plum in Noble, Payne, and Mayes Counties. First report of year. (Okla. Coop. Sur.). MISSOURI - Hatching on wild cherry in Phelps County. (Munson). OHIO - Hatch expected about April 25. (Miller). VIRGINIA - On wild cherry in lower Nansemond County. (Pierce).

TENT CATERPILLAR MOTHS (Malacosoma spp.) - NEVADA - Damage by M. incurvum discoloratum larvae light to medium on Fremont cottonwood but increasing in Moapa Valley, Clark County. (Zoller). CALIFORNIA - M. californicum (California tent caterpillar) larvae heavy on oaks at Richmond, Contra Costa County. (Cal. Coop. Rpt.). OREGON - First M. pluviale (western tent caterpillar) eggs hatched March 31 on alder at St. Helens, Columbia County. (Walrod). Hatching in Washington County week of April 4. (Goeden).

SPRING CANKERWORM (Paleacrita vernata) - MINNESOTA - Many males and females on elms at St. Paul, Ramsey County. Will be more widespread this season. Defoliation expected to be heavier. (Minn. Ins. Rpt.). WISCONSIN - Eight moths caught in blacklight trap at Madison, Dane County. (Wis. Ins. Sur.).

A NOCTUID MOTH (Ufeus faunus) - NEVADA - Larvae heavy; heavy damage on Fremont cottonwood in Moapa Valley, Clark County. (Zoller).

## MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 7 cases reported in U.S. April 6-12 as follows: TEXAS - Bee, Hidalgo, Maverick, Dimmit, Pecos; ARIZONA - Cochise 2. Total of 68 cases reported in portion of Barrier Zone in Republic of Mexico March 30 to April 5 as follows: Sonora 32, Chihuahua 10, Nuevo Leon 1, Tamaulipas 25. No cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 53,458,000; Mexico 114,238,000. (Anim. Health Div.).

MOSQUITOES - CALIFORNIA - High nuisance periodically on warm days. Rain increases threat of irritation. (Cal. Coop. Rpt.). NEVADA - Culiseta inornata adult collections continue numerous in light traps at Las Vegas, Clark County. (Hanson).

Unspecified mosquitoes heavy at Gerlach area, Washoe County. (Loomis). WASHINGTON - First Culex pipiens pipiens adults noted March 28 at Prosser, Benton County. (Cone). FLORIDA - Aedes atlanticus and/or tormentor principal pest and minor nuisance in wooded residential area at Oneco, Manatee County; other species include Mansonia sp. (not perturbans) and Psorophora ferox. A. atlanticus and/or tormentor and P. ferox principal pests with A. infirmatus present at Myakka State Park, Sarasota County. M. perturbans nuisance beginning, numbers next 2 or 3 weeks should increase to yearly peak at Gainesville, Alachua County. (Mead).

COMMON CATTLE GRUB (Hypoderma lineatum) - ILLINOIS - Average counts per head on one and 2-year-old beef herds by district: North, 4.1 on 132 animals; central, 0.5 on 121 animals; south, 5.6 on 130 animals. (Ill. Ins. Rpt.). CALIFORNIA - Flies of H. lineatum and probably H. bovis (northern cattle grub) beginning to annoy grazing cattle. Due to shipments from out of State, H. bovis frequently found. (Cal. Coop. Rpt.).

HORN FLY (Haematobia irritans) - ALABAMA - Ranged 5-50 per head in several beef herds in Escambia, Monroe, and Mobile Counties. Other herds, especially 3 dairy herds, practically free of flies. (McQueen). OKLAHOMA - Up to 75 per head on cows in Noble and Payne Counties; 30-50 per head on bulls in Sequoyah County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - NEBRASKA - First adult of season in feedlot near Waverly, Lancaster County, April 10. (Campbell).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Mostly this species up to 5 per hair part on cows checked in Payne and Noble Counties. Heavy on cattle in Mayes, Garvin, and Bryan Counties and light in Sequoyah County. (Okla. Coop. Sur.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - IDAHO - Severe outbreak of tick paralysis in 100 yearling steers at Spalding, Nez Perce County. About 50 went down April 3-4. Ticks concentrated on dewlap averaged 35-100 per steer. Steers responded to treatment. One animal suffocated. (Kambitsch). COLORADO - Active in mountain canyons. (Hantsbarger, Thatcher).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - First active adults of season found near Fairland, Montgomery County. (U. Md., Ent. Dept.).

EAR TICK (Otobius megnini) - OKLAHOMA - Five ticks on 15 cows at Vian, Sequoyah County. (Okla. Coop. Sur.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Increasing and heavy in northwest area. (Simco).

A BROWN SPIDER (Loxosceles rufescens) - OHIO - One female, 2 males, and 2 immatures collected in basement at Ohio State University at Columbus, Franklin County, by D. Berry about March 20. Identified by W.J. Gertsch. This is a new State record. (Richter).

#### HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - IDAHO - Severe damage to structural timbers and flooring by Reticulitermes sp. observed in Salmon, Lemhi County, residence following very large swarm of reproductives in late March. (Dunham). OHIO - R. flavipes (eastern subterranean termite) swarmed March 28 at Athens, Athens County (Romoser), and at Columbus, Franklin County (Miller). TENNESSEE - Probably R. flavipes swarmed in Franklin and Warren Counties. (Greene).

A POWDER-POST BEETLE (Lyctus sp.) - OHIO - Structural damage reported in Medina County. (Thoburn).

## STORED PRODUCTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - NORTH DAKOTA - Heavy and caused severe damage to stored barley at Sentinel Butte, Golden Valley County. Controls applied. (McBride).

SOUTHERN FIRE ANT (Solenopsis xyloni) - CALIFORNIA - Medium in milo grain in feed yard storage area at Imperial, Imperial County. (Cal. Coop. Rpt.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BROWN GARDEN SNAIL (Helix aspersa) - FLORIDA - Feeding and resting on container-grown nursery stock, mostly juniper and to a lesser extent on hibiscus, at Davie, Broward County. Since first find on March 24, 1969, over 75 snails of various sizes taken. About 36 acres, surrounded on 3 sides by canals, considered infested. Eradication underway. (Shirah, Clinton).

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Adults 2 per 100 sweeps each in 2 Perry County wheatfields about 15 miles south of Zanesville. Adults 21 per 100 sweeps in northwest area. (Spilker). Treatment will probably not be necessary in most cases in 1969. (Treece).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - In Tamaulipas 36,602 trees on 562 acres inspected in Municipios Hidalgo, Padilla, and Victoria; 388 trees on 100 acres found infested in Hidalgo and Padilla. Parasitism 52 percent on 61 leaf samples collected in Municipios Gomez, Hidalgo, Llera, Villagran, Ocampo, Gonzalez, and Antigo Morelos, Tamaulipas. No liberations of Prospaltella opulenta (a eulophid wasp) made during February. Chemical Control Zone - Inspections made of 33,041 trees on 503 acres in 7 Municipios in Nuevo Leon and 2,350 trees on 37 acres in 2 Municipios in Tamaulipas during February. In Nuevo Leon 1,179 trees found infested on 353 acres in Linares, Hualahuises, Montemorelos, and Monterrey. In Matamoros, Tamaulipas, 17 additional properties found infested - each with one infested leaf on one tree. Total of 6,368 trees on 1,266 properties inspected in 4 Municipios of Sonora and Baja California with negative results. (PPC Mex. Reg.).

A GRASSHOPPER (Aulocara elliotti) - ARIZONA - Egg pods heavy at Indian Springs, San Carlos Indian Reservation; up to 27 per square foot in spots. (Ariz. Coop. Sur.).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - Survey of Stilson and Butte Canyons at Chico, Butte County, for seedling hosts completed. Total of 21 seedlings found. Same area where infested seedlings found year ago. All results for scale negative. (Cal. Coop. Rpt., Apr. 4).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - SOUTH CAROLINA - Collected on U.S. Highway 17A in Georgetown County by J.L. McKee April 1. Determined by D.R. Smith. This is a new county record. (PPC).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Total of 3,226 traps operated during February. No C. capitata taken. (PPC Mex. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - During February, 560 traps in Ensenada, Tecate, and Tijuana inspected an aggregate of 1,523 times; results negative. During same period, 205 trap inspections made in La Paz; 5,312 marked flies recaptured. No native flies trapped. Inspection made of 189 pounds of host fruits from 13 properties at La Paz; larvae being reared for identification as adults. (PPC Mex. Reg.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Extremely light moth emergence from experimental cages at Mesa Experiment Station, Maricopa County.

Majority of cottonseed planted in Salt River Valley; many young seedlings emerging in Maricopa County. (Ariz. Coop. Sur.).

A SEED CHALCID (*Megastigmus pistaciae*) - CALIFORNIA - First of 10 sprays made to pistachio trees on U.S. Plant Introduction Station at Chico, Butte County. This pest under eradication treatment. (Cal. Coop. Rpt., Apr. 4).

A WHITE-FRINGED BEETLE (*Graphognathus* sp.) - FLORIDA - About 66 percent of young watermelon seedlings in 40-acre field wilted or dead; roots consumed, usually one larva under each wilted plant at Vernon, Washington County. (Scott, Brogdon, Apr. 3). Too late to replant badly damaged watermelon fields. (Fla. Coop. Sur.).

#### HAWAII INSECT REPORT

New State Record - Several adults of a MUSCID FLY (*Liste leucospila* (Wiedemann)) collected April 6, 1968, from lawn at Hickam Air Force Base, Honolulu, Oahu, by W. Takabayashi. Determined by R. Gagne. This muscid fly is not known to occur in the continental United States. Recorded from Sudan and the Ethiopian region of Africa. (Chong). This is also a new Western Hemisphere record. Also recorded from Algeria, southwestern Arabia, Canary Islands, Formosa, Greece, India, Israel, Java, Morocco, and Sumatra. As far as known, *L. leucospila* is of no economic importance. (PPC).

Vegetables - CARMINE SPIDER MITE (*Tetranychus cinnabarinus*) remains heavy on snap beans and eggplants and increasing to heavy in some fields of watermelons, cucumbers, and tomatoes at Waianae, Oahu. Light to medium on snap beans, watermelons, and cucumbers at Waimanalo. (Yamamoto, Sato). MELON FLY (*Dacus cucurbitae*) heavily damaged pumpkins and bittermelons in farm at Pearl City, Oahu. Heavy on adjacent wild momordica. (Nakama). ONION THRIPS (*Thrips tabaci*) heavy on leaves of young bulb onions and light on green onion leaves at Waianae, Oahu. (Yamamoto).

Fruits - All stages of a STINK BUG (*Plautia stali*) heavy on strawberry guava in Koko Head area of Oahu; light but widespread on common guava at Waimanalo and along Pali, Kamehameha, and Likelike Highways at Kaneohe. Egg clusters on leaves, stems, and fruits. Adults and early to late instars feeding on guava fruits. First time all stages appeared in significant numbers on widespread scale on strawberry guava (*Psidium cattleianum*) and common guava. (Nakao, Funasaki).

Forest and Shade Trees - A PSYLLID (*Psylla uncatoides*) trace to light on koa trees (*Acacia koa* and *A. confusa*) in Kalihi Valley and Tantalus Peak at Honolulu, Kaneohe, and Waimanalo, Oahu. Counts 0-5 nymphs and/or adults per 10 sweeps in all areas.

Man and Animals - Total of 397 *Aedes vexans nocturnus* and 2,061 *Culex pipiens quinquefasciatus* in 50 light traps on Oahu in March. *Aedes* per trap ranged from zero in many areas to high of 173 at Waiahole. *Culex* per trap ranged from zero to high of 230 at Waiahole. (Mosq. Cont. Br., Dept. of Health).

Beneficial Insects - Pupae and adults of a BRACONID (*Apanteles bedelliae*) very heavy in one-acre unsprayed sweetpotato field at Waimanalo, Oahu. SWEETPOTATO LEAF MINER (*Bedellia orchilella*) larvae ranged to 12 per leaf in mid-March but now average less than one per leaf. (Suzukawa, Funasaki).

Miscellaneous Insects - Adults of a TEPHRITID FLY (*Ensina sonchi*) heavy on flower heads of a sowthistle (*Sonchus oleraceus*) at Waimanalo, Pearl City, and in vacant lots near Honolulu International Airport, Oahu. (Funasaki).

## INSECT DETECTION

### New State Records

A MUSCID FLY (Liste leucospila (Wiedemann)) - HAWAII - Adults collected April 6, 1968, from lawn at Hickam Air Force Base, Honolulu, Oahu, by W. Takabayashi. Determined by R. Gagne. This is a new Western Hemisphere record. It does not occur in the continental United States. Recorded from Algeria, southwestern Arabia, Canary Islands, Ethiopian region, Formosa, Greece, India, Israel, Java, Morocco, Sudan, and Sumatra. Of no known economic importance. (p. 283).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - WYOMING - Specimens collected June 22, 1963, in Lincoln County. Determined by R.E. Warner. (Knowlton).

A BROWN SPIDER (Loxosceles rufescens) - OHIO - Female, males, and immatures collected in building at Columbus, Franklin County, by D. Berry about March 20. Identified by W.J. Gertsch. (p. 281).

### New County Records

WESTERN BROWN STINK BUG (Euschistus impictiventris) - CALIFORNIA - Collected at Irvine Ranch, Irvine, Orange County, by J. Hashe May 10, 1948, and at Garden Grove, Orange County, by L.D. Anderson April 27, 1950. Determined by G. Buxton. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - TEXAS - Brazos. (p. 276).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - SOUTH CAROLINA - Georgetown County. (p. 282).

## CORRECTIONS

CEIR 18(INDEX 1968):18 - Nuculaspis californica, See Nuculaspis pini should read Nuculaspis californica (black pine-leaf scale). Nuculaspis pini (black pine-leaf scale) should read Nuculaspis pini, See Nuculaspis californica.

CEIR 19(9):126 - Ornamentals - Under A NOCTUID MOTH (Orthosia hibisci) delete note. Note should read: A NOCTUID MOTH (Orthosia hibisci) - MARYLAND - Larvae lightly damaged rose buds at University Park and Beltsville in Prince Georges County in May 1968. Collected by T.L. Bissell and F. Smith. Determined by D.M. Weisman. This is a new county record. (U. Md., Ent. Dept.).

CEIR 19(14):233 - Current Conditions - Under EUROPEAN CORN BORER delete Colorado. Note should read: EUROPEAN CORN BORER overwintering larval surveys indicate high winter survival in Maryland and Illinois. (p. 235).

CEIR 19(14):238 - BLACK PINE-LEAF SCALE (Nuculaspis pini) should read ... (Nuculaspis californica).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 4/5-9, BL - Armyworm (Pseudaletia unipuncta) 2, black cutworm (Agrotis epsilon) 6, corn earworm (Heliothis zea) 2, granulate cutworm (Feltia subterranea) 49, salt-marsh caterpillar (Estigmene acrea) 3, variegated cutworm (Peridroma saucia) 1, yellow-striped armyworm (Prodenia ornithogalli) 4. MISSISSIPPI - Stoneville - 4/5-11, 2 BL, 50-81°F., precip. 1.62 - Armyworm 186, black cutworm 24, corn earworm 1, salt-marsh caterpillar 2, variegated cutworm 36. TEXAS - Waco - 4/2-10, BL - Armyworm 114, beet armyworm (Spodoptera exigua) 5, black cutworm 3, corn earworm 28, granulate cutworm 13, variegated cutworm 99, yellow-striped armyworm 3.

## An Insect Cage Constructed with Aluminum Screen Extrusion Stock

J. T. Hayward and C. H. Billingsley <sup>1/</sup>

Aluminum extrusion frame stock designed for construction of window screens is an excellent material for fabrication of insect cages. It is available from sources normally handling home building supplies. The aluminum stock can easily be cut with a hacksaw. Use of an inexpensive miter box will aid in making more precise 45° angle corner cuts. Special aluminum right angle corner inserts are used to join the corners on the four pieces used for the side or top sections of the cage. The bottom of the cage is sheet metal and is attached with No. 6, 3/8-inch self-tapping sheet metal screws. The side and top sections of the cage are assembled and held together by No. 6, 3/4-inch self-tapping screws.

Three equally spaced 1/16-inch holes should be drilled along each side of each section to permit the use of self-tapping sheet metal screws. The sections of the cage are held together by these fasteners. Holes should also be drilled at points where hinges or latches are attached.

The top or any side section can be hinged to permit access to the interior of the cage, or sides and top can be completely assembled with a cloth sleeve entrance attached. The cloth sleeve or many types of wire, cloth, plastic screen, or clear plastic sheets can be secured in place on the side and top sections of the cage. The screen or plastic material is laid over the channel in the aluminum stock and a round vinyl strip, laid over the screen material, is pushed into the channel. This holds the selected cover material in place.

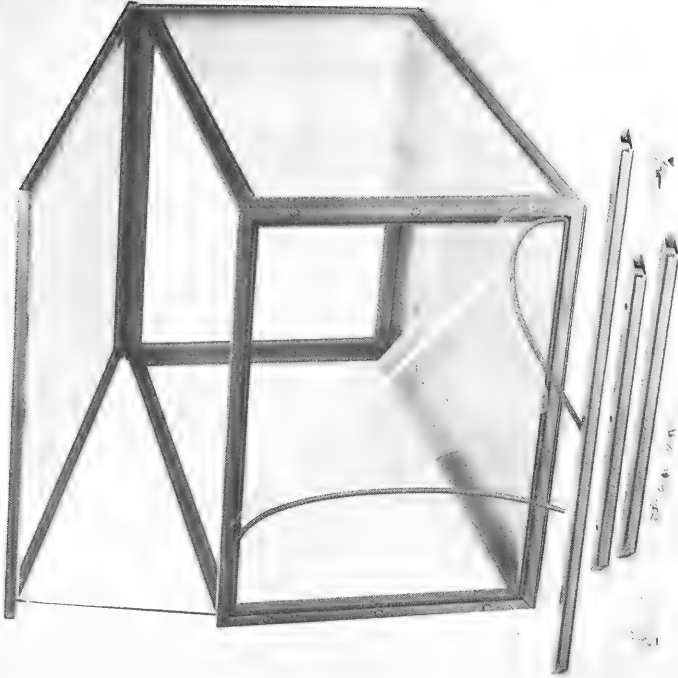
All joints may be caulked with a silicon rubber type compound so small insects and other minute arthropods can be retained. Figure 1 shows one of the aluminum cages now in use at the Plant Pest Control Division laboratory at Niles, Michigan.

The cost of aluminum frame stock is approximately 14 cents per foot. The corner inserts are about 5 cents each, and the round vinyl strip about 3 cents per foot. Cost of screening will depend on the quality of the material selected. A cage 1 by 1 by 1 foot can be assembled for a cost of about \$6.00 exclusive of screen material.

Cages built with the materials described are durable and easy to assemble, clean, maintain, and modify.

See illustration on next page.

<sup>1/</sup> Plant Pest Control Division, ARS, U.S. Dept. Agr.



Insect cage with plastic polyethylene sheeting on the sides and bottom, and organdy cloth on top.





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**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

GREENBUG heavy on wheat in 4 Rolling Plains counties and found on crowns of Johnson grass in Deaf Smith and Castro Counties, Texas. Infesting grain sorghum in Maricopa County, Arizona. (p. 290).

EUROPEAN CORN BORER spring samples in Indiana indicate a low winter mortality. (p. 290).

A WEEVIL damaged untreated field corn and sweet corn in Palm Beach County, Florida. (p. 290).

PALE WESTERN CUTWORM damaged wheat in southwestern Nebraska. Building up rapidly in northeastern Colorado. (p. 291).

ALFALFA WEEVIL adults returning to fields in central Maryland; caused some terminal damage to alfalfa in southeast Missouri; buildup slow in southern third of Illinois; some fields in Faulkner County, Arkansas, being treated. (pp. 291-292).

HORN FLY buildup increased on beef and some dairy herds in southern and central Alabama. (p. 299).

Detection

A LEAFHOPPER reported for the first time in Hawaii, considered an important pest of avocado in Ecuador. Reported on papaya in Florida. (p. 301).

For new county records see page 301.

Some First Occurrences of Season

PEA APHID in Delaware, TARNISHED PLANT BUG adults in Delaware, MEADOW SPITTLEBUG nymphs in Delaware and Oregon, and EASTERN TENT CATERPILLAR adult in Florida.

Special Reports

Bee Leafhopper Survey, Texas and New Mexico - 1969. Population counts higher in areas surveyed in 1969 than in 1968. (p. 289).

Distribution of Egyptian Alfalfa Weevil (map). (p. 302).

Reports in this issue are for week ending April 18 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-APRIL TO MID-MAY

The Weather Bureau's 30-day outlook for mid-April to mid-May is for temperatures to averaged above seasonal normals across most of the northern half of the Nation. Below normal averages are expected over coastal regions of California, Texas, and the Carolinas, while near normal is in prospect elsewhere. Precipitation is expected to exceed normal over the Pacific Northwest coast and over an area extending from the southern Plains to the south Atlantic coast. Subnormal totals are indicated over the northern Mississippi Valley, northern New England, and portions of the southern plateau. Near normal amounts are expected over unspecified areas.

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

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WEATHER OF THE WEEK ENDING APRIL 21

**HIGHLIGHTS:** The West cooled; the East continued mild. Heavy thunderstorms occurred in the Deep South.

**PRECIPITATION:** Snow fell early in the central Rocky Mountains early in the week, 8 inches at Rawlins, Wyoming. Severe thunderstorm activity occurred in moist gulf air in central and southern Great Plains. Hail as large as baseballs fell at Comanche, Oklahoma, on Wednesday. Hail also fell in Kansas, Texas, Iowa, Illinois, Missouri, and Arkansas. Winds gusted to 94 m.p.h. at Emporia, Kansas. By Thursday a front stretched from the St. Lawrence River Valley to south-central Texas. Cold rain, sometimes mixed with sleet or snow, made weather generally miserable west of the front. Severe weather -- violent thunderstorms with gusty winds, moderate to heavy showers, some damaging hail, and a number of tornados -- occurred in the warm moist air south and east of the front. More than a dozen tornados occurred from Alabama to the Carolinas on Friday causing at least 1 death, several injuries, and widespread minor damage. Snow fell Saturday from Ohio to New England, accumulating to 6 inches in northern New York. Weekend also brought more showers to the Puget Sound area in Washington. Weather of the week continued on page 294.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

### Beet Leafhopper Survey, Texas and New Mexico - 1969

The beet leafhopper (*Circulifer tenellus*) survey in Texas was begun February 24 and completed March 21. The survey in New Mexico was conducted February 25-27. The survey was conducted in 32 counties in Texas and 6 counties in New Mexico, with 68 stops made in Texas and 24 stops in New Mexico. Host plants were present at 88 percent of the stops in Texas and 79 percent of the stops in New Mexico. The number of beet leafhoppers per 100 square feet was 31 in Texas and 35 in New Mexico.

Significant observations: Texas - The winter was extremely dry in the area covered by the survey. This is favorable to high beet leafhopper populations. Host plants were widespread. Plant condition was good; maturity was advanced except in northern portion of survey area. Beet leafhoppers were found at the rate of 31 per 100 square feet in 1969 compared with 7 per 100 square feet in 1968. New Mexico - Host plants were sparse, and many were in poor condition. Beet leafhopper population counts increased to 35 per 100 square feet in 1969 compared with 5 in 1968.

In order that the survey information be more specific, the following breakdown is presented.

TEXAS - High Plains Area. Beet leafhopper counts increased in 1969 in the sugar-beet area of Morton, Muleshoe, Hereford, Dimmit, and Canyon.

Winter Garden Area. Population is about the same as in 1968. Some population shift was noted, counts being higher in the immediate vicinity of Crystal City. Very few beet leafhoppers had been caught on stickyboard traps maintained at migrating altitude (about 5 feet above ground) around spinach fields at Crystal City by March 7.

Rolling Plains and Edwards Plateau Area. Beet leafhopper populations were distributed over entire 9-county route. Counts were heaviest in the Davis Mountains, Toyahvale, and Balmorhea vicinity.

El Paso and Trans-Pecos Area. This area produced two-thirds of the beet leafhoppers found during the entire 1969 survey. Counts were heavy and greatly increased over past years in the El Paso Valley.

NEW MEXICO - The main beet leafhopper increases occurred in the El Paso Valley from the State line to Las Cruces, and in the Roswell and Dexter area. A marked decrease in host plants and beet leafhoppers was noted in the Hatch and Truth or Consequences area. (PPC and cooperating agencies).

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BEEF LEAFHOPPER (*Circulifer tenellus*) - WYOMING - Cooperative survey conducted in wasteland adjacent to sugarbeet areas in Washakie and southern Big Horn Counties. Population smaller than year ago. Averaged 0.12 per square foot of weed hosts. (Lowry et al.).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - NEBRASKA - Widespread, mostly noneconomic on wheat and alfalfa in 46 fields in 6 southwest and 2 southern panhandle counties. Range per linear foot in wheat by county: Keith 1-8, Deuel and Chase 0-4, Cheyenne 1-4, Perkins 2-5, Dundy 1-3, Hitchcock and Hayes 0-1. (Keith et al., Apr. 12-16). Ranged 0-1 per crown in 3 alfalfa fields in Chase and Dundy Counties and 1-10 in 6 fields in Red Willow County. (Keith Apr. 9-16). Larvae half grown to nearly full grown. (Keith). WYOMING - Larvae 0-2 (average 0.3) per linear foot on wheat April 11 at Dwyer, Platte County. (Parshall). COLORADO - Larvae 0-4 per linear foot of drill row of wheat in Kelim area, Weld County. Controls being applied. Damage light in northeast area. (Johnson, Wedderburn). OKLAHOMA - Mostly this species damaging early grasses and flowers in yards in Noble and Payne Counties. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - MISSOURI - First larvae of season observed in Cape Girardeau County on April 16. Only few first and second stage larvae found. (Munson).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Moderate on Tillman County wheat. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEBRASKA - None detected in 46 fields in 6 southwest and 2 panhandle counties. (Keith, Apr. 12-16). KANSAS - Light, 0-3 per row foot, in Butler County. (Redding). OKLAHOMA - Very light on wheat in northern half of State. Moderate to heavy in Grady, Oklahoma, Cotton, and Tillman Counties. (Okla. Coop. Sur.). TEXAS - Found just below soil surface on crowns of Johnson grass (Sorghum halepense) in Deaf Smith and Castro Counties April 14. Apparently decreasing on small grains in some panhandle counties. Counts reduced in Castro County. Numerous braconids and lady beetles noted in these fields. Greenbug ranged 2,000-5,000 per row foot in dryland wheatfield in Randall County north of Canyon; 2,000-4,000 per row foot east of Silverton, Briscoe County. Damage evident in both fields. Wheat generally good in area; greenbug well under control. (Daniels). Decreased in Rolling Plains area; only Cottle, King, Foard, and Motley Counties reporting heavy infestations. Large acreages reported being sprayed in Foard County. Beneficial insects building up in these counties. Greenbug reported lighter in Wilbarger, Wichita, Childress, Archer, and Hardeman Counties. (Boring). NEW MEXICO - Light to heavy on wheat in Curry and Roosevelt Counties. Controls being applied to irrigated wheat in Clovis area. (Campbell). ARIZONA - Averaged about 30 per linear foot of 3-inch grain sorghum in east Chandler area, Maricopa County. Treatments reported on some young stands. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Averaged 400 per square foot of alfalfa in Tillman County. Moderate to heavy in Garvin County. None seen in Payne and Noble Counties. (Okla. Coop. Sur.).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - INDIANA - Cornstalk samples from southwest and south-central districts yielded 28 prepupae per 100 stalk sections. Spring samples throughout State indicate low winter mortality. Large first flight coupled with heavy damage potential to early corn will be present throughout State. (Huber, Apr. 11). DELAWARE - About 20 percent of overwintering larvae pupated in Sussex County, 8 percent in Kent County, none in New Castle County. (Burbutis).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Larvae very light on less than 5 percent of untreated young field corn at Belle Glade, Palm Beach County. Collected and determined by W.G. Genung. None yet in buds of young sweet corn at Sanford, Seminole County. (Greene).

A WEEVIL (Hyperodes humilis) - FLORIDA - Damaged 30-35 percent of untreated week-old field corn and 62 percent of untreated sweet corn (3-5 weeks old) at Belle Glade, Palm Beach County; injury due to oviposition, feeding punctures, and larval tunneling. Collected and determined by M.J. Janes and W.G. Genung. (Fla. Coop. Sur.).

GARDEN SYMPHYLAN (Scutigerella immaculata) - IOWA - Collected in cornfield in Webster County. This is new county record. (Iowa Ins. Sur.).



## SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Severe damage to wheat in western Perkins and Chase Counties. Larvae economic in all fields surveyed; ranged 1-16 per linear foot. Most larvae about half grown. Injury accentuated by dry conditions; rain April 14-16 helped wheat considerably and slowed cutworm activity. Much of area sprayed. Counts per row foot in southwest district by county: Perkins 0-16; Chase 1-14; Dundy 0-10; Keith, Hitchcock, and Hayes 0. Activity in panhandle lower; larvae 2-4 per foot in Cheyenne County north and south of Sidney. Activity should increase next week. (Keith, Liljegren). COLORADO - Larvae ranged 2-8 per linear foot in wheat at Kelim, Weld County. Controls being applied. Building up rapidly in northeast area; controls necessary. (Johnson, Wedderburn). KANSAS - Ranged 1-5 per row foot on wheat examined in Stanton County. Feeding injury on plant crown below ground level, no apparent damage above ground yet. (DePew).

WHEAT STEM MAGGOT (Meromyza americana) - COLORADO - Trace injury on wheat at Nunn, Weld County. (Hantsbarger).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Averaged 200-300 per 100 sweeps in southern area wheatfields and roadsides. (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MINNESOTA - Specimen caught April 13 in suction trap at St. Paul after light southerly winds. No aphids in yellow pans placed in same area. (Minn. Ins. Rpt.). FLORIDA - All stages, mostly adults, increasing on mature oats at Gainesville, Alachua County; averaged 2 per sweep. (Mead). Less abundant on rye. (Fla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEBRASKA - Averaged 250 per row foot in Hitchcock County wheatfield. (Keith, Menke). KANSAS - Trace in wheat examined in Stanton County. (DePew). COLORADO - Remains light on northeast area wheat. (Johnson). NEW MEXICO - Light to moderate on some wheat in Curry and Roosevelt Counties. (Campbell). NEVADA - Light on barley in Moapa Valley, Clark County. (Yamashita, Zoller).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Up to 100 per linear foot on wheat checked in Noble County. (Okla. Coop. Sur.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Adults returning to fields in central counties. Averaged 0.7 per square foot in 7-county survey. Adults ranged 6-16 per 10 sweeps in 20-acre field near Beltsville. Larvae present on Eastern Shore and in central areas remain very light. (U. Md., Ent. Dept.). VIRGINIA - Adults and larvae light in Amelia, Nottoway, and Prince Edward Counties. (Innes, Perry, Apr. 11). First instars 3-5 per alfalfa bud in Montgomery County. Adults averaged 40 per 100 sweeps. (Allen). OHIO - Eggs per square foot by county April 8: Monroe 82, Meigs 109, Gallia 203. Adults abundant April 16. Adults less than 10 per 25 sweeps in most fields in north-central counties; averaged 33 per 25 sweeps in one field. About one per sweep in Coshocton County. (Prochaska). INDIANA - Larvae averaged 4 per 100 sweeps in southwest district; ranged 4-20 (average 3) per 100 sweeps in south-central district. Adults ranged 2-4 per 100 sweeps (day sample) in southwest area; 3-22 per 100 sweeps in south-central areas. (Huber). Night samples in Vincennes area, Knox County, averaged 31 per 100 sweeps; in Laconia area, Harrison County, averaged 101 per 100 sweeps. (Wilson, Hintz). Egg hatch from fall deposition begun; spring egg laying increasing in southern areas. Larval feeding on about 1 percent of plants in south-central and less than 1 percent in southwest area. (Huber, Apr. 11). ILLINOIS - Buildup slow, larvae 0-30 and adults averaged 24 per 100 sweeps in southern third of State. Feeding noticeable on 5-20 percent of terminals. In extreme southern area counts and damage much higher with 50 percent terminal feeding; adults 60-160 per 100 sweeps at night; larvae 80 per 100 sweeps.

Larvae averaged 350+ per square foot in one field. (Ill. Ins. Rpt.). Farther north, activity just beginning. Feeding evident on 5-20 percent of terminals; 1-5 larvae per infested terminal. Egg laying and hatch will accelerate. (Ins. Sur. Bull.). MISSOURI - Counts per 10 sweeps ranged 14-43 first, second, and third-stage larvae in southeast area, 3-10 small larvae in south-central area. Egg punctures averaged 30 per square foot in new seeding of alfalfa at Weldon Springs, St. Charles County. (Huggans). All larval stages ranged 100-120 per 10 sweeps in some alfalfa in Pemiscot and New Madrid Counties; chemical controls applied to few fields with 50 percent terminal damage. (Jones). ARKANSAS - Larvae 8-10 per square foot in Mississippi County; about one-fourth of terminals show feeding. Some fields being treated. (Dumas). Some fields being treated in Faulkner County. (Boyer). TEXAS - Survey in Brazos, Wharton, and Burleson Counties revealed adults abundant in most alfalfa examined. Adults particularly numerous in Wharton County near Boling. First positive identifications in Wharton and Burleson Counties. Determinations by H.R. Burke. These are new county records. (Green, Smith). SOUTH DAKOTA - Four adults on stickyboards west of Spearfish, Lawrence County, March 31-April 7. Currently 2 adults April 8-16. (Jones). COLORADO - Adults beginning to feed. Evidence of oviposition noted, but no eggs found in Weld County. (Johnson). First larvae, 2-8 per 100 sweeps, taken April 10 on 2 to 6-inch alfalfa on Western Slope. No larvae found to April 14 in Montrose County. (Bulla). NEVADA - Adults active and eggs present in Lovelock, Pershing County. (Martinelli). CALIFORNIA - H. postica and H. brunneipennis (Egyptian alfalfa weevil) very heavy in much alfalfa in Yolo County; averaged 100 per sweep. Defoliation heavy. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Larvae 8-17 per 10 sweeps of alfalfa in Lyon and Coffey Counties. (Simpson). OHIO - Two larvae collected in alfalfa in Seneca County. (Tiffin). MARYLAND - More common than H. postica (alfalfa weevil). (U. Md., Ent. Dept.). GEORGIA - Moderate on crimson clover, Dougherty County. (Hays).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - OHIO - Adults averaged 1 per 25 sweeps in north-central area; 3 to 4 per 25 sweeps in some Morrow County fields. (Richter).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OHIO - Adult damage to clover noted in many fields in northwestern areas. Damage ranged 5-20 percent. Feeding observed in at least one field in Van Wert, Paulding, Defiance, Seneca, and Hancock Counties. (Richter).

A WEEVIL (Sitona scissifrons) - WISCONSIN - Averaged 1 per 30 sweeps in alfalfa on sandy soils in western Dane County. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - First of season on alfalfa in New Castle County. (Burbutis). MARYLAND - Ranged 6-10 per sweep in 10 acres of alfalfa near Beltsville, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Light, averaged less than 80 per 100 sweeps, in Montgomery and Botetourt Counties. (Allen). OHIO - Wingless adults in clover in Seneca, Hancock, and Harding Counties; about one per sweep. Activity early this year; could reach economic levels. (Richter). ILLINOIS - Appearing on some alfalfa in southern area. Not yet serious. (Ins. Sur. Bull.). WISCONSIN - Increasing slowly and averaged 1 per 10 sweeps in alfalfa near Mazomanie, Dane County. (Wis. Ins. Sur.). MISSOURI - Averaged 300 per 10 sweeps in alfalfa in Pemiscot and New Madrid Counties. (Jones). ARKANSAS - Increasing; found on legumes in all sections. Highest counts 1,200-1,400 per 100 sweeps in crimson clover in Drew County. (Boyer). KANSAS - Ranged 10-40 per 10 sweeps of alfalfa in Neosho, Wilson, and Butler Counties. (Redding). OKLAHOMA - Moderate to heavy on alfalfa in Kingfisher, Grady, and Garvin Counties. Light and scattered in several other south-central counties. Counts per 10 sweeps by county averaged 275 in Payne and 70 in Noble. Averaged 75 per square foot in Tillman County. (Okla. Coop. Sur.). NEW MEXICO - Light on alfalfa in Dona Ana, Eddy, Torrance, and Bernalillo Counties. Heavier infestations causing damage in Chaves County and controls being applied. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - First adults of season on alfalfa in Kent County. (Burbutis). OHIO - Adults abundant and active in northwest and throughout southern areas. (Richter). ILLINOIS - Appeared in southern area with 100 per 100 sweeps of alfalfa. (Ill. Ins. Rpt.). OKLAHOMA - Averaged 3 per 10 sweeps of Noble and Payne County alfalfa. (Okla. Coop. Sur.). ALABAMA - Adults and nymphs ranged 2-10 per sweep on crimson clover throughout central and southern areas. Many adults newly developed from first-generation nymphs of 1969. (McQueen).

LYGUS BUGS (Lygus spp.) - KANSAS - Adults 4-9 per 10 sweeps of alfalfa in Wabaunsee, Lyon, Osage, and Coffey Counties. (Simpson).

MEADOW SPITTLEBUG (Philaenus spumarius) - DELAWARE - First nymphs of season on alfalfa in New Castle County. (Burbutis). OREGON - New nymphs on alfalfa April 11 at Kiger Island, Benton County. (Westcott).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Light on alfalfa in Coal and Johnston Counties. (Okla. Coop. Sur.).

### COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - No overwintered adults found in 3 southeast counties. (McQueen et al.). GEORGIA - Hibernating weevils per acre by county: Randolph 0-806; Spalding 0-2,420 (average 402). (Beckham).

BOLLWORMS (Heliothis spp.) - ALABAMA - First to third instars averaged 1 per 10 sweeps in crimson clover field borders in Baldwin and Escambia Counties. (McQueen).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - Adults of this and other thrips on newly emerged cotton checked in Henry and Covington Counties. Adults 1-2 per plant on 10-25 percent of small plants. More numerous on plants near field borders than in center of fields. (Pike et al.).

### TOBACCO

FLEA BEETLES - GEORGIA - Heavy on newly set tobacco in Tift County. (Giardeau).

### POTATOES, TOMATOES, PEPPERS

SUGAR-BEET WIREWORM (Limonijs californicus) - OREGON - Infested seed potatoes in 30-acre field near Canby, Clackamas County. Larvae one or more (up to 6) in each of 90 percent of seed pieces examined. Field treated 2 weeks earlier (just before planting) with a chlorinated hydrocarbon. (Crowell).

THREE-LINED POTATO BEETLE (Lema trilineata) - ALABAMA - Few adults on potatoes in Henry County; seldom seen in State in recent years. (McQueen).

### COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - FLORIDA - Abundant on wild crucifers or inadequately treated cole crops at Belle Glade, Palm Beach County. (Genung).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Eggs on all cabbage sampled in untreated plots at Sanford, Seminole County, April 10; early instar larvae infested 15-20 percent of plants; none on treated cabbage. Larvae very light on cole crops, adults increasing in traps at Belle Glade, Palm Beach County, April 15. Collected and determined by W.G. Genung and G.L. Greene. (Fla. Coop. Sur.).

## GENERAL VEGETABLES

ASPARAGUS BEETLE (Crioceris asparagi) - DELAWARE - Adults very common on asparagus in one area of Kent County. (Burbutis).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Control on lettuce very effective. Populations remain light. (Chappell, Campbell).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - NEVADA - Medium on green onions in Moapa Valley, Clark County. (Yamashita, Zoller).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Larvae 0-11 per square foot in old beet fields at Windsor and Lucerne, Weld County. (Wedderburn).

## CORRECTIONS

CEIR 19(14):251 - AMERICAN-DOG TICK (Dermacentor variabilis) - Last sentence in paragraph: American dog tick in Utah ... should read ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) in Utah ...

CEIR 19(16):276 - PEA APHID (Acyrtosiphon pisum) should read ... (Acyrtosiphon pisum).

CEIR 19(16):283, 284 - HAWAII INSECT REPORT - New State Record - ... a MUSCID FLY (Liste leucospila (Wiedemann)) ... should read ... a MUSCID FLY (Lispe leucospila (Wiedemann)) ...

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 4/11-17, BL - Armyworm (Pseudaletia unipuncta) 4, beet armyworm (Spodoptera exigua) 4, black cutworm (Agrotis ipsilon) 4, corn earworm (Heliothis zea) 5, granulate cutworm (Feltia subterranea) 62, salt-marsh caterpillar (Estigmene acrea) 3, tobacco budworm (H. virescens) 3, variegated cutworm (Peridroma saucia) 4, yellow-striped armyworm (Prodenia ornithogalli) 3.

MISSISSIPPI - Stoneville - 4/12-18, 2BL, 49-80° F., precip. 2.98 - Armyworm 178, black cutworm 18, corn earworm 3, salt-marsh caterpillar 4, variegated cutworm 12. MISSOURI - Fair Grove - 4/9-16 - Armyworm 12, variegated cutworm 2. TEXAS - Brownsville - 4/12-18, 2BL, 61-95° F., trace precip. - Armyworm 1, black cutworm 59, cabbage looper (Trichoplusia ni) 62, corn earworm 175, granulate cutworm 27, salt-marsh caterpillar 1, tobacco budworm 9, tobacco hornworm (Manduca sexta) 14; tomato hornworm (M. quinquemaculata) 15, variegated cutworm 10, yellow-striped armyworm 9. Waco - 4/11-17, BL - Armyworm 58, beet armyworm 1, black cutworm 3, corn earworm 16, granulate cutworm 17, variegated cutworm 53.

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Weather of the week continued from page 288.

TEMPERATURE: In general, Canadian air cooled the West and the North Central States, and gulf air warmed the South Central States and the East. Temperatures tumbled sharply as a slow-moving cold front advanced eastward across the central part of the Nation. Des Moines, Iowa, registered 74° Tuesday afternoon and only 42° Friday morning. Warmest spots in the Nation included the southwestern deserts where maximums reached the 90's on 2 or 3 days and the South Central and Southeast where many stations recorded afternoon temperatures in the 80's. Minimums dropped below freezing in the northern and central Rocky Mountains on almost every night and in northern Great Plains in the latter part of the week. North Platte, Nebraska, registered 21° Friday morning. Warming trend in the Northeast was followed by weekend cooling. (Summary supplied by Environmental Data Service, ESSA.)

## DECIDUOUS FRUITS AND NUTS

**TORTRICID MOTHS - OREGON** - First instars, probably Choristoneura rosaceana (oblique-banded leaf roller), on Red Delicious apple and on prunes at Milton-Freewater, Umatilla County, week of April 11. (Burkhart). Archips argyrospilus (fruit-tree leaf roller) eggs hatching on cherry at The Dalles, Wasco County, and Hood River, Hood River County, week of April 4. (Zwick). MARYLAND - Argyrotaenia velutinana (red-banded leaf roller) adults emerged, no egg masses yet. (U. Md., Ent. Dept.).

**PERSIMMON BORER (Sannina uroceriformis) - FLORIDA** - Larvae severe on 540 of 600 persimmon trees at Grand Island, Lake County, April 10. (Bentley). About 160 of 400 Japanese persimmons in nursery at Tampa, Hillsborough County, burned April 18. (Hale, Custead). First record of species in Tampa area. (Fla. Coop. Sur.).

**PEACH TWIG BORER (Anarsia lineatella) - OREGON** - Infested 5-10 percent of terminals in Brooks prune orchards at Yamhill and McMinnville, Yamhill County. Numbers lower in Italian prune orchards. (Roberts).

**EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OREGON** - Larvae active on cherries in The Dalles, Wasco County, week of April 4. (Zwick).

**HICKORY SHUCKWORM (Laspeyresia caryana) - FLORIDA** - Adults extremely heavy in outdoor emergence cages in pecan district at Monticello, Jefferson County, April 6-10. Collected and determined by W.H. Whitcomb. (Fla. Coop. Sur.).

**GREEN FRUITWORM (Lithophane antennata) - MICHIGAN** - Activity increasing at Livingston County blacklight station. (Janes, Apr. 14).

**WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA** - First crawlers on peach trees April 2 (April 1 last year) at Monticello, Jefferson County. Collected and determined by W.H. Whitcomb. All eggs hatched, no crawlers at Gainesville, Alachua County; 90 percent in first sedentary stage, rest in second sedentary stage. Collected and determined by L.C. Kuitert. (Fla. Coop. Sur.).

**SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA** - All stages damaged 200 peach plants in nursery at Glen St. Mary, Baker County. All plants destroyed. (Collins, King).

**APPLE APHID (Aphis pomi) - UTAH** - Very numerous on expanding apple buds at Logan, Cache County. (Davis, Knowlton, Apr. 17). PENNSYLVANIA - Nymphs very abundant on apple buds in Adams, Franklin, and York Counties. (Tetrault, Apr. 10). MARYLAND - Remains light in most orchards at Hancock, Washington County. (U. Md., Ent. Dept.). VIRGINIA - Normally heavy at Winchester. (Hill).

**ROSY APPLE APHID (Dysaphis plantaginea) - COLORADO** - Nymphs abundant, 1-12 per fruit cluster, in Mesa County apple orchards. (Bulla). VIRGINIA - Normally heavy at Winchester. (Hill). MARYLAND - Hatch light in orchard at Hancock, Washington County. (U. Md., Ent. Dept.).

**APPLE GRAIN APHID (Rhopalosiphum fitchii) - INDIANA** - nymphs 0-50 (average 14) per tip on apple in areas of Madison, Delaware, and Elkhart Counties. (Matthew, Apr. 11). WISCONSIN - Large colonies on Prunus probably indicate complete hatch. No predators except occasional syrphid fly egg. (Wis. Ins. Sur.).

**PEAR PSYLLA (Psylla pyricola) - NEW YORK** - Egg laying started April 7 in Ulster County. (N.Y. Wkly. Rpt.). OREGON - Eggs and first instars at Hood River, Hood River County, week of April 11. Heavy on unsprayed trees. (Zwick).

**SPIDER MITES - WASHINGTON** - Bryobia rubrioculus larvae on early prepink apple and delayed dormant prune at Kennewick, Franklin County. (Johnson, Apr. 11). OREGON - Overwintered adults of Tetranychus mcdanieli feeding on developing buds

of apple and pear in Hood River Valley, Hood River County, week of April 11. (Zwick). Not yet prevalent at Milton-Freewater, Umatilla County. (Burkhart). T. urticae (two-spotted spider mite) laying eggs on apple in Hood River Valley, Hood River County, week of April 11. Predatory mites active mostly on apple. (Zwick). COLORADO - T. urticae becoming active in apple orchards, high on fruit clusters in delayed dormant pink stage. Mostly in center of trees April 14. (Bulla).

EUROPEAN RED MITE (Panonychus ulmi) - PENNSYLVANIA - Overwintering eggs very heavy in peach trees in Adams, Franklin, and York Counties. (Tetrault, Apr. 10). MARYLAND - Eggs light, no hatch at Hancock, Washington County. (U. Md., Ent. Dept.).

## CITRUS

Citrus Insect Situation in Florida - Mid-March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 69 (norm 61) percent of groves; 50 (norm 41) percent economic. Above normal and in high range. Temporary decrease expected early in May. Highest districts south, west, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 29 (norm 41) percent of groves; 10 (norm 19) percent economic. Expected to remain below normal and in low range. Upward trend will be apparent in May as new leaves become infested. Highest districts central and east. CITRUS RED MITE (Panonychus citri) infested 29 (norm 48) percent of groves; 9 (norm 17) percent economic. Below normal in abundance and at low level. Little change evident until May when gradual increase expected. Highest district east. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) in 7 percent of groves; less than 2 percent economic. Gradual increase expected, only few scattered groves will develop important infestations. GLOVER SCALE (Lepidosaphes gloverii) infested 72 (norm 80) percent of groves; 8 (norm 22) percent economic. PURPLE SCALE (Y. beckii) infested 64 (norm 81) percent of groves; 6 (norm 12) percent economic. YELLOW SCALE (Aonidiella citrina) infested 78 (norm 66) percent of groves; 5 (norm 11) percent economic. CHAFF SCALE (Parlatoria pergandii) infested 39 (norm 63) percent of groves; 2 (norm 12) percent economic. BLACK SCALE (Saissetia oleae) infested 14 (norm 26) percent of groves; 4 (norm 10) percent economic. All above scales below average abundance for April. All at low or moderate levels in all districts. Gradual increase expected. AN ARMORED SCALE (Unaspis citri) infested 16 percent of groves; 5 percent moderate to heavy. Populations higher for this date than prior years. Activity expected to increase in May. WHITEFLY larvae infested 57 percent of groves, 9 percent moderate to heavy; adults infested 61 percent of groves, 9 percent moderate to heavy; eggs in 50 percent of groves, 5 percent moderate to heavy. Whitefly stages near normal levels. Adults and eggs will become more numerous. MEALYBUGS still very low but expected to increase in May. APHIDS infested 58 percent of groves; 13 percent moderate to heavy. Population increased sharply, is much above normal. Expected to enter high range in April and continue high through mid-May then decrease rapidly. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

Quarterly Citrus Insect and Mite Outlook in Florida - April through June - This outlook is based on the assumption that weather beyond the period of the current U.S. Weather Bureau 30-day Outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Insect and Disease Summary" usually released twice each month by this station.

CITRUS RUST MITE (Phyllocoptruta oleivora) expected to remain above normal in or near high range. Will be important in majority of groves. TEXAS CITRUS MITE (Eutetranychus banksi) will gradually increase to high range before June, then increase further to normal summer level. Predicted moderate to heavy for 40 percent of groves. CITRUS RED MITE (Panonychus citri) will gradually increase through June; not likely to exceed normal abundance or remain long at high level. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) will appear in about 9 percent of groves before mid-June then subside. Very few infestations will be important.

BLACK SCALE (Saissetia oleae) will increase rapidly May through June and attain high level in June but not expected to exceed normal abundance for period. GLOVER SCALE (Lepidosaphes gloverii), PURPLE SCALE (L. beckii), YELLOW SCALE (Aonidiella citrina), CHAFF SCALE (Parlatoria pergandii) will change little from current low to moderate levels before mid-May when gradual increase will begin. Only few scattered groves expected to develop heavy infestations through June. An ARMORED SCALE (Unaspis citri) expected to spread and intensify in May, resulting in June population above normal level. WHITEFLY adults will be numerous until mid-May, followed by rapid increase of larval stage to normal high level for June. MEALYBUGS will appear suddenly in numerous groves after April. Increase to normal summer high level expected through June. APHIDS will remain at abnormally high level through April then rapidly subside in May. (W.A. Simanton)

CALIFORNIA RED SCALE (Aonidiella aurantii) - ARIZONA - Two infestations at Tucson, Pima County, brings total to 48 infested properties in area. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Light to moderate on many trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

A TENT CATERPILLAR (Malacosoma californicum ssp.) - OREGON - First and mostly second instars abundant on golden currant April 10 near The Dalles, Wasco County. (Westcott).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - OREGON - Adults active on strawberry near Scappoose, Columbia County. No larvae or webbed leaves present. (Rosenstiel).

MEADOW SPITTLEBUG (Philaenus spumarius) - OREGON - Hatching on strawberry at Scappoose, Columbia County. Hatch coincided with about 5 percent bloom on Hood variety plants. (Rosenstiel).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Several large infestations being salvaged and some smaller outbreaks obscured by fall and winter hardwood discoloration caused carryover of known beetle spots for first year since 1962. On State and private lands 2,399 spots detected and 7,229 trees cut in 106 suppressed infestations during January through March. For same period in 1968: 266 spots detected and 1,243 trees cut in 67 controlled spots. Salvaged or chemically treated 9,633 trees on national forests; 242,000 board feet and 203 cords utilized. Losses occurred on Angelina, Big Thicket, Tenaha, and Yellowpine Ranger Districts. (Ollieu, For. Pest Activity Rpt.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Scattered number of small outbreaks reported January through March. Chemically treated 3 sites and salvaged 2 others. Infested 350 trees in Colorado, Houston, Jasper, Nacogdoches, and Shelby Counties. Infestations resulted from logging, fire, lightning, and excessive rain; damage static to increasing. (Ollieu, For. Pest Activity Rpt.).

DEODAR WEEVIL (Pissodes nemorensis) - TEXAS - Damage apparent over eastern area where needles shed from pine leaders killed by adult and larval feeding. Most damage in sapling to pole stands of open grown stock. Occasional feeding on younger and older trees visible. (Ollieu, For. Pest Activity Rpt., Jan.-Mar.).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Damaged new pine plantations and other young pine growth. Fed on all pine species on about 1,000 acres in Angelina, Cherokee, Houston, Montgomery, San Augustine, and Shelby Counties. Controls applied. (Ollieu, For. Pest Activity Rpt., Jan.-Mar.).

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - KANSAS - Adult emergence began April 7 (5 adults in light traps) and peaked April 14 (109 adults taken) in Riley County. (Thompson, Sorensen).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - FLORIDA - First adult of year in blacklight trap at Gainesville, Alachua County, April 14; increased to 15 per night 3 nights later. (Mead). OKLAHOMA - Very heavy on wild plum in Major County. (Okla. Coop. Sur.). ARKANSAS - First and second instars on wild cherry at Fayetteville, Washington County. (Boyer). TENNESSEE - Tents on wild cherry and apple trees in central and eastern areas. (Pless et al.). INDIANA - Hatch begun in southern area. Small larvae in 2-inch tents on wild cherry in southwest and south-central districts. Webs on 5 percent of trees checked. (Huber, Apr. 11). OHIO - First small tents detected in Ross County April 9 and in Adams and Scioto Counties April 11 (Scholler, Heazlit); near Kent, Portage County, April 17 (Gilbertson); and in Wayne County April 15 (Styer). DELAWARE - Tents and young larvae common on wild cherry trees throughout most of State. (Burbutis). VIRGINIA - Infesting trees in Rockbridge, Augusta, Montgomery, Roanoke, Rockingham, and Shenandoah Counties. Tents up to 30 (average 3-4) per tree. (Allen). Tents 5-10 per tree in Roanoke and Bedford Counties. Probably second instar. (Saucier, Jones, Apr. 10). Tents 1-3 per wild cherry tree in York County. Infestations spotty. (Tate, Apr. 10).

GEOMETRID MOTHS - MICHIGAN - *Paleacrita vernata* (spring cankerworm) light compared with 1968 at Livingston County blacklight trap. Fluctuating nightly temperatures moderated activity of this and *Alsophila pomataria* (fall cankerworm) in county. (James, Apr. 14). WISCONSIN - Caught 10 *P. vernata* in blacklight trap April 8-16 at Mazomanie, Dane County. (Wis. Ins. Sur.). NORTH DAKOTA - *P. vernata* males and females emerged at Fargo, Cass County. Females light in tanglefoot bands. Males increasing around lights. (Post).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - MINNESOTA - Pupating at St. Paul, Ramsey County; some larvae but most in prepupal stage. (Minn. Ins. Rpt.).

CHRYSOMELID BEETLES - ALABAMA - Overwintered adults of *Chrysomela scripta* complex (cottonwood leaf beetles) in normal numbers on willows and cottonwoods in southern and central areas. Egg laying continues. Many groups of small larvae feeding on willow on lawns, along streams, and roadsides. (McQueen). OKLAHOMA - *Pyrrhalta luteola* (elm leaf beetle) adults moderate on Siberian elm in Payne County. *Blepharida rhois* adults active in Payne and Noble Counties. (Okla. Coop. Sur.).

BIRCH LEAF MINER (*Fenusa pusilla*) - OREGON - Adults emerged in Washington County. (Goeden).

#### MAN AND ANIMALS

SCREW-WORM (*Cochliomyia hominivorax*) - Nine cases reported in U.S. April 13-19 as follows: TEXAS - Bee 2, Brooks, 1, Hidalgo 1, Jim Wells 1, Medina 1, Willacy 1; ARIZONA - Cochise 2. Total of 168 cases reported in portion of Barrier Zone in Republic of Mexico April 6-12 as follows: Sonora 93, Chihuahua 30, Coahuila 3, Nuevo Leon 8, Tamaulipas 34. Six cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 47,668,000; New Mexico 2,160,000; Arizona 7,500,000; Mexico 100,680,000. (Anim. Health Div.).

CATTLE GRUBS (*Hypoderma* spp.) - ILLINOIS - Statewide survey of *H. lineatum* (common cattle grub) and *H. bovis* (northern cattle grub) in untreated native 1 to 2-year-old beef and dairy cattle completed. Highest average (26.2 grubs per head) in Massac County. Counts by district: North, 586 grubs in 333 cattle; central, 176 in 249; and south, 775 in 246. State counts: 206 grubs in 445 dairy cattle;



1,331 in 383 beef cattle; overall 1,537 in 828 head. (Ill. Ins. Rpt.). OKLAHOMA - Light to moderate numbers of H. lineatum adults continue to annoy cattle in most areas. (Okla. Coop. Sur.). FLORIDA - H. lineatum averaged 1 grub per head April 4, lowest this year. Collected and determined by M.J. Janes. (Fla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 50-100 per head on Major County cattle; light to moderate in Cotton, Garvin, and Payne Counties. (Okla. Coop. Sur.). ALABAMA - Buildup increased on beef cattle and some dairy herds in southern and central areas. Ranged 25-100 on many cattle along southern State line up to Montgomery, Montgomery County. Rapid buildup probably due to high daytime and night temperatures, good moisture, and high winter survival of pupae. (McQueen).

MOSQUITOES - ALABAMA - Egg laying by Culex pipiens quinquefasciatus and probably other species widespread during favorable April weather. Larvae numerous in many containers examined through southern and central areas. Extreme annoyance at farm ponds in Sumter and other western counties. (McQueen). OKLAHOMA - Culiseta inornata larvae numerous in containers at Stillwater, Payne County. Some adults emerged. Larvae of Aedes hendersoni collected from treehole in same area. (Okla. Coop. Sur.).

A HORSE FLY (Hybomitra nigricans) - OKLAHOMA - Up to 75 (average 30) per head on cattle checked at Atoka, Atoka County, and Heavener area, Le Flore County, attacking mostly head area. (Okla. Coop. Sur.).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Heavy on cattle in Major, Cotton, and Hughes Counties. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - ALABAMA - Very heavy on herd of 3 brood sows and 20 pigs at farm in Covington County. Herd closely confined where reinfestation continues to occur. (McQueen).

HARD-BACKED TICKS - OKLAHOMA - Amblyomma americanum (lone star tick) continues annoying in many areas in eastern half of State. Adults most common. (Okla. Coop. Sur.). WYOMING - Dermacentor andersoni (Rocky Mountain wood tick) active in Washakie County. (Parshall).

#### HOUSEHOLDS AND STRUCTURES

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Collected in bathroom at Independence, Buchanan County, April 12. Collected in bathroom and living room at Blencoe, Monona County. These are new county records. (Iowa Ins. Sur.).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - OKLAHOMA - Swarming of winged reproductives very common in many areas. Termites collected in home at Duncan, Stephens County, determined R. virginicus by D.E. Howell. (Okla. Coop. Sur.). UTAH - R. hesperus (western subterranean termite) damaging home at Castle Dale, Emery County. (Day, Knowlton, Apr. 17).

ORIENTAL COCKROACH (Blatta orientalis) - OREGON - Heavy in basement at Corvallis, Benton County. (Capizzi).

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARIZONA - Averages per 100 sweeps in Graham County: 25 adults on alfalfa and 65 adults and larvae on grain. (Ariz. Coop. Sur.). COLORADO - This and other species very high inside bunch grasses at Loveland, Larimer County. (Thatcher). OKLAHOMA - Ranged 3-6 per 10 sweeps of alfalfa in Payne and Noble Counties; averaged 1.5 per square foot in

Tillman County. (Okla. Coop. Sur.). ALABAMA - Adults ranged 1-5 and larvae 2-10 per sweep in crimson clover along roadsides in central and southern areas. First generation adults present. (McQueen). FLORIDA - Increasing, 6 adults and 2 larvae in 100 sweeps of oats infested with English grain aphid at Gainesville, Alachua County. (Mead).

A MELYRID BEETLE (Collops vittatus) - ARIZONA - Averaged 10 adults per 100 sweeps of Maricopa County alfalfa. (Ariz. Coop. Sur.).

GREEN LACEWINGS (Chrysopa spp.) - ARIZONA - Averaged 40 per 100 sweeps of Graham County alfalfa. (Ariz. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - ARIZONA - Average per 100 sweeps on alfalfa by county: Graham 25, Maricopa 10. (Ariz. Coop. Sur.). OKLAHOMA - Ranged 1-3 per 10 sweeps in Payne and Noble County alfalfa. (Okla. Coop. Sur.).

FLOWER BUGS (Orius spp.) - ARIZONA - Average per 100 sweeps by county: Graham 40 on alfalfa; Maricopa 20 on sugarbeets. (Ariz. Coop. Sur.). FLORIDA - O. insidiosus increasing, on rye at Gainesville, Alachua County; 8 adults in 100 sweeps. (Mead).

A BIG-EYED BUG (Geocoris punctipes) - ALABAMA - Adults and nymphs ranged 2-10 per sweep in crimson clover in southern and central areas. (McQueen).

HONEY BEE (Apis mellifera) - WASHINGTON - Winter mortality up to 60 percent in Yakima Valley, Yakima County; 40 percent at Cashmere, Chelan County; 50 percent at Spokane, Spokane County. (Johnson, Howell, Apr. 11).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Larvae abundant, increasing rapidly in loquat at Wauchula, Hardee County, and Arcadia, De Soto County. (Rhodes).

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Adults active throughout north-central areas. Highest in Morrow County; 8 per 25 sweeps in field north of Fulton. Feeding damage light. (Richter).

GRASSHOPPERS - OKLAHOMA - Young Melanoplus sp. nymphs averaged 2 per 10 sweeps on alfalfa margins in McClain County week of April 7. Light Ageneotettix deorum hatch in pastureland week of April 14 in Garfield and Kingfisher Counties. (Okla. Coop. Sur.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Light along State highway at Folkston, Charlton County, April 10. Collected by K.L. Davenport. Determined by D.R. Smith. This is a new county record. (PPC). TENNESSEE - None found in Coffee, Cumberland, and Grundy Counties. (Greene et al.).

PINK BOLLWORM (Pectinophora gossypiella) - NEVADA - Larvae in double seeds in surface trash samples, larvae and pupae in soil samples in cotton field in Moapa Valley, Clark County. (PPC, Nev. Dept. Agric.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Heavy in field of tobacco in Cook County. Damage 5-10 percent. (Smith). This is a new county record. (PPC).

## HAWAII INSECT REPORT

New State Record - A LEAFHOPPER (Empoasca stevensi) moderate on plumeria at University of Hawaii, Honolulu, Oahu, in January 1969. This leafhopper has been reported on papaya in Florida and is considered an important pest of avocado in Ecuador. Closely resembles E. solana (southern garden leafhopper). Determined by J.P. Kramer. (Beardsley).

Turf - Adults of HAWAIIAN GRASSBUG (Oronotus hawaiiensis) heavy, 50 per 5 sweeps, on Bermuda grass along road shoulders at Ewa and Waianae and at airport and vicinity in Honolulu, Oahu. (Shiroma et al.).

Vegetables - BEAN FLY (Melanagromyza phaseoli) larvae generally light in commercial snap beans throughout Oahu. Medium to heavy in seedlings and some older plantings of snap and yard-long beans in gardens at Ewa, Wai'alu, and Kahuku. DIAMONDBACK MOTH (Plutella xylostella) larvae severe (as many as 25 per leaf) and adults medium in white-stemmed cabbage field at Halawa, Oahu. (Suzukawa). SOUTHERN GREEN STINK BUG (Nezara viridula) eggs, nymphs, and adults increasing in mustard cabbage fields at Waianae, Oahu. Some adults bore eggs of Trichopoda pennipes var. pilipes (a tachina fly). (Yamamoto).

Miscellaneous Insects - Kill of a GRASSHOPPER (Oedaleus abruptus) excellent in treated localities at Hickam Air Force Base and adjacent Fort Kamehameha in Honolulu, Oahu. Two new, separate infested areas found at Hickam Air Force Base; one adult found at Fort Kamehameha. Treatments and surveillance continuing. (Olson). RED-SHOULDERED STINK BUG (Thyanta accerra) nymphs and adults on Oahu remain light on swollen fingergrass at Sand Island, in airport area, and leeward coast from Ewa to Makaha. One adult found feeding on strawberry guava at Koko Head. (Funasaki et al.). KOA HAOLE LOOPER (Anacamptodes fragilaria) moths numerous and resting on building adjacent to koa-haole (Leucaena leucocephala) growths at Hickam Air Force Base, Honolulu, Oahu. Loopers lightly feeding on leaves of rose, hibiscus, pear, kiawe, slender mimosa, and koa-haole in various areas of Oahu. (Takabayashi, Nakao).

## INSECT DETECTION

### New State Record

A LEAFHOPPER (Empoasca stevensi) - HAWAII - Found on plumeria at Honolulu, Oahu, January 1969. Determined by J.P. Kramer. (p. 301).

### New County Records

GARDEN SYMPHYLAN (Scutigera immaculata) - IOWA - Webster County. (p. 290).

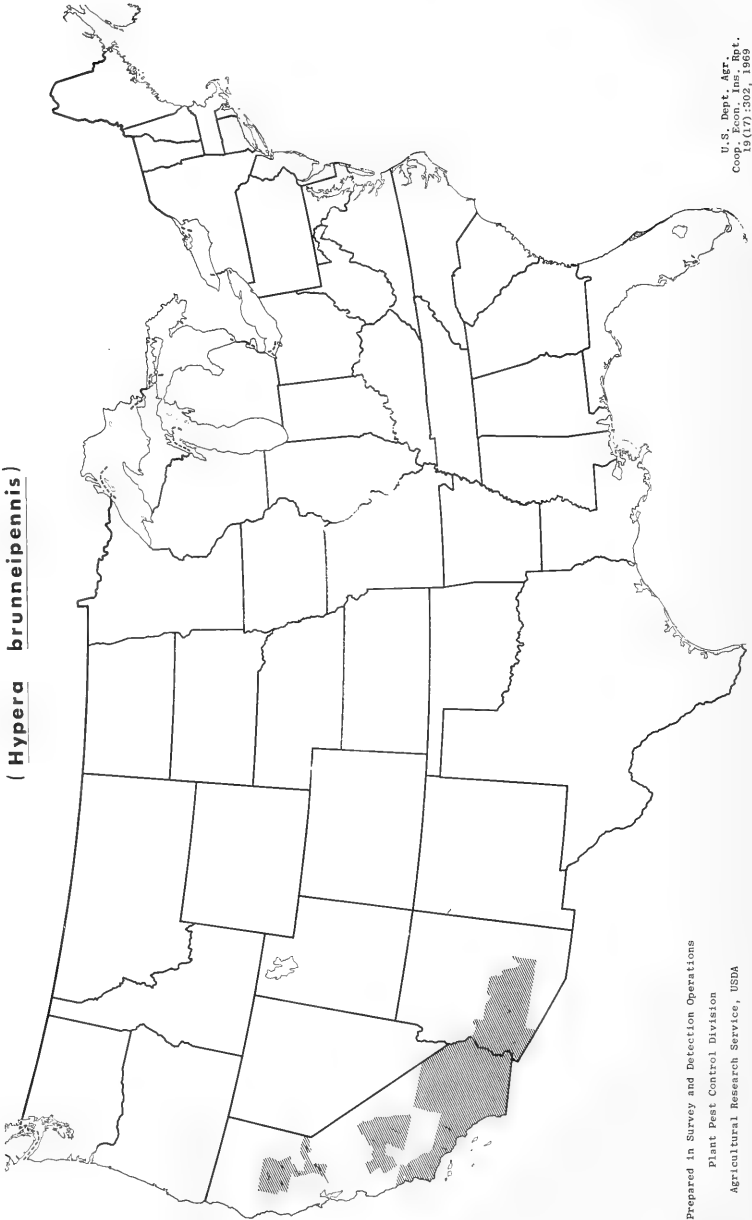
ALFALFA WEEVIL (Hypera postica) - TEXAS - Burt and Wharton Counties. (p. 292).

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Buchanan and Monona Counties. (p. 299).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Charlton County. (p. 300).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Cook County. (p. 300).

**Distribution of Egyptian Alfalfa Weevil**  
**(Hypera brunneipennis)**



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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782



## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG decreasing in Moapa and Clark Counties, Nevada. In Oklahoma parasitism up to 90 percent in many areas. Greenbugs numerous on small grains in South Carolina. (p. 305).

POTATO PSYLLID adults and eggs heavy on Lycium spp. in Nye and Clark Counties in Nevada. (p. 305).

PALE WESTERN CUTWORM heavy on wheat in areas of Wyoming, Colorado, Kansas, and Oklahoma. (p. 306).

ALFALFA WEEVIL damaging in several States. (p. 307).

PEA APHID buildup slow on alfalfa on Maryland Eastern Shore. Heavy in alfalfa in several southwest and west-central counties in Oklahoma. Heavy on alfalfa in Graham County, Arizona. (p. 308).

First hatch of GYPSY MOTH April 17 in Burlington County, New Jersey. (p. 313).

Detection

An ERIOPHYID MITE reported for the first time in California. (p. 311).

A POWDER-POST TERMITE reported for the first time in Alabama. (p. 313).

For new county records see page 314.

Special Reports

Boll Weevil Survival Surveys - Spring 1969. (p. 315). The number of weevils per acre in spring 1969 higher in most areas reporting than in 1968.

Japanese Beetle Quarantine Map. Centerfold.

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

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WEATHER OF THE WEEK ENDING APRIL 28

HIGHLIGHTS: Snowstorms occurred in northern California above 4,000 feet, in northern Rockies, Great Plains, central Appalachians. Thundershowers were common in the South.

PRECIPITATION: A storm centered in the western Great Lakes region on Monday moved eastward arriving at the Atlantic coast about midweek. It produced squally weather over the Great Lakes and blustery, cool, wet weather to much of the northeastern quarter of the Nation. Damaging winds occurred from Iowa to Ohio. Snow and sleet fell in Upper Michigan and rains drenched the Northeast from Maine to West Virginia. Several inches of snow fell in parts of northern New England, and 3 to 4 inches in mountains near Richwood, West Virginia. Another storm moved inland in the Far Northwest accompanied by rain and brisk winds. Five inches of snow fell at Blue Canyon, California. Showers with snow in the mountains fell from Washington and Oregon to the western portions of Montana and Utah. Thundershowers occurred in the Rocky Mountains early in the week and from Texas across the Deep South to the Atlantic Ocean. Hail 1 and 1.25 inches in diameter fell at Denver, Colorado, on Tuesday, and tornadoes were seen in Mississippi on Wednesday. Over the weekend, this storm brought moderate to heavy snow and blizzard conditions to parts of the northern Rockies and the northern Great Plains. A foot or so of snow fell in some localities in northeastern Wyoming, and Duluth, Minnesota, received 9 inches. Meanwhile, thunderstorms and a few tornadoes occurred in Oklahoma, Texas, Arkansas, Louisiana, and Mississippi. Weather of the week continued on page 309.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMY CUTWORM (*Chorizagrotis auxiliaris*)** - IDAHO - Larvae destroyed several hundred acres of flixweed, an important spring host plant of beet leafhopper, in Butte and Pot Hole Creek areas, Elmore County. (PPC, Apr. 14). WYOMING - Larvae light in alfalfa in Platte and Laramie Counties. Ranged 0-2, averaged less than 1, per linear foot in wheat in Platte, Goshen, and Laramie Counties. (Parshall). UTAH - Very light in winter wheat at Howell, Box Elder County. (Knowlton, Apr. 21). COLORADO - Larval counts unchanged (0-4 per linear foot) on wheat throughout northeastern and east-central area. (Johnson, Pilcher). KANSAS - Averaged less than 1 per row foot of wheat examined in southwest district. All larvae nearly full grown. (Simpson).

**BET LEAFHOPPER (*Circulifer tenellus*)** - WYOMING - Cooperative surveys of wasteland adjacent to sugarbeet growing areas of Washakie and southern Big Horn County conducted April 16-18. Leafhoppers averaged 0.11 per square foot compared with 0.35 in 1968. Largest infestations in river bottom areas; however, leafhoppers collected in widely scattered areas. (Parshall et al.).

**GREENBUG (*Schizaphis graminum*)** - NEVADA - This species and *Rhopalosiphum maidis* declined rapidly, very low on barley and wheat in Moapa and Virgin Valleys, Clark County. Predators, especially lady beetles, heavy. (Bechtel, Zoller). ARIZONA - Complex of *S. graminum* and *R. maidis* feeding on young sorghum in Gila Valley and Parker Valley areas, Yuma County. Some treating. Infestations spotty and many aphids parasitized. Greenbug moderate on young sorghum at Queen Creek, Maricopa County, and building up on 2 to 3-inch plants in Pinal County. (Ariz. Coop. Sur.). NEW MEXICO - *S. graminum* heavy in field of barley at Roswell, Chaves County. (Mathews). OKLAHOMA - Present in wheat in southwest quarter of State; parasitism ranged up to 90 percent in many areas. Wheat heading. (Okla. Coop. Sur.). KANSAS - None on wheat examined in 8 southwest counties. (Simpson). NEBRASKA - Single specimens found on wheat at Beatrice, Gage County, and near Fremont, Saunders County. (Wallen). SOUTH CAROLINA - Very numerous on small grains, especially barley, statewide. Infestations on barley heads not serious in most cases. Natural enemies very low. Unless weather warms, control may be necessary. (Thomas, Apr. 23).

**POTATO PSYLLID (*Paratrioza cockerelli*)** - NEVADA - Adults and eggs heavy on *Lycium* spp. at Beatty, Nye County, and at lower elevations of Spring Mountains in Clark County. Adults, eggs, and nymphs heavy on *Lycium* spp. in Moapa and Virgin Valleys, Clark County. (Bechtel, Zoller).

**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - NEVADA - Reduced to low levels, 1-2 per sweep, in most heavy spots in forage legumes in Moapa Valley, Clark County. Parasites and predators heavy. (Bechtel, Zoller). NEW MEXICO - Generally light on alfalfa in Chaves County. Infestations heavier in some fields; 300+ per 25 sweeps in one field. (Mathews). OKLAHOMA - Heavy in alfalfa in Kiowa County, moderate in Harmon County, and light in Tillman County. (Okla. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER (*Ostrinia nubilalis*)** - PENNSYLVANIA - Borers per stalk of corn stover averaged 1.35 in 3 York County fields, 0.61 in 4 Lancaster County fields. (Slesman, Rhoads, Apr. 17). DELAWARE - Pupation averaged 40 percent in Kent and Sussex Counties. (Burbutis). MARYLAND - Pupation ranged 10-30 percent on Eastern Shore. (U. Md., Ent. Dept.). ILLINOIS - No pupation found at Cairo, Alexander County. (Ill. Ins. Rpt.). MINNESOTA - Overwintering survival in southeast district averaged 92.4 percent; much higher than normal due probably to heavy snow cover past winter. (Minn. Ins. Rpt.). SOUTH DAKOTA - April 19 survey showed increase in winter mortality compared with 1967 and 1968. Average percent mortality by county: Bon Homme 45, Clay 32.5, and Yankton 25. (Whipple, Jones).

**SUGARCANE BEETLE (*Euethoela rugiceps*)** - GEORGIA - Destroying stand of corn in Bulloch County. (O'Stean, Jordan). This is a new county record. (PPC).

## SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - WYOMING - Heaviest in Dwyer area, Platte County; Yoder and Veteran areas, Goshen County; and Pine Bluffs area, Laramie County. Counts ranged 0-11 (averaged 1.9) per linear foot. Averaged less than 1 per linear foot in other wheatfields checked in Platte, Goshen, and Laramie Counties. Some fields in Yoder area sprayed. (Parshall). COLORADO - Larvae caused extensive damage on wheat in Phillips, Washington, Yuma, and Kit Carson Counties. Ranged 4-6 per linear foot of drill row throughout area. Controls applied where stands good. Ranged 0-3 per linear foot in Logan and Sedgwick Counties; damage light. Ranged 0-5 per linear foot in New Raymer and Stoneham area, Weld County; wheat spotty. (Pilcher, Johnson). OKLAHOMA - Ranged 3-9 per linear foot in wheat in Texas County, occasional fields heavily damaged. Light in Cimarron County. (Okla. Coop. Sur.). KANSAS - Larvae per foot of row: 0-6 in wheat examined in Stevens, Grant, Stanton, and Hamilton Counties, and 0-2 in Kearney, Finney, and Gray Counties. Larvae small to half grown; only slight damage in most fields. Fields treated in Stanton and Stevens Counties. (DePew, Simpson).

ENGLISH GRAIN APHID (Macrosiphum avenae) - FLORIDA - All stages averaged 27 per 100 sweeps of nearly mature wheat at Marianna, Jackson County. (Mead). MARYLAND - Very light on small grains on Eastern Shore. Ranged 1-5 per 100 sweeps. (U. Md., Ent. Dept.). ILLINOIS - Remains low, 40-50 per 100 sweeps. (Ill. Ins. Rpt.). WISCONSIN - Common in rye and ranged up to 3 per 100 sweeps (mostly alates, some apterae) in Trempealeau, La Crosse, and Marquette Counties. (Wis. Ins. Sur.). NEBRASKA - Averaged less than 1 per 20 sweeps in 14 wheatfields in Lancaster, Cass, Otoe, Johnson, and Gage Counties. (Keith).

SOUTHERN GREEN STINK BUG (Nezara viridula) - FLORIDA - Adults up to 6 per 100 sweeps of nearly mature wheat at Marianna, Jackson County. (Mead).

A THRIPS (Haplothrips graminis) - FLORIDA - Adults averaged 75 per 100 sweeps of wheat in Marianna, Jackson County. (Mead).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Averaged 50 per linear foot on wheat in Cimarron County. (Okla. Coop. Sur.). COLORADO - Light to moderate in Washington and Yuma Counties. Feeding damage evident in some wheatfields. (Pilcher). UTAH - Light on winter wheat at Blue Creek, Box Elder County. (Knowlton).

## TURF, PASTURES, RANGELAND

GREEN JUNE BEETLE (Cotinis nitida) - ALABAMA - Larvae, 2-12 per square foot, causing damage at golf course in Lee County. About 60 acres of fairways being treated. (Leeper et al.).

AN ARMORED SCALE (Odonaspis ruthae) - ARIZONA - Observed along ditchbanks bordering Bermuda grass-seed fields at Wellton, Yuma County. (Ariz. Coop. Sur.). FLORIDA - Infesting Bermuda grass at Crescent City, Putnam County. (Graham, Apr. 15). This is a new county record. (Fla. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Eggs hatched as far north as Coon Valley in Crawford County. (Wis. Ins. Sur.).

GLASSY CUTWORM (Crymodes devastator) - OREGON - Larvae infesting grass seed fields near Imbler, Union County. Some controls required. (Every).

WINTER GRAIN MITE (Penthaleus major) - OREGON - Very abundant in portion of blue-grass seed field west of Imbler, Union County. (Every).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW YORK - First adult on stickyboard trap April 17 at Ithaca, Tompkins County. (N.Y. Wkly. Rpt.). NEW JERSEY - Numbers abnormally low. Plant growth well ahead of population in most central and southern counties. Few adults April 21 near Columbus, Burlington County. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Larvae light on alfalfa terminals in several Westmoreland County fields. (Hower, Apr. 15). MARYLAND - Adults migrating into fields throughout State. (U. Md., Ent. Dept.). VIRGINIA - Probably last instars averaged 3-5 per stem in Charlotte County. (Allen). OHIO - Fewer adults found in southern areas; probably result of weather, not indication of decreasing populations. Eggs in Highland and Adams Counties only. Larvae in southern areas much lower than expected. Larvae reported in alfalfa in Clark County. Highest larval counts in Montgomery County near Germantown and Brown County near Georgetown. (Richter). INDIANA - Adults active in southern area. Ranged up to 4 per sweep (day samples) and feeding light on 5 percent of terminals in Ohio River areas of south-central district; 75 percent of adults mating. Averaged 1 adult per sweep (day sampling) and trace feeding in Seymour area, Johnson County. Adults ranged 0-5 per 100 sweeps (night samples) and no larvae or feeding evident in Lafayette area, Tippecanoe County. (Gerhold et al., Apr. 18). Development slightly behind that of 1967. Currently larvae ranged 35-87 per square foot in southern third of State; feeding visible on 15-25 percent of plants. (Huber, Apr. 18). ILLINOIS - Counts per 100 sweeps by district: Southwest - larvae increased to 830-2,500 (averaged 1,847) per 100 sweeps, 42 percent tip feeding; southeast - 300-1,050 (averaged 620), 29 percent tip feeding; east-southeast - averaged 101 larvae, 4 percent tip feeding; west-southwest - larvae averaged 39, tip feeding not noted; central - larvae 10-20. (Ill. Ins. Rpt.). TENNESSEE - Damage heavy in Hardeman County fields. (PPC, Apr. 18). Larval damage moderate in Hartsville area in Trousdale County. Larval counts in Montgomery County range to 300 per 100 sweeps. Controls being applied. (Webster et al.). SOUTH CAROLINA - Larvae very heavy in all unsprayed alfalfa in State. No adults or pupae present. Controls satisfactory. (Thomas, Apr. 23). ALABAMA - Larval infestations developing, causing considerable damage to alfalfa in De Kalb and other northern counties; in Macon County 21 acres of vetch treated because of heavy population. (Robinson, et al.). ARKANSAS - Variable over State. Larvae 300-1,000 in 100 sweeps in Mississippi County. (Dumas). Larvae per terminal: 3-10 in 4 north-central counties; less than 8 in 4 northwest counties, including Madison County; 1-3 in Logan County. Pupae in all areas. Larval populations probably peaked. Madison is new county record. (Roberts). Found by J.R. Phillips for first time in Van Buren, Searcy, and Pope Counties. (Boyer). Fulton County is new county record. (PPC). MISSOURI - First, second, and third instars ranged 10-51 per 10 sweeps on alfalfa in Phelps County; 25 percent terminal damage noted in some fields. (Munson). Ranged 0-11 larvae per 10 sweeps in alfalfa in Boone County; adults ranged 0-3 per 10 sweeps. (Peters). All larval instars averaged 520 per 10 sweeps in few untreated alfalfa fields in New Madrid County; adults averaged 5 per 10 sweeps. (Jones). KANSAS - Adults 3-5 and larvae 1-3 per sweep in 6 Finney County alfalfa fields. (DePew). Adults 1-4 and larvae 1-5 per 10 sweeps on alfalfa in Rush, Barton, Rice, Pawnee, and Edwards Counties. These are new county records. (Simpson). WYOMING - Mating in Platte and Laramie Counties. Averaged 1 per square foot in 2 Platte County fields. (Parshall). UTAH - Active throughout Washington County. (Huber, Knowlton, Apr. 18). Mating in Salt Lake County alfalfa. (Knowlton, Apr. 24).

EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) - CALIFORNIA - Medium on alfalfa at Fresno, Fresno County. (Cal. Coop. Rpt.).

CLOVER HEAD WEEVIL (*Hypera meles*) - ALABAMA - Larvae light to heavy, on seed heads of crimson clover throughout central counties. Although occurs statewide on this crop, usually economic only in central counties. Mixed numbers of *H. nigrirostris* (lesser clover leaf weevil), *H. punctata* (clover leaf weevil), and *H. postica* (alfalfa weevil) also occurring on seed heads and leaves. (Miller et al.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - OHIO - Adults common and widely distributed in southwestern area. (Richter).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Larvae causing some injury to alfalfa field in Spring Green area, Sauk County. (Wis. Ins. Sur.). OHIO - Few larvae found in some southwestern area fields. (Richter). MISSOURI - All larval stages ranged 1-8 per square foot in alfalfa in Phelps County. (Munson). Larvae ranged 0-3 per 10 sweeps in 4 alfalfa fields in Boone County. (Peters). KANSAS - Larvae 0-8 per 10 sweeps in most alfalfa examined in southwest, south-central, central, and east-central districts. (Simpson).

PEA APHID (Acyrtosiphon pisum) - MARYLAND - Slow buildup on alfalfa on Eastern Shore. Ranged 1-5 per sweep. (U. Md., Ent. Dept.). OHIO - Few adults in alfalfa and clover. One winged adult collected in southwest area. (Richter). ILLINOIS - Continues light, 20-4,000 per 100 sweeps in alfalfa. (Ill. Ins. Rpt.). WISCONSIN - Beginning to produce nymphs. Ranged up to 3 per 10 sweeps in few southern alfalfa fields, scarce in La Crosse, Trempealeau, Wood, Waushara, and Marquette Counties. Ranged 1-2 per 10 sweeps in Crawford, Grant, and Sauk Counties. (Wis. Ins. Sur.). MISSOURI - Averaged 860 per 10 sweeps in untreated alfalfa in southeast area. (Jones). ARKANSAS - Variable over State, may have reached peak. Predators and parasites effective. (Boyer). OKLAHOMA - Heavy in alfalfa in several southwest and west-central counties. Ranged up to 1,000 per square foot or 1,500 per 10 sweeps in many fields. Moderate in Kingfisher and Payne Counties, light in Noble County. Averaged 1,000 per square foot in Austrian Winter peas in Tillman County. (Okla. Coop. Sur.). KANSAS - Ranged per 10 sweeps from 200 in Edwards County to 5-25 in Barton, Rush, Rice, Ellsworth, Pawnee, Ford, Gray, Finney, and Kearny Counties. (Simpson). NEW MEXICO - Light in alfalfa over most of State. (N.M. Coop. Rpt.). ARIZONA - Heavy on alfalfa at Safford, Graham County; averaged 3,500 per 100 sweeps in Yuma County. (Ariz. Coop. Sur.). NEVADA - Occasional specimens in alfalfa in Moapa Valley, Clark County. (Bechtel, Zoller). UTAH - Moderate and damaging alfalfa in Washington County. (Huber, Knowlton, Apr. 21).

LYGUS BUGS (Lygus spp.) - ARIZONA - Averaged 25 per 100 sweeps in alfalfa at Safford, Graham County. (Ariz. Coop. Sur.). NEBRASKA - Averaged less than 1 per 20 sweeps in 2 Lancaster County alfalfa fields. (Keith). WASHINGTON - First and second-stage nymphs of L. hesperus ranged 50-100 per 25 sweeps April 10 on hedge-mustard (Sisymbrium altissimum) at Wallula, Walla Walla County. Adults averaged 23 per 25 sweeps on alfalfa. (Hagel).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Averaged 50 per 100 sweeps of alfalfa at Safford, Graham County. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - First egg hatch of season observed in southern third of State. First instars ranged up to 9 per 10 stems on clover in Floyd County area, trace on alfalfa in Jackson County. (Hintz, Huber, Apr. 18). OHIO - First instars common on clover and alfalfa throughout southwest area. Heaviest in southernmost counties, one field in Brown County with up to 5 nymphs on about 30 percent of stems. Spittlebugs appearing north of U.S. Highway 40. Young nymphs reported from Wayne County, near Wooster. (Niemczyk).

SAY STINK BUG (Pitedia sayi) - ARIZONA - Ranged 30-50 per 100 sweeps of alfalfa at Safford, Graham County. (Ariz. Coop. Sur.).

CUTWORMS - WISCONSIN - Reduced compared to 1968 in Wood County area. Spaelotis clandestina (w-marked cutworm), dominant; small larvae averaged 1 per 4 plants in 2 fields checked. Few Feltia spp. and Lacinipolia renigera (bristly cutworm) larvae in these fields. Alfalfa growth good and feeding masked. (Wis. Ins. Sur.).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - More numerous than previous years in crimson clover near Mt. Angel, Marion County. Larvae leaving leaf mines. (Every).

## TOBACCO

FLEA BEETLES - TENNESSEE - Generally troublesome in tobacco plant beds throughout Johnson County. Controls in progress and planned. (Walker).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Overwintered adults emerging in hibernating cages; few noted on tobacco at Chatham, Pittsylvania County. (Dominick, Apr. 16).

## SUGARBEETS

WIREWORMS - WASHINGTON - Limonius spp. larvae ranged 2-4 per row foot, and Ctenicera pruinina (Great Basin wireworm) 1 per row foot on sugarbeets in Yakima Valley April 11. Wireworms in sugarbeets more acute because of low seeding rates. (Landis).

## BEANS AND PEAS

SEED-CORN MAGGOT (Hylemya platura) - ALABAMA - Larvae caused much damage to seedling leaves in home gardens and some commercial plantings in Jackson and De Kalb Counties. (Leeper et al.).

## COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - OHIO - Adults observed in southern areas since April 3; few in northwest area April 19. (Richter). MICHIGAN - Flights greatly increased April 26 in Livingston County. (Newman).

## GENERAL VEGETABLES

ONION THRIPS (Thrips tabaci) - ARIZONA - Heavy on seed onions at Poston, Yuma County; treated. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Controls effective on lettuce in Dona Ana County. (N.M. Coop. Rpt.).

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Weather of the week continued from page 304.

A tornado injured 30 persons and destroyed a trailer park near Dallas, Texas.

TEMPERATURE: Clear skies, mild temperatures, and generally pleasant weather prevailed over most of the South early in the week while chilly weather with sub-freezing temperatures were common in the North. A large HIGH covered the North Central States at midweek. Brisk southerly winds behind the HIGH warmed the western Great Plains Thursday afternoon when temperatures reached the 80's as far north as eastern Montana. Cooler weather occurred behind a cold front which, on Thursday, stretched from western Montana to Arizona. By Friday morning temperatures dropped to freezing or colder over most of the intermountain region. Chilly weather occurred east of the Mississippi River with freezing temperatures occurring as far south as Asheville and Raleigh, North Carolina. Most of the East enjoyed a mild, pleasant weekend. Temperatures averaged above normal over the Rocky Mountains, the western edge of the central and southern Great Plains, and from the eastern half of the Dakotas to western New York, and near or below normal over the rest of the Nation. Southern Appalachians averaged 5°-8° cooler than normal. (Summary supplied by Environmental Data Service, ESSA.)

## DECIDUOUS FRUITS AND NUTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VIRGINIA - Tents on apple and peach in Pittsylvania County. (Dominick, Apr. 12). Tents up to 10 inches on apple in Bedford, Charlotte, Campbell, and Roanoke Counties. (Allen). PENNSYLVANIA - Many tents forming on fruit trees; outbreak expected. (Pa. For. Pest Rpt., Apr.). CONNECTICUT - Hatching on apple; small larvae on unsprayed trees. (Kollas, Apr. 22).

A PSYCHID MOTH (Apteronia crenulella) - UTAH - Very numerous on cherry trees and many on other trees in orchard near Ogden, Weber County. (Knowlton, Whiting, Apr. 24).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - CONNECTICUT - Few adults on apple at East Lyme, New London County. (Kollas, Apr. 22). MICHIGAN - First moth April 15, 7 moths April 16 at Livingston County blacklight station. Adults appearing in Van Buren County light traps. (Thompson).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First eggs hatched at Yakima, Yakima County, April 10. (Johnson). MICHIGAN - Adult emergence almost complete; most eggs laid by April 21. First hatch noted in southwest. (Thompson, Apr. 28). NEW YORK - Many eggs laid in Oswego, Onondaga, Cayuga, and Madison Counties area, April 13-15. (N.Y. Wkly. Rpt.). CONNECTICUT - No hatch on pear at Storrs, Tolland County. (Kollas, Apr. 22).

APHIDS - MICHIGAN - First Aphis pomi (apple aphid) of season in Berrien County. (Thompson, Apr. 21). NEW JERSEY - A. pomi light on apple. (Ins.-Dis. Newsltr.). NEW YORK - Few Rhopalosiphum fitchii (apple grain aphid) hatched April 18 in Clinton County. (N.Y. Wkly. Rpt.). CONNECTICUT - Few Dysaphis plantaginea (rosy apple aphid) on apple at East Lyme, New London County. (Kollas, Apr. 22).

EUROPEAN RED MITE (Panonychus ulmi) - OREGON - Hatching at Milton-Freewater, Umatilla County, week of April 18. (Every). MICHIGAN - Hatch underway in southwest area. (Thompson, Apr. 28). MARYLAND - Light; hatched at Hancock, Washington County. (U. Md., Ent. Dept.). NEW JERSEY - Hatch beginning on central and south area apples. First hatch in 1968 noted April 16. (Ins.-Dis. Newsltr.). CONNECTICUT - No hatch yet on apples. (Kollas, Apr. 22).

A SPIDER MITE (Tetranychus mcdanieli) - OREGON - Overwintered adults laying eggs at Milton-Freewater, Umatilla County, week of April 18. (Every).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - Larval development about 1 week behind last year; should pupate about May 1 in pecan district at Monticello, Jefferson County. (Whitcomb).

A FRUIT-TREE MITE (Bryobia rubrioculus) - CALIFORNIA - Very heavy on almond trees at Lakeside, San Diego County. (Cal. Coop. Rpt.).

## CITRUS

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Petal fall treatments being made on Yuma Mesa and at Wellton, Yuma County. (Ariz. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Building up; second treatment required in many groves. (Ariz. Coop. Sur.). FLORIDA - Eggs and adults severe on all 1,900 plants in nursery at Turkey Creek, Hillsborough County. (Vaughan, Apr. 18).



# JAPANESE BEETLE

COOPERATIVE FEDERAL, STATE, AND CANADIAN QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
PLANT PEST CONTROL DIVISION  
AND CANADIAN DEPARTMENT OF AGRICULTURE  
COOPERATING WITH AFFECTED STATES



WITH COLORED DOT ARE PARTIALLY REGULATED.  
WITH COLORED DOT ARE PARTIALLY REGULATED.



4. WITHIN GREEN \*

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

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

SUPPRESSIVE AREA - STATE, FEDERAL, AND CANADIAN REGULATIONS.  
(SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)

STATE AND CANADIAN REGULATIONS.  
(SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)

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

APH 24-2-54

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

REVISED APRIL 15, 1959.

\*\*Exempt if not exposed to infestation after cleaning or other  
\*Information as to designated laboratories may be obtained from an  
inspector.

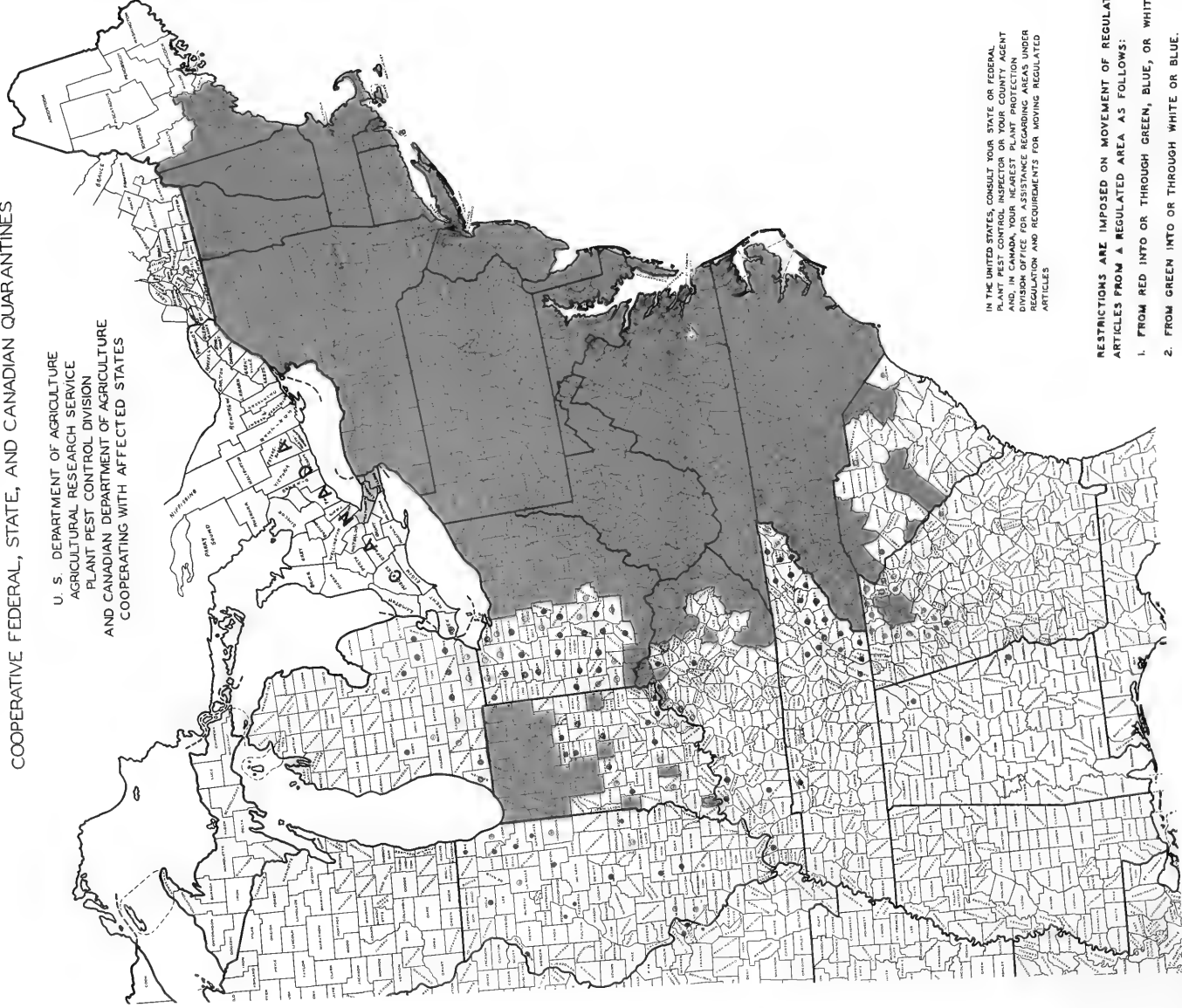
used mechanized soil-moving equipment is exempt\*\* if cleaned  
and repainted.



# JAPANESE BEETLE

COOPERATIVE FEDERAL, STATE, AND CANADIAN QUARANTINES

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AND CANADIAN DEPARTMENT OF AGRICULTURE  
COOPERATING WITH AFFECTED STATES



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.  
(SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)
-  STATE AND CANADIAN REGULATIONS.  
(SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)

IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PEST CONTROL INSPECTOR OR YOUR COUNTY AGENT FOR INFORMATION CONCERNING QUARANTINE REGULATIONS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES

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

1. FROM RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. FROM GREEN INTO OR THROUGH WHITE OR BLUE.
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.

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

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

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

Soil samples of any size shipped to U.S. Army Corps of Engineers Soil Laboratories within the conterminous U.S. are exempt. Soil samples of one pound or less are exempt if shipped to a designated laboratory.\*

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.

## SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Building up on grapes at northeast Phoenix, Maricopa County. (Ariz. Coop. Sur.). NEVADA - First adults of season appeared April 20 at Las Vegas, Clark County. (Zoller).

MEADOW SPITTLEBUG (Philaenus spumarius) - TENNESSEE - Heavy on strawberries throughout Johnson County. (Walker).

GRAPE MEALYBUG (Pseudococcus maritimus) - NEW YORK - Nymphs unusually heavy on arms and trunks in commercial grape vineyard April 15. (N.Y. Wkly. Rpt.).

## ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Hatching on cedar, juniper, and other shrubs and trees in south and central areas; should occur in far north areas soon. (McQueen).

FALL WEBWORM (Hyphantria cunea) - OREGON - Adults emerging at Salem, Marion County. (Westcott).

AN ARMORED SCALE (Lepidosaphes newsteadi) - PENNSYLVANIA - Light April 7 on specimen umbrella-pine on university campus in Centre County. Determined by G.B. Slesman. Previously reported from Chestnut Hill, Philadelphia County, and Harrisburg, Dauphin County. This is a new county record. (Gesell).

## FOREST AND SHADE TREES

DOUGLAS-FIR TWIG WEEVIL (Cylindrocopturus furnissi) - WASHINGTON - Damaged Douglas-fir Christmas tree nurseries in west area; nearing pupation. (Saunders).

A CONIFER SAWFLY (Neodiprion pratti pratti) - OHIO - New larvae on shortleaf pine in Brush Creek State Forest east of Peebles, Adams County. Serious last year on shortleaf pine in area. (Campbell).

AN ARMORED SCALE (Stramenaspis kelloggi) - CALIFORNIA - Medium on Douglas-fir at Santa Rosa, Sonoma County, for a new county record. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Trisetacus pseudotsugae) - CALIFORNIA - Serious on Douglas-firs in nursery at Half Moon Bay, San Mateo County. Over 200 trees grown from seed stunted, none over one foot high; trees 6 years old. Symptoms first noted on 6-inch seedlings. Many terminals dead; surviving ones produced multiple buds. Absent on native Douglas-fir trees in immediate area. Collected by W. Plummer and C. Sill April 4, 1969. Determined by H.H. Keifer. This is a new State record. Could be serious nursery pest of seedlings and possibly native stands. Source of infestation unknown. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Fully grown larvae left tents on wild cherry and other trees in many areas. (Bagby et al.). OKLAHOMA - Moderate to heavy on wild plum in most areas. Present as far north and west as Major and Beckham Counties. (Okla. Coop. Sur.). NEBRASKA - Hatched; first to second instars in small tents on chokecherry and wild plum in Gage and Lancaster Counties. (Keith). WISCONSIN - Hatching in Columbia County April 23. (Wis. Ins. Sur.). MICHIGAN - Making tents in Lansing area. (Janes, Apr. 28). OHIO - Hatch should peak week ending April 25 in all southern areas. Tents in Warren County April 18 (Mooter), Vinton County April 19 (Davis), and Muskingum County April 14 (Ward). PENNSYLVANIA - Two to 3-inch tents on wild cherry in Cumberland County. (Slesman et al.). VIRGINIA - Tents on wild cherry in Pittsylvania County. (Dominick, Apr. 12). Tents up to 10 inches on wild cherry in Bedford, Charlotte, Campbell, and Roanoke Counties. (Allen).

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

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.  
Soil samples of any size shipped to U.S. Army Corps of Engineers Soil Laboratories within the conterminous U.S. are exempt. Soil samples of one pound or less are exempt if shipped to a designated laboratory.\*  
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.

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

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



TENT CATERPILLAR MOTHS (Malacosoma spp.) - NEVADA - M. incurvum discoloratum damage severe on Fremont cottonwood in Moapa and Virgin Valleys, Clark County; many trees partly or entirely defoliated. (Bechtel, Zoller). UTAH - Malacosoma californicum fragile very numerous on cottonwood trees along Virgin River of Washington County. (Huber, Knowlton, Apr. 21).

GEOMETRID MOTHS - TENNESSEE - Paleacrita vernata (spring cankerworm) larvae on American elm in Knox County April 18. (Heinrichs). MICHIGAN - P. vernata and Alsophila pometaria (fall cankerworm) numbers greatly reduced April 14 in Livingston County Blacklight trap; indicates egg laying in progress. (Newman). DELAWARE - A. pometaria larvae common on elms in area of Sussex County. (Burbutis).

A NOCTUID MOTH (Oncocnemis punctilinea) - NEVADA - Larvae generally light to medium, heavy on some ash trees; whole trees defoliated in Moapa and Virgin Valleys, Clark County. (Bechtel, Zoller).

CHRYSOMELID BEETLES - OKLAHOMA - Pyrrhalta luteola (elm leaf beetle) adults active in Washita, Custer, and Cleveland Counties. Larvae in Washita County. Calligrapha scalaris (elm calligrapha) adults active on American elm in Payne County. (Okla. Coop. Sur.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Found at Overton, Clark County, for third known infested area in county. (Bechtel, Zoller). TENNESSEE - Pupating on American Elm in Knox County April 18. (Heinrichs).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Nine cases reported in U.S. April 20-26 as follows: TEXAS - Hidalgo 1, Medina 2, Uvalde 1, Zapata 2, Starr 1; ARIZONA - Cochise 2. Total of 137 cases reported in portion of Barrier Zone in Republic of Mexico April 13-19 as follows: Sonora 66, Chihuahua 11, Coahuila 15, Nuevo Leon 7, Tamaulipas 38. Total of 18 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 40,968,000; New Mexico 1,936,000; Arizona 8,784,000; Mexico 99,788,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - ALABAMA - Higher early numbers continue on cattle; large numbers on some herds as far north as Bibb County. (Odom et al.). OKLAHOMA - Ranged 50-200 per head on Payne and Major County cattle. Moderate on Kiowa County cattle and horses. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 2 per head on dairy cows checked in Payne County. (Okla. Coop. Sur.). NEBRASKA - One adult found in 5 Lancaster County feedlots. (Campbell).

FACE FLY (Musca autumnalis) - TENNESSEE - On beef animals at Willard, Trousdale County, April 18. (Webster). This is a new county record. (PPC).

SHEEP KED (Melophagus ovinus) - UTAH - Numerous on ewes sheared in Utah County. (Knowlton, Apr. 24).

MOSQUITOES - MICHIGAN - Aedes impiger larvae and fourth instar A. vexans found in Monroe County; A. impiger a new county record. Overwintering Anopheles quadrimaculatus and Culex pipiens pipiens found near Ann Arbor, Washtenaw County. Aedes stimulans fourth instars 25-50 per dip around greater Lansing area. Should be first large brood of floodwater mosquitoes. (Shinkle, Apr. 21).



## HOUSEHOLDS AND STRUCTURES

A POWDER-POST TERMITE (Cryptotermes brevis) - ALABAMA - Collected in home at Columbia, Houston County, in March 1969 by P. Pelham. Determined by F. Lechleitner. This is a new State record. (McQueen).

## BENEFICIAL INSECTS

LADY BEETLES - ARKANSAS - Larvae present statewide. (Boyer). NEW MEXICO - Averaged 10-30 per 25 sweeps of barley at Roswell, Chaves County. (Mathews). NEVADA - Larvae and adults 1-4 per sweep in aphid-infested alfalfa, barley, and wheat in Moapa and Virgin Valleys, Clark County. (Bechtel, Zoller).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Light adult damage on wheat appeared widespread through southwest areas, south of U.S. Highway 40. Damage heaviest in counties nearest U.S. Highway 40; decreases southward to counties bordering Ohio River. (Richter). MICHIGAN - Averaged 3-4 eggs per square foot of winter wheat leaves; adults 25 per 100 sweeps at Galien, Berrien County. (Helgeson).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Larvae on several mugho pines at Portland, Multnomah County. All infested trees burned. Surveys of nurseries negative. (Larson).

GRASSHOPPERS - MINNESOTA - Eggs in sunny, protected locations showed early coagulation but most eggs clear. Little or no egg development in sandy soil counties of Anoka, Isanti, and Sherburne. Egg predation very low in all fields surveyed. (Minn. Ins. Rpt.).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - First hatch April 17 on oak near Indian Mills, Burlington County. (Ins.-Dis. Newsltr.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - One mound on Farm-to-market road 2437 at Sheridan, Lavaca County. Collected by H.C. Massey April 14. Determined by D.R. Smith. This is a new county record. (PPC).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Eradication well underway in Coachella Valley, Riverside County. Over 83,000 sterile moths aeriaily or ground released April 22. Trap monitoring results relatively slow for sterile moths; no catches of wild moths significant yet. (Cal. Coop. Rpt.).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - Checked 19 citrus trees in nursery at Apopka, Orange County; 2 adults collected. (Musgrove).

A WHITE-FRINGED BEETLE (Graphognathus sp.) - FLORIDA - Larvae still troublesome in 40 acres of young watermelons at Vernon, Washington County. (Scott).

## CORRECTIONS

CEIR 19(17):291 - WHEAT STEM MAGGOT (Meromya americana) should be AN ANTHOMYIID FLY (Hylemya cerealis). (Col. Ins. Sur.).

## HAWAII INSECT REPORT

General Vegetables - All stages of LEAF MINER FLIES (Liriomyza spp.) on Oahu severe in daikon (radish) field at Koko Head, severe on commercial plantings of dish-cloth gourd (Luffa acutangula) at Pupukea, light to heavy on snap beans at Waianae and Waimanalo, and light to medium in tomato and watermelon fields at Waianae, Waimanalo, and Hauula. Heavy on tomato in gardens at Pakala, Kauai. Light to medium in tomato plantings at Hilo, Hawaii Island. (Yamamoto et al.). SWEETPOTATO LEAF MINER (Bedellia orchilella) larvae light, medium in spots, in sweetpotato fields at Waiahole, Oahu. Pupae and adults of parasitic Apanteles bedelliae (a braconid) negligible in all fields. All stages of SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) light to medium in ready-for-harvest fields of sweetpotato at Waiahole and Waimanalo, Oahu. CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy in many snap bean and eggplant fields on Oahu; severe at Pupukea, Hauula, and some farms at Waianae. (Yamamoto). CORN EARWORM (Heliothis zea) lightly damaged eggplant foliage at Pearl City, Oahu. (Nakama).

Fruits - MEXICAN LEAF ROLLER (Amorbia emigratella) larvae medium on terminals of some avocado trees at Kaneohe and Waimanalo, Oahu. (Nakao).

Shade Trees - CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) heavy on leaves of several Chinese banyan trees at Honolulu, Oahu, and at Hilo, Hawaii Island. As many as 87 nymphs and 40 adults per infested leaf at Hilo; 52 nymphs and 25 adults at Honolulu. Predacious Montandoniola moraguesi (an anthorcid bug) negligible to trace on trees in both areas. (Yoshioka, Funasaki).

## INSECT DETECTION

New State Records - An ERIOPHYID MITE (Trisetacus pseudotsugae) San Mateo County, California (p. 311). A POWDER-POST TERMITES (Cryptotermes brevis) Houston County, Alabama (p. 313).

New County Records - SUGARCANE BEETLE (Euethola rugiceps) Bulloch County, Georgia (p. 305). ARMORED SCALES: Odonaspis ruthae Putnam County, Florida (p. 306), Lepidosaphes newsteadi Centre County, Pennsylvania and Stramenaspis kelloggi Sonoma County, California (p. 311). ALFALFA WEEVIL (Hypera postica) Fulton, Madison, Pope, Searcy, and Van Buren Counties, Arkansas; Barton, Edwards, Pawnee, Rice, and Rush Counties, Kansas (p. 307). FACE FLY (Musca autumnalis) Trousdale County, Tennessee (p. 312). A MOSQUITO (Aedes impiger) Monroe County, Michigan (p. 312). IMPORTED FIRE ANT (Solenopsis saevissima richteri) Lavaca County, Texas (p. 313).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 4/18-23, BL - Armyworm (Pseudaletia unipuncta) 1, beet armyworm (Spodoptera exigua) 1, black cutworm (Agrotis ipsilon) 1, corn earworm (Heliothis zea) 6, granulate cutworm (Feltia subterranea) 23, tobacco budworm (H. virescens) 2, variegated cutworm (Peridroma saucia) 1, yellow-striped armyworm (Prodenia ornithogalli) 1. MISSISSIPPI - Stoneville - 4/19-25, 2BL, 44-79° F., no precip. - Armyworm 47, black cutworm 18, corn earworm 2, salt-marsh caterpillar 7, variegated cutworm 1. MISSOURI - Fair Grove - 4/17-23 - Armyworm 31, black cutworm 1, variegated cutworm 4. Portageville - 4/19-24 - Armyworm 79, black cutworm 3, variegated cutworm 5. TEXAS - Brownsville - 4/19-25, 2BL, 58-89° F., trace precip. - Armyworm 6, black cutworm 72, cabbage looper (Trichoplusia ni) 55, corn earworm 152, fall armyworm 2, granulate cutworm 44, salt-marsh caterpillar 2, tobacco hornworm (Manduca sexta) 8, tomato hornworm (M. quinquemaculata) 12, variegated cutworm 4, yellow-striped armyworm 20. Waco - 4/18-24, BL - Armyworm 29, black cutworm 1, corn earworm 6, granulate cutworm 10, variegated cutworm 30.

## Boll Weevil Survival Surveys - Spring 1969

Spring collections of surface ground (woods) trash samples (two square yards per sample) have been completed in six Southern States. Wherever possible, samples were taken from the same locations that were sampled in the fall of 1968. The number of live 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 (1968) hibernation survey in these six States, see CEIR 19 (6):74-76.

In NORTH and SOUTH CAROLINA, samples were taken March 17-April 3 in the same four representative areas in which fall examinations were made in 1968. In each area 30 locations (farm sites) were sampled with 3 samples being taken at each location. The same locations were sampled in the fall and spring examinations. The areas are as follows: South-central South Carolina (Orangeburg, Dorchester, and Bamberg Counties), Coastal Plain of South and North Carolina (Florence, Darlington, and Marlboro Counties, S.C., and Scotland County, N.C.), Piedmont section of South and North Carolina (Greenville, Anderson, and Spartanburg Counties, S.C., and Mecklenburg, Cleveland, and Union Counties, N.C.), and North-central North Carolina (Northampton, Nash, Wilson, and Edgecombe Counties). The average number of live weevils per acre in these areas was 403, 1,775, 780, and 161, respectively. Percent survival for these areas was 24.6, 52.2, 35.4, and 17.2, respectively. Percent survival was lowest in North-central North Carolina and highest in the Coastal Plain of South and North Carolina. In Florence County, South Carolina, an average of 2,851 weevils per acre was found for the spring of 1969, with a winter survival of 60.2 percent. The number of weevils surviving in Florence County is a 179-percent increase over 1968. (Taft, Hopkins).

Survey in TENNESSEE was completed April 15 in McNairy, Fayette, Hardin, and Hardeman Counties. Survey was made in environs of fields known to have heavy infestations in 1968. The same fields were sampled as used in the fall. Spring counts were made under adverse conditions but indicated an average of 726 weevils per acre. How much mortality was due to flooding of many fields is not known. Although the number of weevils has decreased the past two years, problems can be expected if rains occur after cotton begins squaring heavily. This has occurred previously in this area. (Locke).

Collections in MISSISSIPPI were started February 27 and all examinations completed by March 11. Three samples were taken at each location, and 7 or 8 locations were sampled in each county. Wherever possible, samples were taken from locations sampled last fall. Two counties made up each area and the State was divided into 4 areas as follows: Area 1 - South Delta (Sharkey and Yazoo Counties), Area 2 - Central Delta (Washington and Leflore Counties), Area 3 - North Delta (Coahoma and Panola Counties), Area 4 - Hill Section (Holmes and Monroe Counties). Forty-five samples were taken from 15 locations in each of the 4 areas. The average number of weevils found per acre in Areas 1, 2, 3, and 4 was 2,106, 648, 54, and 432, respectively. The State average was 810 compared with 540 in 1968, 1,525 in 1967, 1,425 in 1966, 995 in 1965, 289 in 1964, 13 in 1963, 1,132 in 1962, 1,246 in 1961, and 820 in 1960. The State average (percent survival) was 29.27 compared with 8.57 in 1968, 51.60 in 1967, 19.45 in 1966, 22.19 in 1965, 9.68 in 1964, 0.2 in 1963, 13.59 in 1962, 8.59 in 1961, and 16.23 in 1960. (Primmer).

Collections were made in northeast LOUISIANA March 5-14. The area includes Madison, Tensas, East Carroll, West Carroll, and Richland Parishes. Three samples were collected at each location and 20 locations were used in Madison Parish, 10 in Tensas Parish, and 5 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 was 2,299 in Madison Parish, 2,420 in Tensas Parish, 1,452 in East Carroll Parish, 2,904 in Richland Parish, and 807 in West Carroll Parish, or an average of 2,133 for the 5-parish area. Based on the 3,137 live boll weevil adults found per acre of trash in the fall of 1968, winter survival in the 5-parish area was 68 percent. In Madison Parish, where similar records have been

kept for the past 32 years, survival for the winter 1968-1969 was 56 percent compared with the 32-year average of 40.75 percent. In Tensas Parish where the 13-year average survival is 26 percent, the 81-percent survival for spring 1969 has been exceeded only once, and in East Carroll Parish where the 12-year average survival is 37.25 percent, the 100-percent survival for spring 1969 is a repetition of the 100-percent survival for the winter 1959-1960. The total rainfall recorded in the area from December 5, 1968, to March 14, 1969, the period between the fall and spring ground trash collections, was 11.81 inches. In this same period there were 35 days when the minimum temperature was 32° or below and only 5 days when the temperature was 25° or less. The lowest temperature recorded was 19° on January 5; this was also the only day when the maximum temperature did not reach 32° or more. (Cleveland et al.).

In central TEXAS, spring collections were made March 12-19 from the same locations in Falls, Hill, Limestone, and McLennan Counties as in the fall of 1968. Three samples were taken from each location and either 6 or 7 locations were sampled in each county; 75 samples were taken from 25 locations in the 4 counties. The average number of weevils found per acre in Falls, Hill, Limestone, and McLennan Counties was 3,226, 806, 3,091, and 4,032, respectively, with an area average of 2,842. This compared with 3,763, 1,075, 4,166, and 6,797 found in these respective counties in the fall of 1968, with an average of 4,070 weevils per acre for the area. The percent survival for 1969 was 70 percent compared with 14.4 in 1968, 26.5 in 1967, 24.8 in 1966, 100 in 1965, 18.8 in 1964, 25.4 in 1963, 33.1 in 1962, 33.7 in 1961, and 31.1 in 1960. In the 10 years the survey has been conducted, only in 1965 was the indicated spring survival higher than in 1969. More weevils were found in the spring of 1969 than any year except 1965. Winter weather was very mild with subfreezing temperatures on only 17 days. A minimum of 22° was recorded on December 31. Rainfall for the period December 1, 1968, through March 18, 1969, totaled 5.72 inches, or 3.06 inches below normal for the period. (Cowan).

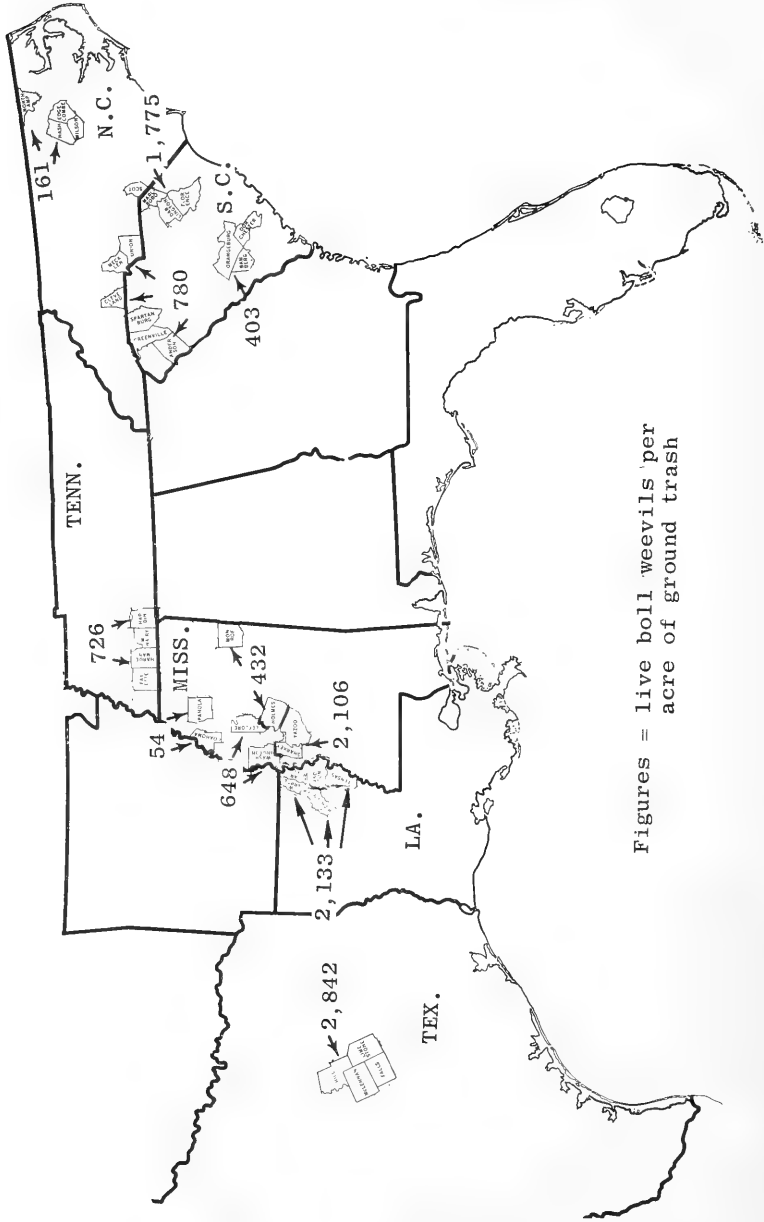
See map on page 318

BOLL WEEVIL SURVIVAL SURVEYS - SPRING 1969

Area (County and State)	Number of Weevils per Acre	
	1968	1969
<u>NORTH and SOUTH CAROLINA</u>		
South-central South Carolina (Orangeburg, Bamberg, and Dorchester Counties).	349	403
Coastal Plain of South and North Carolina (Florence, Darlington, and Marlboro Counties, S.C., Scotland County, N.C.).	1,291	1,775
Piedmont of South and North Carolina (Anderson, Greenville, and Spartanburg Counties, S.C.; Mecklenburg, Cleveland, and Union Counties, N.C.).	914	780
North-central North Carolina (Nash, Wilson, Edgecombe, and Northampton Counties).	161	161
<u>TENNESSEE</u>		
McNairy, Hardin, Hardeman, and Fayette Counties	2,420	726
<u>MISSISSIPPI</u>		
South Delta (Sharkey and Yazoo Counties (area 1)).	1,458	2,106
Central Delta (Washington and Leflore Counties (area 2)).	216	648
North Delta (Coahoma and Panola Counties (area 3)).	108	54
Hill Section (Holmes and Monroe Counties (area 4)).	378	432
<u>LOUISIANA</u>		
Northeastern (Madison, Tensas, East Carroll, West Carroll, and Richland Parishes).	932	2,133*
<u>TEXAS</u>		
Central (Falls, Hill, Limestone, and McLennan Counties).	711	2,842

\* Richland Parish not included in 1968 spring survey.

BOLL WEEVIL SURVIVAL SURVEYS - SPRING 1969



Figures = live boll weevils per acre of ground trash



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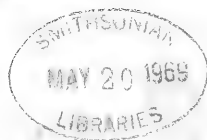


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May 9, 1969

*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM controls applied to alfalfa in Nebraska and to wheat in Colorado. (p. 321).

BEEF LEAFHOPPER may require controls in Idaho to prevent migration into crops. (p. 321).

EUROPEAN CORN BORER pupation averaged 51 percent in Delaware; number of live borers per square yard higher compared to 1968 in Iowa. (p. 321).

PALE WESTERN CUTWORM damaging wheat in Oklahoma and Nebraska. (p. 322).

ALFALFA WEEVIL larvae increasing throughout Delaware; damaging in Maryland; reaching economic levels in southwest and southeast Illinois; heavy on alfalfa in Madison County, Tennessee; controls applied in southeast Missouri. CLOVER HEAD WEEVIL damaging several thousand acres of crimson clover in Alabama, very serious on crimson clover in South Carolina. (p. 323).

PEA APHID heavy on crimson clover and vetch in Alabama. Increasing rapidly on Eastern Shore of Maryland. (p. 324).

SPRING CANKERWORM may be heavy in Minnesota. (p. 329).

HORN FLY building up in 5 western counties in Texas. (p. 329).

First hatch of GYPSY MOTH reported in Providence County, Rhode Island. (p. 331).

Detection

EUROPEAN CLOVER LEAF TIER established in North America. Damaging clovers in Placer and Sutter Counties of California. (p. 322). For background information on this pest see page 333.

Other State records include a LEAFHOPPER from Washington (p. 332), a WEEVIL from Idaho and a PSYCHID MOTH from Missouri (p. 328).

For new county records see page 332.

Special Reports

European Clover Leaf Tier (*Mirificarma formosella* (Hübner)). (p. 333).

Stocking-Type Trap for Survey of Winter Moth. (p. 334).

Survey Methods. Selected References 1953. Part XVI. (pp. 335-337).

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

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WEATHER BUREAU'S 30-DAY OUTLOOK

MAY 1969

The Weather Bureau's 30-day outlook for May 1969 is for temperatures to average below normal over an area extending from the Pacific Northwest through the northern basin, central Rockies, and southern Plains eastward to the south Atlantic coast. Above normal temperatures are expected in a band from the northern Mississippi Valley through the Great Lakes to the mid-Atlantic coast, while near normal is indicated elsewhere. Precipitation is expected to exceed normal over most of the central third of the Nation, as well as the Tennessee Valley and the Carolinas. Subnormal rainfall is indicated for southern California and the southern and central plateau, while near normal precipitation is expected over unspecified areas.

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

WEATHER OF THE WEEK ENDING MAY 5

HIGHLIGHTS: Heavy thunderstorms with hail occurred in the Texas Panhandle Saturday and Sunday and several tornadoes were spotted. Cloudbursts occurred along the midcoastal plains of Texas on Wednesday and Sunday. The central Great Plains showed marked warming during the week.

PRECIPITATION: A wintry touch has been added as snow fell with the advancing cool air in the northern sections of Minnesota, Michigan, and Wisconsin. Nine inches of snow fell at Duluth on Monday, April 28, while the other areas were generally covered by an inch of new snow. As the front moved eastward, showers and thunderstorms developed with moderate rainfall occurring from West Virginia to central Tennessee where an inch or more rain fell on Tuesday. At the same time some spotty wet snow was occurring in the eastern Great Lakes area. Scattered showers continued in the Pacific Northwest and some thundershowers with small hail occurred on the north Pacific coast Tuesday afternoon. Moderate showers continued along the front as it moved off the east coast and through Florida. Early Wednesday a developing storm in the northern Rockies was causing a pattern of mountain snow, rain, and strong winds. Weather of the week continued on page 338.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMY CUTWORM** (*Chorizagrotis auxiliaris*) - NEVADA - Larvae averaged 1-2 per crown in several alfalfa fields at Lovelock, Pershing County; damage light. (Adams, Martinelli). UTAH - Light on range areas examined in Curlew Valley of Box Elder County. (Knowlton, Apr. 30). COLORADO - Larvae ranged 0-4 per linear foot on wheat throughout northeastern and east-central areas. Controls applied, counts reduced in these areas. (Johnson). NEBRASKA - Ranged 2-3 per square foot in Howard and Valley Counties. Some damage to seedling alfalfa. Controls applied. (Pollard, Schade, Apr. 30). Some damage in few Perkins County fields. (Hendrix, Apr. 30).

**ASTER LEAFHOPPER** (*Macrosteles fascifrons*) - FLORIDA - Very light, 1-2 adults per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead). WISCONSIN - Negative in rye fields in Sauk, Crawford, Marquette, and Rock Counties. (Wis. Ins. Sur.).

**BEEF LEAFHOPPER** (*Circulifer tenellus*) - IDAHO - Adults from nine combined range breeding areas averaged 60 per 100 samples (each sample equal to 1 square foot) compared to 42 in 1968 and 22 in 1967. Control may be required on 43,000 acres to prevent excessive leafhopper migration into crops. Tests indicated percentage of viruliferous leafhoppers may be 4 or 6 times greater than past 2 years. (PPC, Apr. 14). UTAH - Averaged 1 per 300-400 sweeps of wild mustards in Snowville and Cedar Creek Junction area of Box Elder County. (Knowlton, Apr. 30).

**CORN EARWORM** (*Heliothis zea*) - FLORIDA - First harvest of sweet corn April 24; larvae averaged 2 per untreated ear at Sanford, Seminole County. (Greene).

**GREENBUG** (*Schizaphis graminum*) - KANSAS - Single speimens found in a wheatfield in Ottawa County (Gates) and one wheatfield in Pratt County (Brooks). Averaged 0-3 per 25 sweeps in 8 wheatfields in Marshall and Washington Counties. (Simpson). TEXAS - Some damage on wheat in Archer, Motley, Cottle, King, Hardeman, and Foard Counties. (Boring). Ranged 0-30 on 2.5-inch high grain sorghum in Denton, Grayson, Cook, and Collin Counties; lower numbers of possibly *Sipha flava* (yellow sugarcane aphid) present in same counties. (Texas Coop. Rpt., Apr. 25). Mixed populations of greenbug and *S. flava* on grain sorghum in Denton, Dallas, Ellis, Kaufman, Collin, Fannin, Cook, Montague, Hunt, Tarrant, and McLennan Counties. Around Denton ranged 0-20 per plant; lower in McLennan County. Damage not serious yet. One field in Fannin County replanted. (Turney, Green).

**POTATO PSYLLID** (*Paratriozia cockerelli*) - COLORADO - Adult counts 0-30 per 100 sweeps on *Lycium* sp. (matrimony-vine) in Gilcrest area, Weld County. Egg counts light, ranged 0-4 per leaflet. (Johnson).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - ILLINOIS - Averaged 95 per 100 sweeps of alfalfa in Scott, Effingham, and Fayette Counties. (Ill. Ins. Rpt.). INDIANA - First of season on alfalfa in Harrison County (south-central district). Counts very low. (Huber, Apr. 26). KANSAS - Light, 3-8 per 10 sweeps of most alfalfa checked in northeast and north-central areas. (Simpson).

## CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER** (*Ostrinia nubilalis*) - SOUTH DAKOTA - Percent survival by county: Turner 10-30 (averaged 15) and Union 20-30 (averaged 25). (Wirtz, Apr. 20). IOWA - Spring survival survey conducted April 22-30. Percent mortality by area: Northwest 9, southwest 14, northeast 17, southeast 20, and central 15. Live borers per square yard higher compared to 1968. Boone County survey April 10 in 32 stalk fields indicated 7,104 live borers per acre or 1.5 per square yard. High survival credited to fact 22 fields not worked; about half of fields surveyed in rest of State in same condition, no pattern noted. (Iowa Ins. Sur.). ILLINOIS - Pupation began in extreme southern section. (Ins. Sur. Bull.). DELAWARE - Overwintered larvae pupating, averaged 51 percent for State; about 70 percent in southwest Sussex County. (Burbutis).

FALL ARMYWORM (*Spodoptera frugiperda*) - FLORIDA - First larvae of season in whorls of sweet corn at Zellwood, Orange County. (Greene, Apr. 23).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Heavy damage to 90 acres of early field corn, adults ranged 1-2 per plant at East New Market, Dorchester County. (U. Md., Ent. Dept.). DELAWARE - On early corn in area of Sussex County. (Boys). NEW JERSEY - Moderate in 2 fields of sweet corn seedlings at Medford, Burlington County. (Ins.-Dis. Newsltr.).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - Infestations expected to be most serious in southeast and southwest districts, less serious in south-central and central districts. (Minn. Pest Rpt.).

A CARABID BEETLE (*Clivina impressifrons*) - ILLINOIS - Mostly this species, 12 per square foot in Bureau County. (Ill. Ins. Rpt.).

### SMALL GRAINS

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - OKLAHOMA - Ranged 0-10 per linear foot in all wheat checked in Texas County, but averaged 3-4 per linear foot in most. Few scattered fields destroyed and occasional fields sprayed. (Okla. Coop. Sur.). COLORADO - Larval counts 0-10 per linear foot on wheat, Counts reduced in fields where controls applied. Larvae found throughout northeastern and east-central areas. (Johnson). NEBRASKA - Ranged 1-9 per linear foot in several Chase County wheatfields. About 30,000 acres infested and about 1,500 acres destroyed. (Sakurada, Apr. 29). Ranged 1 per yard to 8 per linear foot in Kimball and Banner Counties. (Andersen, Apr. 28).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - WISCONSIN - Increasing slowly; averaged 3-4 per 100 sweeps on rye in southern areas. (Wis. Ins. Sur.). KANSAS - Light, 0-5 per 100 sweeps, in most wheat checked in northeast and north-central areas. (Simpson). OKLAHOMA - Averaged 200 per linear foot in oats in Creek County. Ranged 100-300 per linear foot in wheat in Washita County and 5-10 per linear foot in Payne and Muskogee Counties. (Okla. Coop. Sur.). FLORIDA - All stages less than 1 per 100 sweeps of oats and 1 per 3 sweeps of rye at Gainesville, Alachua County. (Mead).

A LYGAEID BUG (*Paromius longulus*) - FLORIDA - Increasing. Adults 3 per 100 sweeps of rye, 11 per 100 sweeps of oats at Gainesville, Alachua County. (Mead).

GRASS SAWFLY (*Pachynematus extensicornis*) - KANSAS - Averaged 1-3 larvae per 100 sweeps of most wheat checked in north-central and northeast areas. (Simpson).

### FORAGE LEGUMES

EUROPEAN CLOVER LEAF TIER (*Mirificarma formosella* (Hübner)) - CALIFORNIA - Larvae causing severe damage to *Trifolium repens*, Ladino clover, burclover, and rose clover at Lincoln, Placer County, and at Pleasant Grove, Sutter County. Larvae collected April 9, 1969, in Placer County by J.H. Wilson, and April 15, 1969, in Sutter County by J. Miller. Adults reared from these larvae determined this species by R.W. Hodges. This is a new Western Hemisphere record. Originally collected as adults in sweeping near Georgetown, El Dorado County, June 7, 1967, by J. Powell. Determined as gelechiid moth. Later submitted to specialist. Larvae collected from Ladino clover at Lincoln, Placer County, April 4, 1968, by J. Henderson. Determined as gelechiid moth; rearing attempt unsuccessful. *M. formosella* occurs in middle and southern Europe, Asia Minor, Syria, and North Africa. Larvae semi-skeletonize the leaves and fold 2 leaf surfaces together with light webbing. Discoloration and drying of foliage follow. Pupation occurs in folded leaves. Very little information available in literature on this pest. Delimitation of infestation is underway. (Cal. Coop. Rpt.). For background report see page 333.

**ALFALFA WEEVIL (*Hypera postica*)** - MASSACHUSETTS - Adults averaged 2.4 and larvae 2 per 100 sweeps of alfalfa in Hampshire County. (Miller, Apr. 28). NEW JERSEY - Adults averaged 32 per 100 sweeps in 8 alfalfa fields in Cumberland, Salem, and Gloucester Counties; 2 larvae swept from one field. (Ins.-Dis. Newsltr.). DELAWARE - Larvae increasing on alfalfa throughout State. Highest counts averaged 30-40 per sweep in some areas of east Sussex County; injury moderately heavy. Larvae and injury generally light in New Castle and Kent Counties. (Burbutis). MARYLAND - First to third instars in most alfalfa in State. Ranged 5-60 per 10 sweeps, tip injury 2-50 percent in fields surveyed. (U. Md., Ent. Dept.). OHIO - Adults 8 per sweep, larvae 2 per stem, egg clusters in half of stems and almost all stems infested with larvae in one Morgan County field. (Richter). Adults averaged about 8 per 25 sweeps throughout southeast area. Larvae 1 on 5-10 stems in Morgan, Noble, Washington, Monroe, and Belmont Counties. Larvae 0-6 (average about 2) per stem. Most larvae in first instar in leaf buds; none moved onto leaf. Eggs abundant, about 1 cluster per 10 stems in southeast area. Several fields, particularly in Morgan and Noble Counties, usually 1 egg cluster per 5 stems. Adults 5 per 25 sweeps and as high as 8 per sweep in some Ottawa County fields; no eggs yet. (Ruff). INDIANA - Larvae per square foot in alfalfa by district: Southeast - 7-76, terminal feeding 20-50 percent; south-central - 165-761, feeding on 50-100 percent of plants; southwest - 14-426; central - 0-61; west-central - 10; east-central - 15, feeding 0-15 percent. Plant development in southeast district 7 days later than in south-central district and about 14 days later than in southwest district. (Huber, Apr. 26). ILLINOIS - Becoming economic in most southern districts. Larval average per 100 sweeps by district: Southwest 1,443 (high of 2,000), 57 percent tip feeding; southeast 837, 34 percent tip feeding; west-southwest 335, 11 percent tip feeding; east-southeast 283, 6 percent tip feeding; west 16, no tip feeding. (Ill. Ins. Rpt.). Most alfalfa south of U.S. Highway 460 damaged. Damage evident between U.S. Highway 460 and State Highway 16; some fields may need treatment soon. (Ins. Sur. Bull.).

TENNESSEE - *H. postica* heavy in alfalfa in Madison County April 26. (Butler). ARKANSAS - Adults and larvae 5-10 in 100 sweeps of crimson clover in Johnson, Pope, and Desha Counties. Johnson, Desha (Boyer, Barnes), and Pope new county records (PPC). MISSOURI - Larvae 80-100 per 100 sweeps in some alfalfa in St. Charles and Osage Counties. (Craig). Controls applied to most infested fields in southeast area. (Jones). WISCONSIN - First instars averaged 1 per 25 sweeps of alfalfa in Dane County in fields with southern exposure. (Wis. Ins. Sur.). NORTH DAKOTA - No overwintering adults evident in alfalfa in McKenzie County. (Brandvik, Apr. 25). COLORADO - Adults ranged 30-60 and larvae up to 10 per 100 sweeps in Weld and Morgan Counties. (Johnson). IDAHO - One second instar April 1 in random sample of 320 alfalfa stems east of Lewiston, Nez Perce County. First eggs from one egg puncture in random sample of 230 stems at Moscow, Latah County, April 5. One adult collected in 200 sweeps on April 5. (Saad). First eggs found near Caldwell, Canyon County, April 21. (Brown). OREGON - Counts per 100 sweeps in Benton County alfalfa: 53 south of Corvallis, 154 and 10 in Kiger Island. Adults mating and dissection of females revealed many more mature eggs than evident on April 8. No egg laying noted. (Westcott). NEVADA - First larvae of season at Reno and Sparks area, Washoe County, week of April 25. (Arnett).

A WEEVIL (*Hypera* sp.) - CALIFORNIA - Heavy on Ladino and burclover in 100-acre pasture in Lincoln, Placer County; medium in burclover in Elderwood, Tulare County; and heavy in alfalfa generally in Yolo County, heavy defoliation. Larvae up to 100 per sweep. All stages heavy on yellow clover in Lakeside, San Diego County, and on alfalfa and sweetclover in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

CLOVER HEAD WEEVIL (*Hypera meles*) - ALABAMA - Larvae damaging seed heads on several thousand acres of crimson clover in Autauga County past 5-10 days. Controls applied. (Scott et al.). SOUTH CAROLINA - Very serious on crimson clover. (Nash, Nettles, Apr. 25).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Larvae 4-11 per 10 sweeps of all alfalfa surveyed in northeast, north-central, and central districts. (Simpson). ILLINOIS - Larvae averaged 27 per square foot of clover in northwest district. (Ill. Ins. Sur.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - VIRGINIA - Adults 100 per 100 sweeps, damage light in Prince Edward County. Adults 5-10 per 100 sweeps in Amherst, Buchanan, and Cumberland Counties. (W.A. Allen).

WEEVILS (Sitona spp.) - MASSACHUSETTS - S. hispidulus averaged 2.6 per 100 sweeps of alfalfa in 5 Hampshire County fields. (Miller, Apr. 28). OHIO - S. hispidulus (clover root curculio) and S. cylindricollis (sweetclover weevil) 1-5 per 25 sweeps in southeast area alfalfa. (Richter). KANSAS - S. hispidulus adults 7-15 per 10 sweeps of all alfalfa checked in north-central and northeast areas. (Simpson). OREGON - S. hispidulus adults 143 per 100 sweeps in alfalfa field in south Corvallis. Fewer in other fields. (Westcott).

PEA APHID (Acyrtosiphon pisum) - ALABAMA - Heavy infestations developing on Caley pea in Marengo County. Very heavy on young crimson clover and vetch throughout south and central areas. (Miller et al.). VIRGINIA - Light, 60-450 per 100 sweeps, in Amherst, Buchanan, Cumberland, and Prince Edward Counties. (W.A. Allen). MARYLAND - Increasing rapidly in some Eastern Shore fields. Ranged up to 60-80 per sweep in 20 acres near Reids Grove, Dorchester County. (U. Md., Ent. Dept.). MASSACHUSETTS - Averaged 15.8 per 100 sweeps of alfalfa in 5 Hampshire County fields. (Miller, Apr. 28). WISCONSIN - Increasing slowly. Ranged 3-5 per 10 sweeps in Sauk, Richland, Columbia, and Marquette Counties, and 1-50 per sweep in Rock, Green, Grant, Iowa, and Dane Counties. Parasitism ranged about 50 percent and peaks to 80 percent. (Wis. Ins. Sur.). ILLINOIS - Average per 100 sweeps by district: West-southwest 183, southwest 700. (Ill. Ins. Rpt.). ARKANSAS - Ranged 400-500 in 100 sweeps in legumes in all areas. Winged forms increased; make up less than 20 percent of population. (Boyer, Barnes). KANSAS - Light, 5-25 per 10 sweeps of alfalfa checked in north-central and northeast districts. (Simpson). OKLAHOMA - Moderate to occasionally heavy in several southwest, south-central, and north-central counties. (Okla. Coop. Sur.). TEXAS - Detected in alfalfa in Denton County April 25. Light to heavy on alfalfa in Blacklands and Rolling Plains areas. (Turney et al.). COLORADO - Very light in alfalfa, up to 100 per 100 sweeps in Weld and Morgan Counties. (Johnson). UTAH - Nymphs present on alfalfa at Garland, Box Elder County. (Kunwilton, Apr. 30). NEVADA - Medium on alfalfa in Pahrump Valley, Nye County. (Munson).

MEADOW SPITTLERBUG (Philaenus spumarius) - VIRGINIA - Infested 20-30 percent of red clover stems in 40-acre field in Prince Edward County. Much lighter in most fields. Infested 5-15 percent of stems in few fields in Amherst, Buchanan, and Cumberland Counties. Nymphs collected in Amherst County for a new county record. (W.A. Allen). MARYLAND - Nymphs appearing in clover and alfalfa on Eastern Shore and in central areas. (U. Md., Ent. Dept.). OHIO - Nymphs common through south-east area on clover and some alfalfa; about 50 percent of clover infested. In south nymphs in second instar, north of U.S. Highway 40 first instar. (Richter). ILLINOIS - Nymphs averaged 68 per 100 stems in northwest district. (Ill. Ins. Rpt.). WISCONSIN - Remains scarce. Few taken in 30 sweeps in some Dane County alfalfa. (Wis. Ins. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Larvae light on all crimson clover and vetch examined in Cherokee, Morgan, Shelby, Autauga, and Montgomery Counties. Several spots in crimson clover in Marengo County becoming heavy. (Miller et al.). ARKANSAS - Larvae 5-10 in 100 sweeps in all legumes surveyed in several areas of State. (Boyer, Barnes). KANSAS - Averaged 1-4 per 10 sweeps of northeast area alfalfa. (Simpson).

CLOVER LOOPER (Caenurgina crassiuscula) - WISCONSIN - Adults appearing in Mazomanie and Hancock blacklight traps. (Wis. Ins. Sur.).



VARIEGATED CUTWORM (Peridroma saucia) - ARKANSAS - Second instars ranged 8-12 in 100 sweeps of crimson clover in various areas. (Boyer).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Adults 22 per 100 sweeps (Mead); apparently increasing (Fla. Coop. Sur.). MARYLAND - Increasing statewide but remains light in clover. Adults ranged up to 8-20 per 10 sweeps. (U. Md., Ent. Dept.).

A SPRINGTAIL (Sminthurus medialis) - KANSAS - Ranged 75-300 per 10 sweeps of alfalfa in Cloud, Mitchell, Osborne, Smith, Jewell, and Republic Counties. (Simpson).

#### COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Averaged 20 (250 maximum) per acre in 5 of 36 fields in McLennan and Falls Counties. Total of 35 collected on 12 flight screens; none in 1968. Wing traps installed at each ground trash collection point in McLennan County. First weevil caught March 28. Through April 30, caught 579 weevils. Weevils removed from hibernation cages May 1. Survival percentage as follows: 0.8 in 2 cages of 1,000 field collected weevils installed November 1968; 0 of 126 removed from ground trash and rehibernated November 21, 1968; 1.1 of 88 removed from ground trash and rehibernated March 19. None collected from cages with green bolls installed in November, or from bollie cotton installed February 28. (Cowan et al.). Reported from Wilbarger and Stonewall Counties. First detected in traps on April 18 in Stonewall County with peak activity noted on April 22. (Boring). LOUISIANA - Taken in 17 wing traps adjacent to areas of spring ground trash collections in Madison Parish. Total of 361 weevils collected March 13 to May 1; males 55.5 percent, females 44.5 percent. Total of 1,508 weevils collected from 145 wing traps near isolated cotton fields on island in Mississippi River during April 4 to May 1; 57.9 percent males, 42.1 percent females. Ten traps set several yards apart along bayou near hibernating sites April 16 to correlate emergence with weather; 24 weevils taken to May 1; 56.7 percent males, 43.3 percent females. (Cleveland et al.).

BOLLWORMS (Heliothis spp.) - TEXAS - Total of 125 larvae reared to fourth and fifth instar collected from Indian paintbrush, Texas star, pin clover, phlox, and wild verbena in McLennan and Falls Counties identified as H. zea. One egg from pin cushion daisy reared to fifth instar identified as H. virescens. (Cowan et al.).

COTTON APHID (Aphis gossypii) - ALABAMA - Adults and nymphs very heavy in 25-acre field of young 2-leaf stage cotton in Houston County. No preplant pesticides applied. No aphids in few fields of cotton examined in Shelby, Autauga, and Limestone Counties. Most cotton in these counties received preplant systemic insecticides. (Chapman, Scott, et al.).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - None in 10 treated and 26 untreated fields in McLennan and Falls Counties. Light in April on croton, wild verbena, horsemint, bluecurls, wild potato, evening-primrose, and cut leaf evening-primrose. (Cowan et al.).

WHITE GRUBS - TEXAS - Damaging seedling cotton in Fort Hancock area, Hudspeth County. (Neeb, Apr. 25).

#### POTATOES, TOMATOES, PEPPERS

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Few adults on potatoes in most areas of State, mostly along field edges. (Burbutis).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Adults and egg masses on commercial potatoes in Kent County. (Burbutis).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Increasing, all instars on over half of untreated cabbage in test plot at Sanford, Seminole County. Plants heading up, and averaging 2 larvae per plant; damage appearing in commercial fields. (Greene).

#### GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - NEW JERSEY - C. duodecimpunctata (spotted cucumber beetle) very light on asparagus. C. asparagi (asparagus beetle) eggs and adults heavy near wooded areas of asparagus fields near Mullica Hill, Gloucester County. Noted near Moorestown, Burlington County. (Ins.-Dis. Newsltr.).

ONION MAGGOT (Hylemya antiqua) - NORTH DAKOTA - Larvae heavy, damage moderate on onions at Regent, Hettinger County; controls necessary. (McBride).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 4/25-5/1, BL - Armyworm (Pseudaletia unipuncta) 1, beet armyworm (Spodoptera exigua) 2, granulate cutworm (Feltia subterranea) 10, yellow-striped armyworm (Prodenia ornithogalli) 1. MISSISSIPPI - Stoneville, 4/26-5/2, 2BL, 45-82° F., precip. 0.34 - Armyworm 49, black cutworm (Agrotis ipsilon) 20, granulate cutworm 2, salt-marsh caterpillar (Estigmene acrea) 1, variegated cutworm (Peridroma saucia) 3. MISSOURI - Fair Grove, 4/24-30 - Armyworm 24, black cutworm 2, variegated cutworm 4, yellow-striped armyworm 1. Kansas City, 4/24-30 - Armyworm 2, black cutworm 2, yellow-striped armyworm 2. Portageville, 4/26-5/1 - Armyworm 11. SOUTH CAROLINA - Charleston, 4/28-5/4 48-80° F., precip. 0.29 - Black cutworm 1. TEXAS - Brownsville, 4/26-5/2, 6BL, 64-92° F., precip. 0.02 - Black cutworm 65, cabbage looper (Trichoplusia ni) 8, corn earworm (Heliothis zea) 106, granulate cutworm 33, tobacco budworm (H. virescens) 3, tobacco hornworm (Manduca sexta) 7, tomato hornworm (M. quinquemaculata) 2, variegated cutworm 10, yellow-striped armyworm 1.

#### DECIDUOUS FRUITS AND NUTS

BERTHA ARMYWORM (Mamestra configurata) - WASHINGTON - Severe local damage to young apple buds at Zillah and other locations in Yakima Valley, Yakima County. (Landis, Apr. 25).

CODLING MOTH (Carpocapsa pomonella) - WASHINGTON - First overwintered larvae pupated April 17 at Yakima, Yakima County. (Johnson). NEW JERSEY - Adults expected on apple in about 7 days in central and south counties. (Ins.-Dis. Newsltr.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Pheromone traps attracted moths April 18 in eastern areas; catches remained relatively high despite cool, wet weather. (N.Y. Wkly. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NEW JERSEY - Trapped 5 moths April 23-30 at Glassboro, Gloucester County. First adult on peach April 28 near Moorestown, Burlington County. (Ins.-Dis. Newsltr.).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Eggs hatching at Storrs, Tolland County; nymphs on pear leaves. (Kollas, Apr. 29). NEW JERSEY - Hatched April 22, nymphs easily detected by April 25 in Ulster County. (N.Y. Wkly. Rpt.).

APHIDS - CALIFORNIA - Rhopalosiphum padi heavy on plum trees at Woodland, Yolo County. (Cal. Coop. Rpt.). WASHINGTON - First ovoviviparous young of R. fitchii (apple grain aphid) on apple April 17 in Yakima County. Mortality of Eriosoma lanigerum (woolly apple aphid) above-ground overwintering forms high at Yakima, Yakima County. (Johnson, Apr. 25). MARYLAND - Dysaphis plantaginea (rosy apple aphid) remains low at Hancock, Washington County; some leaf curling. (U. Md., Ent. Dept.). NEW JERSEY - First D. plantaginea of year on apple. (Ins.-Dis. Newsltr.).

EUROPEAN RED MITE (Panonychus ulmi) - MARYLAND - Increasing in some orchards at Hancock, Washington County; not heavy enough to bronze leaves. (U. Md., Ent. Dept.). NEW JERSEY - New larvae easily found on developing apple leaves. (Ins.-Dis. Newsltr.). CONNECTICUT - About 25 percent hatch on apple at Storrs, Tolland County. (Kollas, Apr. 29). RHODE ISLAND - Winter eggs, up to 250 per spur, at Kingston, Washington County. (Field).

A SPIDER MITE (Tetranychus mcdanieli) - WASHINGTON - First summer eggs April 21. Low overwintered numbers in Yakima Valley due to heavy predation last fall. (Johnson).

APPLE RUST MITE (Aculus schlechtendali) - NEW YORK - Overwintered adults active April 24. (N.Y. Wkly. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Characteristic "flagging" heavy statewide. Pupated in Galveston and Bastrop Counties; moth emergence limited and very early in these counties. (Texas Coop. Rpt., Apr. 25). In Bastrop County, 418 pupae and 13 larvae under 36 bands April 29. Pupation started in Brazos County; very little catch on bands north of Travis and Brazos Counties. Moth emergence approaching 5 percent in Bastrop County. (Texas Coop. Rpt.). OKLAHOMA - Overwintered larvae light in terminals of Payne County pecans. (Okla. Coop. Sur.).

#### CITRUS

MELON APHID (Aphis gossypii) - CALIFORNIA - Medium on orange trees at Escondido, San Diego County. (Cal. Coop. Rpt.).

### SMALL FRUITS

RASPBERRY CROWN BORER (Bembecia marginata) - IDAHO - Infested most older canes in small boysenberry planting April 17 at Caldwell, Canyon County. (Homan).

### ORNAMENTALS

A WEEVIL (Brachyrhinus meridionalis) - IDAHO - Damaged privet leaves at Lewiston, Nez Perce County. Collected by C. Thomas July 15, 1968. Identified by R.E. Warner. This is a new State record. (Thomas).

A SNAIL (Rumina decollata) - CALIFORNIA - Heavy on Amaryllis sp. at Bakersfield, Kern County. (Cal. Coop. Rpt.).

### FOREST AND SHADE TREES

CONIFER SAWFLIES (Neodiprion spp.) - OHIO - N. sertifer (European pine sawfly) severe on Scotch and red pines in large planting in Licking County April 30. On red pine in Mohican State Forest April 21 (Schoby) and Scotch pine in Carroll County April 8 (Campbell). ARKANSAS - Fourth and fifth instars of N. taedae linearis on pines in south-central area. (Young, Apr. 25).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Damage appearing on European larch in Dane County. (Wis. Ins. Sur.).

A GELECHIID MOTH (Exoteleia nepheos) - OHIO - Larvae moved from needles to bud tips on Carroll County Scotch pine. (Campbell).

SPRUCE APHID (Elatobium abietinum) - CALIFORNIA - Adults and nymphs heavy on spruce nursery stock at Palo Alto, Santa Clara County. (Cal. Coop. Rpt.).

PINE BARK APHID (Pineus strobi) - WISCONSIN - Eggs on white pine at Dane County site and at Boscobel and Spring Green, Sauk County. (Wis. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MISSOURI - Larvae mostly third stage and tents averaged 2 per tree on wild cherry and wild plum in east-central area. (Craig). Second and third instars observed in Taney, Stone, Jasper, and Polk Counties. (Francka). WISCONSIN - Tents on chokecherry, wild plum, and apple in Rock and Grant Counties. (Wis. Ins. Sur.). OHIO - Hatched statewide; larvae still small. Tents primarily in wild cherry, but hawthorn common host in Gallia County. (Richter). NEW JERSEY - On wild cherry at Moorestown, Burlington County. (Ins.-Dis. Newsltr.).

TENT CATERPILLAR MOTHS (Malacosoma spp.) - TEXAS - M. disstria (forest tent caterpillar) light to medium on oaks and pecans in Blanco and Hays Counties. (Massey). CALIFORNIA - M. californicum larvae medium on oaks at San Anselmo, Marin County. (Cal. Coop. Rpt.). WASHINGTON - Malacosoma sp. threatens to be as severe as in past 2 years in Island County. (Forsell, Apr. 25).

A PSYCHID MOTH (Solenobia walshella) - MISSOURI - Numerous cocoons under bark of hickory in Boone County. Collected and determined by W.S. Craig March 22, 1969. Adults emerged indoors March 29. This is a new State record. (Craig).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Unusually abundant; injury severe. Severely damaged oaks since 1967 in north areas, particularly in Sacramento County. Currently widespread on oaks mostly, deciduous fruit trees, and ornamentals associated with oaks. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - OKLAHOMA - Damage moderate on American elm tree and light on several other trees at Stillwater, Payne County. (Okla. Coop. Sur.). MINNESOTA - Number of male moths reported during early April indicates another possible heavy infestation. (Minn. Pest Rpt.).

WHITE-MARKED TUSsock MoTH (Hemerocampa leucostigma) - MINNESOTA - Cocoons heavy especially near Faribault, Rice County, St. Paul, Ramsey County, and Minneapolis, Hennepin County. (Minn. Pest Rpt.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - TEXAS - Larvae feeding on elms in Upton and Pecos Counties. (Neeb, Apr. 25).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Active in Wilbarger, Glasscock, Reagan, Upton, Cottle, King, and Gray Counties. (Boring et al., Apr. 25). NEVADA - Adults feeding on elm foliage at Lovelock, Pershing County. (Martinelli). IDAHO - First adult feeding April 18 at Parma, Canyon County. (Scott).

ELM SAWFLY (Cimbex americana) - TEXAS - Larvae severely infested elms at Goliad, Goliad County; control excellent. (Hajdik, Apr. 25).

WESTERN DRYWOOD TERMITE (Incisitermes minor) - NEVADA - Light to medium in stumps and trunks of partly dead juniper in Virgin Mountains, Clark County. (Bechtel, Zoller). Second area of Clark County and third area of State for infestations in native trees. (Bechtel).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 18 cases reported in U.S. April 27-May 3 as follows: TEXAS - Brooks 1, Bee 1, Crockett 1, Dimmit 1, Duval 1, Goliad 1, Guadalupe 1, Kleberg 1, Presidio 2, Starr 1, Webb 1, Wilson 1, Zapata 4; NEW MEXICO - Hidalgo 1. Total of 190 cases reported in portion of Barrier Zone in Republic of Mexico April 20-26 as follows: Territorio sur de Baja California 3, Sonora 80, Chihuahua 54, Coahuila 11, Nuevo Leon 6, Tamaulipas 36. Total of 11 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 56,618,000; New Mexico 2,340,000; Arizona 7,180,000; Mexico 83,580,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - SOUTH CAROLINA - First observed at Clemson April 22. (Nettles). ALABAMA - Becoming more general among beef and some dairy cattle in north, especially in St. Clair County. (Jackson et al.). TEXAS - Building up in Hudspeth, Brewster, Jeff Davis, Pecos, and Crockett Counties. Some controls started in Crockett County. (Neeb, Apr. 25). Averaged 400 per head of cattle (ranged 200-600 on 40 head) in Brazoria County. (Sanders). OKLAHOMA - Average per head by county: Cherokee 250, Payne 45. (Okla. Coop. Sur.). ILLINOIS - Light on cattle for first time in 1969 in extreme southern area. (Ill. Ins. Rpt.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Increased to 4 per dairy cow checked in Payne County. (Okla. Coop. Sur.).

HORSE FLIES - TEXAS - Tabanus sp. averaged 3 per head of Brazoria County cattle. (Sanders). OKLAHOMA - Hybomitra nigricans decreased, ranged 3-4 per head of cattle at Heavener, Le Flore County. (Okla. Coop. Sur.).

DEER FLIES (Chrysops spp.) - SOUTH CAROLINA - Netted 96 C. fuliginosus adults in 15 minutes April 16; about 2,000 adults trapped in 24 hours on tanglefoot panel trap April 21 in Charleston County. C. niger taylori adult problem beginning on golf course April 21 at Pawleys Island, Georgetown County. (Adkins, Nettles).

MOSQUITOES - NEVADA - Culex tarsalis larvae heavy, 150+ per dip, at Schurz, Mineral County. All instars and few pupae present. Adults will be heavy in 7-10 days. (Alcorn). MINNESOTA - First hatch April 2. Collected 14 Aedes species and Culiseta inornata by April 26. A. cinereus and A. excrucians most numerous with smaller numbers of A. stimulans, A. dorsalis, and A. vexans. Most are single-brooded Aedes that hatch early and persist as adults in some cases well into summer or longer. (Minn. Pest Rpt.).

A BIBIONID FLY (Plecia nearctica) - FLORIDA - Larvae abundant in decaying vegetation, especially oak leaves. Flight predicted for May. Will be fourth consecutive year of abundance at Gainesville, Alachua County. (Hetrick, Apr. 21).

HARD-BACKED TICKS - UTAH - Dermacentor andersoni (Rocky Mountain wood tick) numerous on range cattle and dogs in sagebrush areas of Box Elder County and on man in Ogden Valley, Weber County. (Knowlton, Apr. 30). OKLAHOMA - Amblyomma americanum (lone star tick) heavy on cattle checked in Cherokee County. D. variabilis (American dog tick) heavy on horses checked in Lake Carl Blackwell area of Payne County. (Okla. Coop. Sur.). MINNESOTA - D. variabilis active on warmer days past few weeks. (Minn. Pest Rpt.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - INDIANA - One male from Montgomery, Daviess County, April 21. Determined by T.A. Parker. This is a new county record. (Huber).

#### STORED PRODUCTS

GRANARY WEEVIL (Sitophilus granarius) - NORTH DAKOTA - Adults and larvae severely damaged samples of stored wheat, oats, and barley at Carrington, Foster County. Damage nearly 100 percent. (Hjelseth, Apr. 25).

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARKANSAS - Adults and larvae, mostly this species, continue very active statewide. (Boyer, Barnes). COLORADO - This and other species ranged 0-50 per 100 sweeps of alfalfa. (Johnson). UTAH - Light on range plants and alfalfa in Curlew Valley, Box Elder County. (Knowlton, Apr. 29).

BIG-EYED BUGS (Geocoris spp.) - ARKANSAS - Adults becoming active, no reproduction. (Boyer, Barnes). UTAH - Light on range plants and alfalfa in Curlew Valley, Box Elder County. (Knowlton, Apr. 29).

A EULOPHID WASP (Aphelinus mali) - WASHINGTON - Heavy emergence from mummified Eriosoma lanigerum (woolly apple aphid) at Yakima, Yakima County. (Johnson, Apr. 25).

A SCOLIID WASP (Campsomeris pilipes) - IDAHO - Males of this parasite of Polyphylla decemlineata (ten-lined June beetle) first emerged April 26 in Arena Valley, Canyon County. (Waters).

A PHYTOSEIID MITE (Typhlodromus occidentalis) - WASHINGTON - Active on Tetranychus mcDanieli at Parker Heights, Yakima County. (Johnson, Apr. 25).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MAINE - Additional webs found along coastal area during March. Infestations found in following townships during 1969: Portland, Falmouth, Freeport, Brunswick, and Harpswell. Survey to continue to delimit infestation. NEW HAMPSHIRE - Four webs found to end of March; all at sites

of previous infestation. MASSACHUSETTS - No extension found of generally infested area in Barnstable County. Survey negative throughout remainder of New England. (PPC East. Reg.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - In Tamaulipas 1,740 trees inspected on 28 acres in Municipios Padilla and Victoria; 61 trees on one acre found infested in Municipio Victoria. Leaf samples collected from 26 groves in Municipios Villagran, Hidalgo, Padilla, Ocampo, Llera, and Gonzales in Tamaulipas. Parasitism by Prospaltella opulenta (a eulophid wasp) averaged 57 percent for these samples. Chemical Control Zone - Inspections made of 23,266 trees on 354 acres in 7 municipios in Nuevo Leon and 2,635 trees on 42 acres in 3 municipios in Tamaulipas. In Nuevo Leon, 139 trees found infested on 751 acres in municipios Monterrey, Hualahuises, and Linares. In Tamaulipas, 41 trees found infested on one acre. Total of 32 additional urban properties found infested in city of Matamoros. All surveys in States of Sonora and Baja California negative during March. (PPC Mex. Reg.).

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Adults per 100 sweeps of wheat by county: Licking 24, Knox 3, Holmes 6. Few adults moved to oats not more than 4 inches high. Should migrate more in next few weeks; egg deposition after mid-May. (Treece).

GRASSHOPPERS - OKLAHOMA - General hatch last 10 days of April in scattered areas of Bryan, Carter, Garvin, Cherokee, Muskogee, McClain, and Comanche Counties. Nymphs 1-3 per square yard in crop margins and 1-4 per square yard in grassland. Species hatching Melanoplus bivittatus, M. sanguinipes, and Ageneotettix deorum. (Okla. Coop. Sur.). UTAH - Mostly first and second instars, still not numerous, on rangelands at Snowville and Kelton, Box Elder County. Some apparently Aulocara elliotti. (Knowlton, Apr. 30).

GYPSY MOTH (Porthetria dispar) - MINNESOTA - Four egg masses and some spent pupal cases on trailer at Duluth, St. Louis County. Trailer from out of State. Traps will be operated in area. Undercarriage of trailer sprayed with a chlorinated hydrocarbon to insure no survival. (Minn. Pest Rpt.). RHODE ISLAND - First hatch April 25 at Lincoln, Providence County. (Relli). NEW HAMPSHIRE - Hatch 90-95 percent in southern area. Egg clusters heavy on some islands in Lake Winnepesaukee during March; apparent parasitism very light. Defoliation probable in this area. PENNSYLVANIA - Heavily infested area at Auburn delimited by PPC and State personnel during March; 1,200 acres around reservoir heavily infested. Only scattered single egg clusters found outside this area. Total of 3,700 acres may be treated. Infestation discovered in eastern Carbon County near Penn Forest Reservoir; egg clusters up to 200 per acre at center of infestation. Land privately owned. All but 5 positive trap sites scouted in Montgomery County; single egg cluster found in Marlborough Township. (PPC East. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - During March, 560 traps at Tijuana, Tecate, and Ensenada, Baja California, inspected 2,386 times; results negative. Total of 129 Anastrepha spatulata and 13,012 sterile A. ludens taken in traps at La Paz, Territorio sur de Baja California. No native A. ludens taken. (PPC Mex. Reg.).

#### CORRECTIONS

CEIR 19(18):306 - MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - ... Coon Valley in Crawford County should be ... Coon Valley in Vernon County. (Wis. Ins. Sur.).

HAWAII INSECT REPORT

Turf - LAWN LEAFHOPPER (*Deltocephalus hospes*) nymphs and adults heavy, 15-37 per sweep, on 10 Tifgreen Bermuda grass lawns at Kaneohe, Oahu. (Funasaki).

General Vegetables - MELON APHID (*Aphis gossypii*) heavy on cucumbers at Hauula and Waimanalo; light on cucumbers at Pearl City, Waianae, and Pupukea, Oahu. (Nakao et al.). TURNIP APHID (*Hyadaphis pseudobrassicae*) heavy on unsprayed Chinese cabbage in gardens at Lawai, Kauai. (Sugawa).

Ornamentals - A LEAFHOPPER (*Protalebrella brasiliensis*) heavy on wedelia on Oahu. Nymphs and adults per 10 sweeps from 5 localities at Kaneohe average 425; at Koko Head 375; Halawa 400; and Honolulu 280. Known only on Oahu. (Funasaki).

Forest and Shade Trees - KIAWE FLOWER LOOPER (*Cosymbia serrulata*) adults heavy in light traps past 3 weeks at Waipahu and Ewa, Oahu. Collections in other areas increasing rapidly. (Au).

Man and Animals - HORN FLY (*Haematobia irritans*) adults light on pastured cattle from 200 to 2,000 feet elevation at Hana and Ulupalakua, Maui. (Miyahira).

Beneficial Insects - Adults of a DUNG BEETLE (*Copris incertus prociduus*) attracted to night lights for first time this year in moderate numbers at Makawao, Maui. Purposely introduced into Hawaii to inhibit horn fly breeding. (Miyahira). Adults of a SCIOMYZID FLY (*Sepedon macropus*), a snail predator, numerous in sewage ditch area of poultry farm at Waianae, Oahu; egg masses, larvae, and freshwater snails *Lymnaea ollula* (liverfluke snail) and/or *Physa compactus* abundant. (Ikeda).

Miscellaneous Insects - Two males of a LONGHORN GRASSHOPPER (*Euconocephalus nasutus*) picked up in weedy vacant lot at Ewa, Oahu, for 8 captured specimens since discovery January 1968. These 2 specimens green; other 6 light brown. Loud stridulation sounds annoying residents at night led to capture of these two. About 13 adults escaped capture. (Au). BARNACLE SCALE (*Ceroplastes cirripedi-formis*) light, 8-10 per plant, on ageratum (*Ageratum conyzoides*) at Hilo, Hawaii Island, for new host record. (Kobayashi, Apr. 25).

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INSECT DETECTION

New Western Hemisphere Record - EUROPEAN CLOVER LEAF TIER (*Mirificarma formosella*) (Hübner)) - CALIFORNIA - Larvae collected at Lincoln, Placer County, on April 9, 1969, by J.H. Wilson. Heavily damaged Ladino clover. Larvae also collected on clover at Pleasant Grove, Sutter County, on April 15, 1969, by J. Miller. Determined by R.W. Hodges. (p. 322). For background report see page 333.

New State Records - A LEAFHOPPER (*Cicadula intermedia*) collected at Kiona, Benton County, in Washington by B.J. Landis, March 22. Determined by G.T. Hagel. Apparently a new State record. (Harwood, Landis). A WEEVIL (*Brachyrhinus meridionalis*) Nez Percé County, Idaho; a PSYCHID MOTH (*Solenobia walshella*) Boone County, Missouri (p. 328).

New County Records - ALFALFA WEEVIL (*Hypera postica*) Desha, Johnson, and Pope Counties, Arkansas (p. 323). MEADOW SPITTLEBUG (*Philaenus spumarius*) Amherst County, Virginia (p. 324). BROWN RECLUSE SPIDER (*Loxosceles reclusa*) Daviess County, Indiana (p. 330).



EUROPEAN CLOVER LEAF TIER (Mirificarma formosella (Hübner))

Economic Importance - Larvae of this gelechiid were found heavily damaging 100 acres of Ladino clover at Lincoln, Placer County, California, on April 9, 1969, by J.H. Wilson. Rose clover (Trifolium hirtum) and burclover were also damaged. Adults reared from these larvae were determined by R.W. Hodges. Larvae were also collected from clover at Pleasant Grove, Sutter County, April 15, 1969, by J. Miller. This location is few miles from Lincoln infestation. Adults were collected on June 7, 1967, by J. Powell 4 miles west of Georgetown, El Dorado County.

Host Plants - Trifolium repens, Ladino clover, burclover, rose clover, purple vetch, and native clovers in California.

Distribution - Central and southern Europe, Asia Minor, Syria, and North Africa. United States: California.

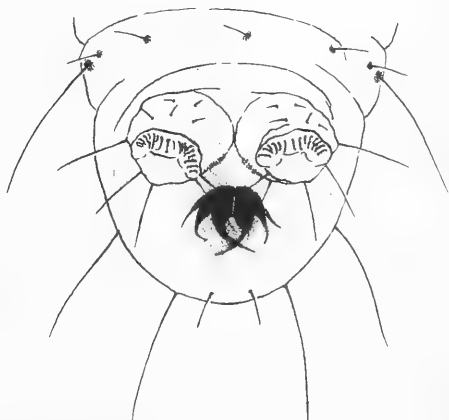
Life History - Little is available on this species in the literature. In California larvae semi-skeletonize leaves of clovers. Two leaf surfaces are folded together by light webbing, followed by discoloration and drying of foliage. Pupation occurs in the folded leaves.

Description - Adult - Variegated orange-brown; about 0.25 inch long. Hind wing smoky; rear margin curves sharply forward near outer tip and comes to rather sharp point (see illustration). Larva - About three-eighths inch long. Light green with black head. Anal comb distinctive - 2 central spines cross each other (see illustration). This can be seen with a hand lens. This species was originally described in the genus Acompsia.

This information abstracted from releases by the California Department of Agriculture, Bureau of Entomology. Drawings by T. Kono.



Adult



Anal Comb of Larva

### A Stocking-Type Trap for Survey of Winter Moth

During the 1968 fall survey for winter moth (Operophtera brumata (Linnaeus)) in coastal areas of Maine, a new stocking-type trap was most effective. Although results of the survey were negative for winter moth, this trap provided, for the first time, a tool for volume trapping over extensive areas. This trap was designed by scientists of the Department of Forestry of Canada basically to capture wingless females of the family Geometridae.

The trap (fig. 1) consists of one quart-size container with lid, one pint-size container with lid, a length of nylon stocking (approximately 18 inches), a retaining ring 2.75 inches in diameter with a center hole 1.75 inches in diameter, and two blocks of wood. Both containers have a circular hole cut in the bottom: 1.75 inches in diameter in the quart container and 1 inch in the pint container.

The smaller end of the stocking is inserted through the retainer ring. With the edge folded over the ring, the stocking is drawn through the hole in the bottom of the quart container. The quart container is then tacked to a host tree (fig. 2) with the top part of the stocking hanging downward. With the stocking pulled tight, the lower portion is stretched and tacked flush to the tree trunk by means of the wooden blocks. Another small block, or stick, about 2 inches long is inserted at the center of the stretched stocking top to insure sufficient opening for insects to enter.

A small piece of DDVP, which acts as a killing agent, is attached near the top of the pint container. This pint container is placed within the quart container. Plastic covers are placed on both containers.

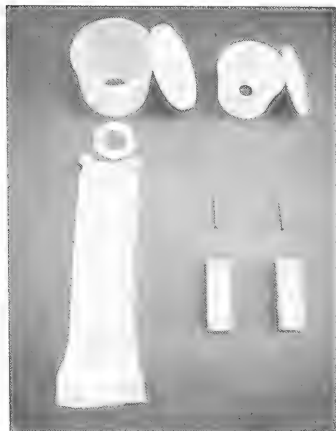


Figure 1



Figure 2

## SURVEY METHODS

### Selected References 1953

#### Part XVI

Additional copies of Parts I through XVI of this bibliography are available from Survey and Detection Operations.

#### POPULATION MEASUREMENT

MULHERN, T. D. 1953. The use of mechanical traps in measuring mosquito populations. Calif. Mosquito Control Assoc. Proc. 21:64-66.

#### REARING

ATKINSON, J. L. 1953. Notes on breeding Euplagia quadripunctaria Poda. Ent. Rec. and J. Variation. 65(11):309-310.

BECKWITH, L. C. 1953. Notes on the rearing of larch sawfly larvae. Amer. Assoc. Econ. Ent. No. Cent. States Br. Proc. 8:21-22.

#### Pristiphora erichsonii

BURCHFIELD, H. P., REDDER, A. M., STORRS, E. E. and HILCHEY, J. D. 1953. Improved methods for rearing larvae of Aedes aegypti (L.) for use in insecticide bioassay. Boyce Thompson Inst. Contrib. 17(5):317-331.

DUSTAN, A. G. 1953. A method of rearing the oleander scale, Pseudaulacaspis pentagona Targ. on potato tubers. Dept. Agr. Bermuda Bul. No. 27, 7 pp.

JAYEWICKREME, S. H. 1953. Observations on the bionomics of some anopheline mosquitoes reared in the laboratory. I-III. Ceylon J. Sci. Sect. B:Zool. 25(2): 75-116.

JOHNSON, J. H. 1953. An attempt to rear the larva of Heliophobus anceps Schiff. (Saponariae Bork., Reticulata Vill.). Ent. Rec. and J. Variation. 65(11): 326-327.

LIPOVSKY, L. J. 1953. Improved technique for rearing chigger mites (Acarina: Trombiculidae). Ent. News 64(1):4-7.

LONG, D. B. 1953. Effects of population density on larvae of Lepidoptera. Roy. Ent. Soc. London Trans. 104(15):543-586.

Includes notes on rearing several species of Lepidoptera

RAWLINS, W. A. 1953. A method for rearing the onion maggot in insectary cultures. J. Econ. Ent. 46(6):1101.

#### Hylemya antiqua

U.S. Bur. of Ent. and Plant Quar. 1953. Techniques for rearing and handling fleas. U.S. Bur. Ent. and Plant Quar. ET-308, 6 pp.

WALLIS, R. C. and SPIELMAN, A. 1953. Laboratory rearing of Culex salinarius (Diptera, Culicidae). Ent. Soc. Wash. Proc. 55(3):140-142.

EQUIPMENT AND TECHNIQUES

- BOUDREAUX, H. B. 1953. A simple method of collecting spider mites. J. Econ. Ent. 46(6):1102-1103.  
Tetranychidae
- BROWN, L. R. 1953. A standardized laboratory apparatus for using the speedlight in photography of insects and other small objects. Lepidopterists' News 7(5/6): 148-166.
- BURTON, G. J. 1953. Some techniques for mounting mosquito eggs, larvae, pupae and adults on slides. Mosquito News 13(1):7-15.
- DINTHER, J. B. M. Van. 1953. An apparatus for breeding insects. Tijdschr. over Plantenziekten 59(5e):200.
- FINNEY, G. L. 1953. A technique for mass-culture of the six-spotted mite. J. Econ. Ent. 46(4):712-713.  
Eotetranychus sexmaculatus
- FREDEEN, F. J. H. and Coauthors. 1953. Mass tagging of black flies (Diptera: Simuliidae) with radio-phosphorus. Canad. J. Zool. 31(1):1-15.
- HOCKING, B. 1953. Plastic embedding of insects--a simplified technique. Canad. Ent. 85(1):14-18.
- KLOCK, J. W., PIMENTEL, D. and STENBURG, R. L. 1953. A mechanical fly-tagging device. Science 118(3054):48-49.
- KNOWLTON, G. F. and WRAY, D. L. 1953. Shuttle service with honey-sample shipping tubes. Brooklyn Ent. Soc. Bul. 48(1):9.  
For sending insect specimens through the mail
- LESTON, D. 1953. A simple method for making stained mounts. Entomologist 86(10):254.
- MOORES, H. 1953. A method for maintaining a colony of Anopheles gambiae in the laboratory. Roy. Soc. Trop. Med. and Hyg. Trans. 47(4):321-323.
- SHEMANCHUK, J. A., SPINKS, J. W. T. and FREDEEN, F. J. H. 1953. A method of tagging prairie mosquitoes (Diptera: Culicidae) with radio-phosphorus. Canad. Ent. 87(7):269-272.  
Aedes
- WALLIS, R. C. 1953. A technique for micromanipulation of mosquitoes. Mosquito News 13(1):15-16.

TRAPS

- BEEBE, R. 1953. Sampling Michigan Lepidoptera by the fixed light trap. Lepidopterists' News 7(1):28.
- BRETHERTON, R. F. 1953. The moth trap in October, 1952 and 1953. Ent. Rec. and J. Variation 65(12):339-341.  
Great Britain
- BRUNDRETT, H. M. 1953. A homemade fly trap. U. S. Bur. Ent. and Plant Quar. ET-312, 4 pp.
- DALES, P. 1953. A simple trap for tipulids (Dipt.). Ent. Mon. Mag. 89(1075): 304.

DEAY, H. O. and TAYLOR, J. G. 1953. Preliminary report on the relative attractiveness of different heights of light traps to moths. Indiana Acad. Sci. Proc. 63:180-184.

DINTHER, J. B. M. Van. 1953. Details about some flytraps and their application to biological research. Ent. Ber. 14(331):201-204.

FOX, I. and CAPRILES, J. M. 1953. Light trap studies on mosquitoes and Culicoides in western Puerto Rico. Mosquito News 13(2):165-166.

LIONG, L. S. 1953. Termite trapping. Ent. Ber. 14(332):220-222.

MULHERN, T. D. 1953. Better results with mosquito light traps through standardizing mechanical performance. Mosquito News 13(2):130-133.

ROBINSON, H. S. 1953. Mercury-vapour lamp technicalities. Ent. Gaz. 4(4):280-281.

WILLIAMS, D. D. 1953. A simple Drosophila trap for wet weather collecting. Brooklyn Ent. Soc. Bul. 48(1):24-25.

WORTH, C. B. 1953. Construction and use of a simplified window trap for insects. Mosquito News 13(3):204-206.

#### ATTRACTANTS

BARNHART, C. S. and Chadwick, L. E. 1953. A "fly factor" in attractant studies. Science 117(3031):104-105.

#### PICTORIAL KEYS

FOOTE, R. H. 1953. Pictorial keys to the mosquitoes of medical importance. IV. Anglo-Egyptian Sudan. Mosquito News 13(4):255-258.

SOMMERMAN, K. M. and FOOTE, R. H. 1953. Pictorial keys to the mosquitoes of medical importance. I, Korea, by K. M. Sommerman; II, Formosa, by K. M. Sommerman and R. H. Foote; III, Malaya, by K. M. Sommerman and R. H. Foote. Mosquito News 13(1,2):18-22, 162-164.

Weather of the week continued from page 320.

This storm moved into Wyoming and the Dakotas. Thunderstorm activity occurred as far north as Kansas by Wednesday morning as the warm moist air from the gulf moved into that area. By late Wednesday locally heavy thunderstorms occurred over south Texas. A cloudburst dumped more than 5 inches of rain on the Corpus Christi area Wednesday afternoon. Thursday showed a continuation of these patterns. As the storm in the North Central States moved eastward, a thunderstorm occurred at Huron, South Dakota, producing 0.5-inch hail and rain. The moist gulf air moved northward to the front of this storm causing widespread rain and showers in the upper Mississippi Valley. Blue skies covered most of the Nation by Friday morning. Exceptions being the upper Mississippi Valley and Great Lakes area where showers and thundershowers occurred and the Pacific Northwest had scattered rain and showers. By late Friday severe thunderstorms had developed in western Texas. Tornadoes and hail occurred in the Panhandle of Texas and moved into western Oklahoma Friday evening. Saturday showed considerable shower activity at widely separated places over the country. Thunderstorms with hail occurred in south Texas and spotted areas of the Great Plains. Heavy thundershowers occurred in Florida with funnel clouds and strong winds in the Tampa area. Scattered showers continued in the Northwest as a frontal system moved on to the coast. The week ended with violent thunderstorms laden with tornadoes and hail occurring in the Great Plains. Midland, Texas, reported hail half the size of golf balls. Heavy showers occurred in southern Florida and light to moderate showers in Maine.

TEMPERATURE: The week began with freezing or near freezing temperatures in the northern States from the Rockies to the Great Lakes as a cool air mass moved rapidly southward and eastward. Ahead of the cool air the east coast basked in above normal temperature. By late Tuesday the cool air had moved off the east coast and into the Gulf of Mexico and northern Florida, bringing widespread frost from Michigan to the Tennessee Valley. The warm moist air from the gulf moved northward through west Texas. Light frost occurred Thursday night from Michigan to New England and southward to West Virginia with record low temperatures in West Virginia and adjacent areas. Warming continued in the West and Plains States, reaching 85° in western Kansas. Friday, cool weather moved into the Northwest and to the Northern Plains States. The week ended with cool weather extending from the Pacific Northwest through the northern States to Minnesota. The rest of the States ended the week with above normal temperatures. (Summary supplied by Environmental Data Service, ESSA.)



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May 16, 1969

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## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM moths taken in light traps in Wisconsin, Tennessee, Nebraska, and Georgia. (p. 341).

BEEF LEAFHOPPER required treatment on wasteland in Wyoming. Averaged 150 per 100 sweeps on sugarbeets in Arizona. (p. 341).

First ASTER LEAFHOPPER of season in southeast Wisconsin. (p. 341).

SPOTTED ALFALFA APHID building up in some New Mexico alfalfa. (p. 341).

PALE WESTERN CUTWORM damaging wheat in Wyoming. (p. 342).

ALFALFA WEEVIL adults and larvae heavy on alfalfa in California; increased in Illinois. Damage heavy on alfalfa in southern Delaware. (pp. 342-343).

TARNISHED PLANT BUG ranged 40-60 per 100 sweeps of alfalfa in central and south-eastern areas of Minnesota. Heavy on crimson and hop clovers in Mississippi. (p. 344).

An ARMORED SCALE reported at record high level and APHIDS reached highest level in 18 years on Florida citrus. (p. 348).

SPRUCE NEEDLE MINER larvae damaged spruce in North Dakota. (p. 348). Eradication treatment applied to small infestation in California. (p. 351).

A GRASS BUG required treatment on 4,000 acres of seeded wheatgrass in New Mexico. (p. 351).

CEREAL LEAF BEETLE adults moving into available oats, adult damage common on wheat and oats in Michigan. (p. 351).

Detection

For new county and island records see page 346.

Special Reports

Survey Methods. Selected References 1952. Part XVII. (pp. 353-354).

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

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**WEATHER OF THE WEEK ENDING MAY 12**

**HIGHLIGHTS:** Mild sunny weather prevailed over the Northwest. Heavy precipitation fell in the central Rockies and parts of the South. Numerous tornadoes struck in the South and in the Ohio River Valley.

**PRECIPITATION:** Violent thunderstorms, large hail, heavy rains, strong winds, and numerous tornadoes brought damage and destruction in a number of areas last week. Early in the week, the storms buffeted Texas and Oklahoma before spreading across the South to Alabama. Some of the thunderheads in the Midland, Texas, area approached 14 miles in height. At least 10 tornadoes struck the Texas Panhandle Tuesday afternoon. Hail as large as baseballs pelted spots in southern Texas. Cloudbursts dumped 7-inch rains south of Ft. Worth drowning 4 persons. Heavy precipitation (3.5 inches over the entire South Platte Basin) on Wednesday caused severe flooding along the river including its course through metropolitan Denver. Some mountain areas west of Denver received 5 to 9 inches of rain while 1 to 3 feet of snow fell in the higher mountains farther north. By midweek, precipitation became widespread across the Nation. Rain fell in 39 States on Wednesday; tornadoes occurred in Ohio, Kentucky, Texas, and Mississippi. The tornadoes caused few deaths (2 in Ohio), many injuries (50 in Ohio), and widespread property damage to trees, homes, house trailers, and powerlines. The rains continued over the eastern half of the Nation but the West became clear and sunny by Thursday. The Southeast cleared Friday but the rains continued in the Northeast over the weekend.

**TEMPERATURE:** Warm weather predominated from the Pacific Ocean to the northern and central Rocky Mountains with much of the intermountain area averaging 6° to 10° above normal. Temperatures averaged 6° to 10° below normal over the southern Rockies. The temperature at Douglas, Arizona, dropped to 32° on Wednesday morning. Over the Central and East, the week began warm but temperatures dropped sharply after about 3 days and weekly averages were near normal--slightly below normal from the northern Great Plains to the Southeast and slightly above normal from the Great Lakes to the middle Atlantic coast. (Summary supplied by Environmental Data Service, ESSA.)

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - WISCONSIN - Moths appearing in blacklight traps at Mazomanie, Dane County, and Hancock, Waushara County. (Wis. Ins. Sur.). TENNESSEE - Adults increasing in light trap collections, in Madison County. (Johnson). GEORGIA - One moth collected in Atlanta, Fulton County. (Ridley). NEBRASKA - Moths appearing in blacklight trap in Lincoln, Lancaster County. (Keith).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEVADA - Larvae averaged 1-2 per crown of alfalfa at Orovada, Humboldt County. Not every crown infested, but infestation general in most fields. (Lundahl). Alfalfa seed field treated in area. (Sebbas). WYOMING - Larvae ranged 0-5 (averaged 0.5) per square foot on alfalfa in Goshen and Platte Counties April 28-29. (Parshall). COLORADO - Larval damage in Weld County on alfalfa. Larvae 0-4 per square foot; numbers higher in some fields. Controls applied. (Johnson, Alldredge). NEBRASKA - Larvae ranged 5-12 per linear foot in 7 wheatfields near Grainton, Perkins County. (Hendrix).

BEEF LEAFHOPPER (Circulifer tenellus) - WYOMING - Total of 6,912 acres of wasteland in Washakie and southern Big Horn Counties treated. Survey in Washakie County after spraying indicated leafhoppers reduced from 0.11 to 0.01 per square foot of weed hosts sampled; 350 square-foot samples taken. (Petersen, Parshall). ARIZONA - Averaging 150 per 100 sweeps on sugarbeets at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - First of season, about 1 per 100 sweeps in Kenosha and Waushara Counties. (Wis. Ins. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Moderate to heavy across tobacco belt. (Girardeau).

CORN EARWORM (Heliothis zea) - ALABAMA - Recent moth flight occurred in southeast area. Second and third-stage larvae infested 20-25 percent of buds in one "knee-high" cornfield in Henry County. Few larvae on nearby cotton and vetch. (Penuel et al.). GEORGIA - Light on young soybeans, in Tift County. (Todd).

CORN LEAF APHID (Rhopalosiphum maidis) - ALABAMA - Winged adults and several nymphs on 50+ percent of 12 to 20-inch tall corn in Henry County. (McQueen).

GREENBUG (Schizaphis graminum) - ARIZONA - Light on 10 acres of wheat at Safford, Graham County. (Ariz. Coop. Sur.). NEBRASKA - One specimen in suction trap May 5-7 at Lincoln, Lancaster County. Only 2 specimens taken at site since trap started April 1, indicating very light northward movement through area. (Pruess). MINNESOTA - Trace on winter wheat and roadside bluegrass in Dakota County May 8 for first of season. (Minn. Pest Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Nymphal averages per sweep: 3 in alfalfa near Spring Green, Sauk County, and 1 at Prairie du Chien, Crawford County. No winged forms. (Wis. Ins. Sur.). ILLINOIS - Ranged 200-300 per 100 sweeps on Grundy County alfalfa. (Ill. Ins. Rpt.). KANSAS - None found in alfalfa checked in Dickinson, Saline, McPherson, and Marion Counties. (Simpson). NEW MEXICO - Appearing in some fields checked near Albuquerque, Bernalillo County. Mostly winged adults. (Heninger, May 2). Building up in several alfalfa fields in Mesilla Valley; some fields require treatment. (N.M. Coop. Rpt.).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW JERSEY - First-generation adults should appear in southern counties in about 7 days. (Ins.-Dis. Newsltr.). DELAWARE - First adults of season in Sussex County May 6 on roadside vegetation. Pupation averages 80 percent. (Burbutis). ILLINOIS - Pupation just beginning with high of 20 percent in east-southeast district. (Ill. Ins. Rpt.). NORTH DAKOTA - Overwintering mortality in southeast untilled cornfields ranged 0-32 (averaged 14)

percent; decrease from 19 percent in 1968. Lower mortality probably due to heavy snow cover past winter. Bird predation evident in 50 percent of fields compared to 47 percent in 1968. (Brandvik). MISSOURI - Pupation 78 percent May 7 on 24 farms in New Madrid County. First moth of season May 9 at Portageville. (Munson).

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - WYOMING - Many fields in Veteran and Yoder areas, Goshen County, treated. (Skelton). Counts ranged 0-4 (averaged 2.8) per linear foot in one wheatfield in Dwyer area, Platte County, April 28. Heavy damage apparent. (Parshall).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - DELAWARE - Very heavy feeding injury, adults averaged 4-5 per plant on young corn in one area of Kent County. (Burbutis). MARYLAND - Adults feeding on emerging corn throughout Eastern Shore. Most infestations light. (U. Md., Ent. Dept.). ILLINOIS - Ranged 3-20 per plant on newly emerged sweet corn in west-southwest section. (Ill. Ins. Rpt.).

SEED-CORN MAGGOT (*Hylemya platura*) - NEW JERSEY - Caught 460 on 4 sticky boards April 30 to May 7 at Cedarville, Salem County. (Ins.-Dis. Newsltr.).

#### SMALL GRAINS

PALE WESTERN CUTWORM (*Agrotis orthogonia*) - OKLAHOMA - Averaged 5.5 per linear foot in wheat in western half of Texas County, 20-80 percent of tillers destroyed in some fields. (Okla. Coop. Sur.). KANSAS - Populations unchanged (0-6 per row foot) in southwest area. Many small larvae found. (DePew). NEBRASKA - Damage 10 percent in 4 of 40 wheatfields checked. Most damage at southern edge of Deuel County. (Sall, May 7). In remainder of panhandle, activity curtailed due to cool weather. Most wheat in good condition. (Hagen). Heavy local infestations in eastern Perkins County on May 8; 7 wheatfields near Grinton had 5-12 per foot; wheat 9-10 inches tall. (Hendrix). Some damage to wheat in southwestern Lincoln County south of Wallace. (Luttrell). WYOMING - Small grain being sprayed in Chugwater area, Platte County. (Spackman). COLORADO - Larvae averaged 0-4 per linear foot of drill row on wheat in most areas checked in Logan and Sedgwick Counties. (Johnson).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - MINNESOTA - Alates 1-5 per 100 sweeps on rye, winter wheat, and bluegrass in central and southeastern districts. (Minn. Pest Rpt.). WISCONSIN - Averaged 3-5 per sweep in some Sauk and Crawford County rye fields and 5 per 100 sweeps elsewhere. Alates about half of population in southern areas. (Wis. Ins. Sur.). MISSISSIPPI - Light on 30 acres of oats in Pontotoc County. (Dinkins).

WHEAT CURL MITE (*Aceria tulipae*) - OHIO - Adults light on winter wheat past 2 weeks in Holmes, Wayne, and Ashland Counties. (Nault).

BROWN WHEAT MITE (*Petrobia latens*) - NEVADA - Light to medium on barley and wheat at Lovelock, Pershing County. Damage light in drier fields; irrigation used as control. (Martinelli).

#### TURF, PASTURES, RANGELAND

BANKS GRASS MITE (*Oligonychus pratensis*) - NEVADA - Heavy on timothy in field in Smith Valley, Lyon County. Controls required. (Adams).

#### FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW YORK - Adult averages per 100 sweeps: 19 on May 1, 22 on May 2 at Aurora, Cayuga County. In Tompkins County, on same dates weevils averaged 3 and 2 per 50 sweeps at Etna; some adults taken in flight traps facing woods in Ithaca. (N.Y. Wkly. Rpt.). PENNSYLVANIA - Adults 5 per 100 sweeps, larvae 5 per 900 sweeps on new alfalfa in Centre County May 1. (Hower). DELAWARE - Heavy damage on alfalfa in eastern Sussex County, light to moderate in other regions. (Burbutis). MARYLAND - Larvae well below normal. Ranged 5-30 per 10

sweeps in most alfalfa 12-18 inches high statewide. Appear extremely light. (U. Md., Ent. Dept.). VIRGINIA - Larvae averaged 750-1,000 per 100 sweeps (averaged 3 per stem) in 30-acre field in Rappahannock County, damage moderate to heavy. (W.A. Allen). OHIO - Egg clusters low in northwestern area; field with more than one cluster per 5 stems rare. Larvae generally 3-5 per 25 sweeps. Larvae still small and not out of terminal buds yet. In Wayne, Medina, and Holmes Counties larvae and adults about same as northwestern area. (Glass, Thobur, et al.). INDIANA - Ranged 170-260 per 100 sweeps on alfalfa. Mating pairs common in day sampling. Larval development in southeast district behind other southern districts. Larval feeding light on 20-50 percent of plants in southeast area. No larval feeding evident in 90 percent of fields in central districts, while 10 percent had 5-20 percent feeding visible. Adults ranged 90-160 per 100 sweeps, mating pairs common. Larvae ranged 0-6 per 10 sweeps. Weevil development as of May 2 behind 1968 development rate in central areas. Development in southeast district 2 weeks behind 1968 rate. (Huber, McGroarty, May 2). MICHIGAN - Adults active, 2 per 10 sweeps taken near Bath on May 1, adults flying at 10:00 A.M. on May 4 near Galien. Daylight flight of adults unusual. Grubs should appear soon. (Ruppel). WISCONSIN - Adults 3 per 25 sweeps of alfalfa in southeastern Kenosha County. Larvae averaged 1 per stem in some fields and occasionally as many as 3. Adults still filled with eggs. (Wis. Ins. Sur.). ILLINOIS - Increased very rapidly due to warm weather. Economic as far north as southern parts of west-southwest and east-southeast districts. Larval average per 100 sweeps by district: Southwest 4,978, 92 percent tip feeding; southeast 4,333, 100 percent tip feeding; east-southeast 633, 35 percent tip feeding; west-southwest 538, 21 percent tip feeding; and northeast 30, 2 percent tip feeding. Pupation just begun in southwest and southeast sections. Many fields cut or to be cut next 7 days. Parasitism variable but averaged 85 percent around Lawrenceville, Lawrence County. (Ins. Sur. Bull.).

MISSOURI - Light in southwest and west-central districts. Collected for new county records by G.W. Thomas in Henry County and by R.E. Munson in Jasper County May 7. (Munson). MISSISSIPPI - Larvae averaged 80 per square foot in 10 acres of alfalfa in Lee County. Pupation noted. Foliage damage moderate week ending May 2. Larvae per 200 stems by county: Oktibbeha 86, Pontotoc 202, and Marshall 78. Leaf damage moderate in all fields checked. (Dinkins). NEW MEXICO - Adults and larvae moderate in alfalfa near Aztec, San Juan County. (Albert, May 2). Larvae averaged 0-2 per 25 sweeps on Bernalillo County alfalfa. (Heninger, May 2). WYOMING - First larvae of season collected May 7 in Washakie County; ranged 0-6 per 100 sweeps. None found in Hot Springs County. Adults averaged 15 per 100 sweeps in Washakie and Hot Springs Counties. Alfalfa 6-12 inches tall. (Parshall). COLORADO - Larvae appearing in Logan and Sedgwick Counties. Adults and larvae range 0-10 per 100 sweeps in alfalfa. (Johnson). UTAH - Adults active on Davis County alfalfa. (Knowlton, May 7). NEVADA - Eggs, larvae, and adults in Churchill, Lyon, Pershing, and southern Washoe Counties. Females still gravid and laying eggs; larvae first to third instar. Heaviest larval counts, mostly first instar, averaged 15 per sweep at Fallon, Churchill County. (Arnett, Heringer). CALIFORNIA - Larvae and adults heavy on alfalfa in Red Bluff, Tehama County. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - MISSOURI - Leaf feeding on alfalfa in southwest and west-central areas. Larvae appeared 30-80 percent infested with a fungus Entomophthora spheosperma. Newly emerged adults collected. (Thomas). IOWA - Half-grown larvae averaged 7 per plant in Page County. Around threshold of economic damage. (Iowa Ins. Sur.). OHIO - Larvae about 5 per 25 sweeps along northern and western State boundaries and 20-25 per 25 sweeps in west-central area, particularly in Putnam and Marion Counties. (Richter). WISCONSIN - Larvae of this and H. postica (alfalfa weevil) common; H. punctata comprises up to 50 percent of weevil population in some southeastern fields. (Wis. Ins. Sur.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Light on crimson and hop clovers in Oktibbeha County. About 1 per 100 sweeps. (Dinkins, May 2).

EUROPEAN CLOVER LEAF TIER (Mirificarma formosella) - CALIFORNIA - Survey revealed infestations in Sacramento, Nevada, and Yuba Counties making total of 6 infested counties. Various clovers and purple vetch (Vicia atropurpurea) known hosts to date. (Cal. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Adults becoming prevalent on Eddy County alfalfa. (Mathews). COLORADO - Larvae ranged 0-10 per 100 sweeps in one alfalfa field in Iliff area, Logan County. (Johnson).

TARNISHED PLANT BUG (Lygus lineolaris) - MINNESOTA - Ranged 40-60 per 100 sweeps of alfalfa in central and southeastern districts. (Minn. Pest Rpt.). WISCONSIN - Adults averaged up to 1 per sweep in some southwestern alfalfa fields. (Wis. Ins. Sur.). INDIANA - Adults ranged 2-7 per sweep throughout central third of State on alfalfa. (Huber, May 2). MISSISSIPPI - Heavy on crimson and hop clovers in Oktibbeha County. About 250 per 100 sweeps. (Dinkins, May 2).

LYGUS BUGS (Lygus spp.) - ARIZONA - Averages per 100 sweeps of alfalfa: 80 in Salt River Valley, Maricopa County, 150 at Casa Grande, Pinal County. (Ariz. Coop. Sur.). NEW MEXICO - Averages per 25 sweeps: Adults 4-12, nymphs 5-20 in alfalfa checked near Artesia, Eddy County. (Mathews). COLORADO - Counts 20-40 per 100 sweeps on alfalfa in Logan and Sedgwick Counties. (Johnson). WYOMING - Adults ranged 6-80 (averaged 33) per 100 sweeps in alfalfa in Washakie and Hot Springs Counties. (Parshall). KANSAS - Ranged 3-7 per 10 sweeps in alfalfa in Dickinson, Saline, McPherson, and Marion Counties. (Simpson). WISCONSIN - First instars numerous in Rock County. (Wis. Ins. Sur.).

PLANT BUGS (Adelphocoris spp.) - WISCONSIN - A. rapidus (rapid plant bug) nymphs appearing in southern and southeastern counties. A. lineolatus (alfalfa plant bug) nymphs 2 per sweep common on alfalfa in most areas. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MINNESOTA - Spittle masses appearing on alfalfa stems in central and southeastern districts; counts low. (Minn. Pest Rpt.). WISCONSIN - Nymphs appearing on alfalfa. Averages range from 0.5 per stem in southwestern counties to 1.3 per stem in some Wood County fields. (Wis. Ins. Sur.). OHIO - Second and third instars abundant on clover and some alfalfa in northern area. (Richter). VIRGINIA - Light to moderate on red clover and alfalfa in Rappahannock, Fauquier, and Page Counties. (W.A. Allen).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Increased, ranged 5-50 per 10 sweeps in most areas. (Burbutis). WISCONSIN - Averages per sweep: 25 on alfalfa in southern Grant and southern Lafayette Counties, about 1-2 near Wisconsin River in Sauk, Richland, and Crawford Counties. Winged forms in Sauk and Kenosha Counties. Parasitism remains high in older nymphs. Ceratomegilla maculata and Hippodamia tredecimpunctata (thirteen-spotted lady beetle) averaged up to 5 per sweep on southern Dane County alfalfa. (Wis. Ins. Sur.). MINNESOTA - Ranged 40-120 per 100 sweeps of alfalfa in central and southeastern districts. Nabids numerous; ranged 20-80 per 100 sweeps. Lady beetles present in low numbers. (Minn. Pest Rpt.). MISSOURI - Counts per 10 sweeps on alfalfa and red clover 30-950 in west-central area (Thomas) and 450-1,000 in southwest area (Munson). KANSAS - Light, 18-35 per 10 sweeps, in alfalfa in Dickinson, Saline, McPherson, and Marion Counties. (Simpson). OKLAHOMA - Moderate in alfalfa in south-central area. (Okla. Coop. Sur.). COLORADO - Light, 0-150 per 100 sweeps, on alfalfa in Logan and Sedgwick Counties. (Johnson). WYOMING - Ranged 20-150 per 100 sweeps of alfalfa in Washakie and Hot Springs Counties. (Parshall). NEVADA - Very few on alfalfa checked in Churchill, Lyon, and Pershing Counties. (Heringer).

YELLOW CLOVER APHID (Therioaphis trifolii) - MARYLAND - Ranged 10-60 per 10 sweeps in 15-acre field near Webster, Harford County. (U. Md., Ent. Dept.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Averaged 2,000 per 100 sweeps of alfalfa in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).



## COTTON

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Found in 1 of 3 fields inspected in Falls and McLennan Counties; averaged 21 per acre (maximum 62). Seventeen weevils collected on flight screens, total to date 52. Total of 930 weevils caught on 21 wing traps installed at ground trash collection points in McLennan County. (Cowan et al.). ARKANSAS - Traps set in southeast, southwest, and upper Arkansas River Valley. (Boyer, Barnes). LOUISIANA - Total of 118 weevils collected from trap sites in Madison Parish. (Cleveland et al.). MISSISSIPPI - Total of 105 weevils caught in 12 sex traps in delta counties. (Pfrimmer et al.). ALABAMA - Live weevil counts made on cotton to determine overwintered populations: Henry County, one on one of four farms (average 13 per acre); Covington County, none; Monroe County, one on one of four farms (average 13 per acre). (Gamble et al.). Dallas County, six on one farm (average 80 per acre), and one on one of four farms (average 13 per acre). Autauga County, none on four farms. (Kirkpatrick et al.). Montgomery County, none in two fields. (McQueen). GEORGIA - Six overwintering weevils from 12 traps in Randolph County (Womack, May 3); one weevil from 3 traps in Spalding County (Beckham, May 3). In Randolph County, 13 weevils in 12 traps. (Womack).

BOLLWORMS (*Heliothis* spp.) - TEXAS - Eggs and/or larvae collected on Texas star, phlox, pincushion daisy, lizardtail, bluecurls and tube pentstemon. Twenty-one larvae collected previously from wild hosts identified as *H. zea*. Total to date, 149 *H. zea* and 1 *H. virescens*. One larva collected on cotton identified as *H. zea*. (Cowan et al.). MISSISSIPPI - A total of 45 female baited traps caught 179 males to date in delta counties. (Pfrimmer et al.). LOUISIANA - In Madison Parish, 1 *H. zea* and 1 *H. virescens* taken in light trap. (Cleveland et al.).

BEE T ARMYWORM (*Spodoptera exigua*) - ARIZONA - Treatments in few cotton fields at Yuma, Yuma County. (Ariz. Coop. Sur.). ALABAMA - Isolated groups of larvae feeding on 2 to 3-leaf cotton in Henry, Monroe, Dallas, and Autauga Counties. (McQueen).

COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*) - TEXAS - None found in 3 cotton fields inspected in Falls and McLennan Counties. Light infestations on horse-mint, evening-primrose, wild verbena, croton, and cut leaf evening-primrose. (Cowan et al.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MISSISSIPPI - One sex lure trap installed May 2 caught 38 specimens to date in delta counties. (Pfrimmer et al.).

COTTON APHID (*Aphis gossypii*) - ALABAMA - Increased rapidly in most untreated fields in Henry County. Counts 10-100 per plant on 3 to 5-leaf cotton on one farm. Some postplant controls applied. (Penvel et al.).

SPIDER MITES (*Tetranychus* spp.) - ALABAMA - Very heavy buildup of *T. urticae* (two-spotted spider mite); numerous eggs per leaf on 2 to 6-leaf cotton along field borders on 2 farms in Monroe and Autauga Counties. Light on older cotton on one farm in Montgomery County. (McQueen). ARIZONA - *Tetranychus* spp. required treatments in few fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

TOBACCO THRIPS (*Frankliniella fusca*) - ALABAMA - First emergence of nymphs on young cotton buds in 2 to 5-leaf cotton in Henry and Dallas Counties; 2-6 small nymphs occurring in deformed buds. Adults continue to migrate from clovers and grasses to untreated cotton in all areas. (Pike et al.).

## TOBACCO

FLEA BEETLES - GEORGIA - Moderate over tobacco belt. (Girardeau, May 3).

## SUGARBEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Adults emerging past 2-3 weeks in Weld, Larimer, and Boulder Counties. (Jenkins).

LYGUS BUGS (Lygus spp.) - ARIZONA - Averaging 70 per 100 sweeps at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW JERSEY - First adults of year on emerging potato foliage at Lumberton, Burlington County. Field treated with systemic insecticide. (Ins.-Dis. Newsltr.). DELAWARE - Adults and egg masses noted on commercial potatoes in Kent County. (Burbutis). MARYLAND - Adults feeding on potatoes on Eastern Shore. Heavy damage in 5 acres at Crumpton, Queen Annes County. Controls applied. Averaged 1 per 3 shoots at Crumpton. (U. Md., Ent. Dept.). VIRGINIA - First adult of season in Montgomery County. (M.W. Allen).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - ALABAMA - This and other flea beetles problem on several hundred acres of tomatoes in St. Clair County. Controls applied. (Jackson et al.).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - Many adults emerged in several hundred acres of tomatoes in St. Clair County. Controls applied. (Jackson).

## BEANS AND PEAS

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Increased slightly; averaged 2 per 10 sweeps on peas in most areas. (Burbutis).

## COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - First larvae of season on cabbage in New Castle County. (Burbutis).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Larvae light in 10 acres of cabbage in Oxnard, Ventura County. (Cal. Coop. Rpt.).

## GENERAL VEGETABLES

ASPARGUS BEETLES (Crioceris spp.) - PENNSYLVANIA - First C. asparagi (asparagus beetle) adults of season on asparagus May 4 in Centre County. (Gesell). NEW JERSEY - Some controls applied to reduce heavy C. asparagi adult numbers. C. duodecimpunctata (spotted asparagus beetle) remains light but beginning to increase. (Ins.-Dis. Newsltr.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSISSIPPI - Heavy leaf damage on snap beans in Lee County gardens. Averaged 2 beetles per plant. (Dinkins).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Caught 71 on 4 sticky boards April 30 to May 7 at Cedarville, Salem County. (Ins.-Dis. Newsltr.).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Heavy in garlic field in Smith Valley, Lyon County. Controls applied. (Adams).

## INSECT DETECTION

New County and Island Records - ALFALFA WEEVIL (Hypera postica) Henry and Jasper Counties, Missouri (p. 343). EUROPEAN CLOVER LEAF TIER (Mirificarma formosella) Nevada, Sacramento, and Yuba Counties, California (p. 344). A PHYCITID MOTH (Acrobasis caryivorella) Hillsborough County, Florida (p. 347). BROWN RECLUSE SPIDER (Loxosceles reclusa) Harlan County, Nebraska; Henry County, Georgia (p. 350). VAGRANT GRASSHOPPER (Schistocerca vaga) Lanai Island, Hawaii (p. 352).

## DECIDUOUS FRUITS AND NUTS

ARMORED SCALES - CALIFORNIA - Lepidosaphes ulmi (oystershell scale) and Epidiaspis leperii (Italian pear scale) heavy on apple stock in nursery at Richmond, Contra Costa County. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - Hatching; first instars numerous in southwestern areas. (Thompson, May 2).

CALIFORNIA PEAR-SLUG (Pristiphora abbreviata) - WASHINGTON - First larvae at petal fall stage April 28 on Bartlett pears at Donald, Yakima County. (Johnson).

OLETHREUTID MOTHS - NEW JERSEY - Trapped 28 Grapholitha molesta (oriental fruit moth) April 30 to May 7 at Glassboro, Gloucester County. (Ins.-Dis. Newltr.). WASHINGTON - First Carpocapsa pomonella (codling moth) male trapped by sex lure trap in pears April 23 at Buena, Yakima County. None trapped since during cool weather. (Johnson, Grigg).

EUROPEAN RED MITE (Panonychus ulmi) - NEW JERSEY - First-generation adults laying eggs on apple in central and southern counties. (Ins.-Dis. Newltr.). MICHIGAN - Hatch common in Allegan, Van Buren, and Berrien Counties. (Thompson, May 2). WASHINGTON - First hatch of overwintered eggs on Bartlett pear in full bloom April 24 at Yakima, Yakima County. (Johnson).

PHYCITID MOTHS (Acrobasis spp.) - FLORIDA - A. caryivorella larvae collected on pecan April 29 at Brandon, Hillsborough County. (Buehler). This is a new county record. (Fla. Coop. Sur.). ALABAMA - Overwintered A. caryae (pecan nut casebearer) larvae lightly emerged from new pecan growth and pupated in Autauga, Bullock, and other central and southern counties. Emergence of adults for egg laying should occur next 4-10 days. (Kirkpatrick et al.). NEW MEXICO - Ten A. caryae larvae in 50 pecan terminals at Carlsbad, Eddy County. (Marek, May 2).

PECAN LEAF PHYLLOXERA (Phylloxera notabilis) - ALABAMA - Light; galls appearing on isolated pecan and hickory trees in Macon, Lee, Covington, and other counties. (Barwood et al.).

## CITRUS

Citrus Insect Situation in Florida - End of April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 74 (norm 63) percent of groves; 50 (norm 40) percent economic. Increasing; will continue to be above normal and in high range. TEXAS CITRUS MITE (Eutetranychus banksi) infested 31 (norm 49) percent of groves; 14 (norm 24) percent economic. Increased but still below normal and at low level. Little change expected. Highest districts central and east. CITRUS RED MITE (Panonychus citri) infested 34 (norm 49) percent of groves; 12 (norm 19) percent economic. Below normal and in low range. Expected increase will result in scattered heavy infestations. Highest districts east and south. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 8 percent of groves; 2 percent economic. Near average level of last 4 years. Scattered heavy infestations expected through May. GLOVER SCALE (Lepidosaphes gloverii) infested 77 (norm 82) percent of groves; 10 (norm 25) percent economic. Below average and in moderate range. Increase expected. Highest districts south and east. PURPLE SCALE (L. beckii) infested 74 (norm 82) percent of groves; 5 (norm 11) percent economic. Below normal and in moderate range. Decrease will occur; very few heavy infestations expected. Highest district north. YELLOW SCALE (Aonidiella citrina) infested 77 (norm 64) percent of groves; 6 (norm 9) percent economic. Near normal and in moderate range. Slight increase expected. Highest district north. CHAFF SCALE (Parlatoria pergandii) infested 40 (norm 60) percent of groves; 2 (norm 11) percent economic. Little change expected from low and subnormal population level. Highest district north. BLACK SCALE (Saissetia oleae) infested 14 (norm 26) percent of groves; 3 (norm 10) percent economic. At lowest April level since 1963; means much lower summer population despite sharp increase in late May. Highest districts east and

west. An ARMORED SCALE (Unaspis citri) infested 17 percent of groves; moderate or heavy in 7 percent. At record high level; activity increasing. APHIDS infested 82 (norm 32) percent of groves; 21 (norm 2) percent economic. Peaked few days after mid-April and reached highest level in 18 years of record. Rapid decrease to low range expected before mid-May. MEALYBUGS currently light in 12 percent of groves. Increase expected. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy at Woodland, Yolo County. Infestations increasing again after decline of few years. (Cal. Coop. Rpt.).

#### OTHER TROP. & SUBTROP. FRUITS

MELON APHID (Aphis gossypii) - CALIFORNIA - Heavy on 1,000 Bacon avocado nursery trees at Orland, Glenn County. (Cal. Coop. Rpt.).

#### SMALL FRUITS

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Heavy in one acre of strawberries near Crumpton, Queen Annes County. (U. Md., Ent. Dept.).

A PTEROMALID WASP (Hemadas nubilipennis) - PENNSYLVANIA - Adults emerged May 4 in Wayne County. Much twig damage in small blueberry planting. (Gesell).

#### ORNAMENTALS

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Heavy damage to rose blooms continues in metropolitan Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Spotty, localized in area of pines in and around southern and eastern borders of Auburn, Lee County. Infestation recurring for 3 or more years. (Pearson et al.).

SPRUCE NEEDLE MINER (Taniva albolineana) - NORTH DAKOTA - Larvae damaged 44 percent of spruce needles at Fillmore, Benson County. Controls applied. (McBride).

CHEMIDS - PENNSYLVANIA - First Adelges cooleyi (Cooley spruce gall aphid) crawlers on Centre County fir May 6. (Gesell). WISCONSIN - A. cooleyi egg laying about complete on Colorado blue spruce in Dane County. No hatch noted on spruce or Douglas-fir. Hatch of Pineus strobi (pine bark aphid) began May 5 and Adelges strobilobius May 6 in Dane County. (Wis. Ins. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WISCONSIN - Egg hatch one percent in Rock County May 6. (Wis. Ins. Sur.):

A SPIDER MITE (Oligonychus subnudus) - CALIFORNIA - Heavy on Monterey pine nursery stock at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MARYLAND - Heaviest in recent years on wild cherry statewide. (U. Md., Ent. Dept.). PENNSYLVANIA - As many as 10-15 tents per 10-foot wild cherry tree in lower Susquehanna Valley. (Slesman, May 6). OHIO - Tents decreased north of U.S. Highway 40; rare north of U.S. Highway 30. Tents on Montgomery County lilac bushes. (Lang).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MICHIGAN - Hatch underway in several areas in Antrim County. About 25-30 percent hatch by April 30. Some feeding in buds. (Wallner, May 2). MINNESOTA - Began hatching in International Falls April 30. Hatch 50+ percent by May 7 in several aspen forest locations within 10 miles of International Falls. (Minn. Pest Rpt.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW MEXICO - Feeding on poplars and elms in Dona Ana and Chaves Counties. Some pupating. (Durkin, May 2).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Adults feeding on elm foliage in Churchill, Humboldt, Lyon, Ormsby, and southern Washoe Counties. (Nev. Coop. Rpt.). NEW MEXICO - Moderate damage to elms at Socorro, Socorro County. (Heninger). ARKANSAS - Increasing statewide. (Boyer, Barnes). TENNESSEE - Adults on elms statewide; locally heavy in central area. (Quillin).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - MINNESOTA - Adult emergence expected in 2 weeks. (Minn. Pest Rpt.).

SAWFLIES - TENNESSEE - Caulocampus acericaulis (maple petiole borer) caused moderate to heavy leaf fall from maples in central and eastern areas. (Jennings, Bogard). WISCONSIN - Profenusa canadensi laying eggs May 9 at Madison, Dane County. Eggs numerous on hawthorn. (Wis. Ins. Sur.).

A MEALYBUG (Phenacoccus dearnessi) - WISCONSIN - Males appearing May 5 in Dane County. Egg sacs on twigs May 9. (Wis. Ins. Sur.).

CICADAS (Magicicada spp.) - MARYLAND - First adult of season May 7 at Greenbelt, Prince Georges County. (U. Md., Ent. Dept.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 13 cases reported in U.S. May 4-10 as follows: TEXAS - Atascosa 1, Brewster 1, Hays 1, Kerr 1, Medina 1, McMullen 1, Presidio 1, Starr 2, Webb 1; ARIZONA - Cochise 2; NEW MEXICO - Hidalgo 1. Total of 53 cases reported in portion of Barrier Zone in Republic of Mexico April 27 to May 3 as follows: Sonora 18, Chihuahua 18, Coahuila 1, Nuevo Leon 6, Tamaulipas 10. One case reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 48,968,000; New Mexico 2,280,000; Arizona 8,872,000; Mexico 89,770,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - SOUTH CAROLINA - Building up on beef animals in Abbeville, Laurens, and Cherokee Counties. (Kissam, May 7). GEORGIA - Averaging 200+ per head on untreated beef cattle in Polk County. (Nolan, May 2). Heavy on Spalding County cattle. (Dupree). MISSISSIPPI - Moderate to heavy, 200-300 per head, on 50 beef cattle in Oktibbeha County. (Dinkins, May 2). TENNESSEE - Appearing on cattle across State. (Johnson et al.). MISSOURI - Light, 20-120 (averaged 50) per head, in Howell County. (Peters). OKLAHOMA - Averaged 200 per head on Major County cattle. Light to moderate in Cleveland and Garvin Counties. (Okla. Coop. Sur.). ARIZONA - Heavy in untreated feedlots in Maricopa County. (Ariz. Coop. Sur.).

FACE FLY (Musca autumnalis) - MARYLAND - First adults of season, 2-5 per head, on 20 beef cattle near Norbeck, Montgomery County, and 15 dairy cattle near Darlington, Harford County. (U. Md., Ent. Dept.).

MOSQUITOES - NEVADA - Adults heavy in many areas. (Nev. Coop. Rpt.). UTAH - Annoying at Farmington and Woods Cross, Davis County, and at St. George and Washington fields, Washington County. (Knowlton, May 7). ALABAMA - Culex pipiens quinquefasciatus built up rapidly. (Barwood et al.). WISCONSIN - Becoming

nuisance in northern three-quarters of State. (Wis. Ins. Sur.). MARYLAND - Aedes cantator abundant in local areas along bay in Anne Arundel County. A. sollicitans and A. canadensis active on Eastern Shore. (U. Md., Ent. Dept.).

BLACK FLIES - MARYLAND - Heavy near Mar-Lu Ridge, Frederick County, near Potomac River. (U. Md., Ent. Dept.). NORTH DAKOTA - Simulium venustum adults emerged along Sheyenne River in Cass County and annoying livestock. Up to 12 per ear on horses. (Brandvik).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurytERNUS) - OKLAHOMA - Principal species on cattle checked at Stilwell, Adair County. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - Very abundant in wooded area and as high as 6-10 per person at Greenbelt, Prince Georges County. (U. Md., Ent. Dept.). PENNSYLVANIA - First tick of season on man April 15 in Perry County. (Sleesman). WISCONSIN - Becoming nuisance in some central areas. (Wis. Ins. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Averaged 25 per 6-square-inch area (foreleg, cod, and tailhead) on calves checked in Cherokee County. Activity high in eastern recreation areas. (Okla. Coop. Sur.). GEORGIA - Increasing along coastal recreational areas. (Snoddy, Nolan, May 3).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - NEBRASKA - Bit man at Falls City, Richardson County. Identification confirmed. (Aitken, May 2). One specimen taken at Alma, Harlan County, for new county record. (Peterson, May 8). GEORGIA - Two specimens in home in Henry County. (Beshear). This is new county record. (PPC).

#### HOUSEHOLDS AND STRUCTURES

SMOKY-BROWN COCKROACH (Periplaneta fuliginosa) - NORTH CAROLINA - Collected February 27 and April 24, 1969, in dwellings at Raleigh, Wake County, by C.G. Wright. Second and third records for county; first reported July 10, 1966. (Weekman).

A SUBTERRANEAN TERMITE (Reticulitermes tibialis) - CALIFORNIA - Winged forms heavy in residence at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Many Hippodamia convergens (convergent lady beetle) larvae and adults feeding on cotton aphids in southern and central areas. One to 8 per 3 to 5-leaf cotton in large field in Henry County. (McQueen). OHIO - Lady beetles common, especially in many northwestern alfalfa fields with 10 per 25 sweeps. (Richter). Coleomegilla maculata common on Berrien County grain. (Ruppel, May 2). WYOMING - Lady beetle adults averaged 4 per 100 sweeps on alfalfa in Washakie and Hot Springs Counties. (Parshall). NEW MEXICO - Lady beetles averaged 5-15 adults per 25 sweeps on northern Eddy County alfalfa. (Mathews).

DAMSEL BUGS (Nabis spp.) - ARIZONA - Averaging 50 per 100 sweeps of alfalfa in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). WYOMING - Nabis sp. adults averaged 3 per 100 sweeps of alfalfa in Washakie and Hot Springs Counties. (Parshall). OHIO - Nabis sp. common statewide in almost every field. Many northwestern fields had 4 adults per 25 sweeps. (Richter).

A MIRID BUG (Deraeocoris brevis) - WASHINGTON - This predator very low at Wenatchee, Chelan County, indicating high adult winter mortality. (Burts, May 2).

AN ENCYRTID WASP (Trechnites insidiosus) - WASHINGTON - Slightly heavier than normal, apparently due to good winter survival at Wenatchee, Chelan County. (Burts, May 2).

GREEN LACEWINGS (*Chrysopa* spp.) - WASHINGTON - Many adults coming to lights April 23 at Okanogan, Okanogan County. (Rushmore). OHIO - *C. oculata* (golden-eye lacewing) adults active in fields in south last period and in north this period. (Richter).

A PHYTOSEIID MITE (*Typhlodromus occidentalis*) - WASHINGTON - Adults preying on *Panonychus ulmi* (European red mite) larvae in unsprayed prune orchard April 24 at Wapato, Yakima County. First eggs observed April 29 in *Tetranychus mcDanieli* infestation on apples in full bloom in Yakima, Yakima County. (Johnson).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (*Oulema melanopus*) - OHIO - Adults averaged 50 (maximum 150) per 100 sweeps in 3 Tuscarawas County wheatfields. Averaged 1 egg per 6 row feet in 4 Wayne County oatfields. (Treece). Adults 31 per 100 sweeps in few Morrow County oatfields. (Reutter). Six pairs in six linear feet of oats in Huron County. (Richter). MICHIGAN - Adults active past 10 days in wheat and moving into available oats. Adult damage common in wheat and oats May 4 near Galien, Berrien County. Adults ranged 2-14 (averaged 5) per row foot in oatfield. About 1 egg per stem in one wheatfield. Few eggs in oats. (Ruppel).

A GRASS BUG (*Labops* sp.) - NEW MEXICO - About 4,000 acres of seeded wheatgrass rangeland north of Cuba, Sandoval County, Santa Fe National Forest, treated. Control after one day fair to good. (N.M. Coop. Rpt., May 2).

GRASSHOPPERS - NEVADA - Mostly *Oedaleonotus enigma* hatching at Orovada, Humboldt County, and Reese River, Lander County. (Burnett). NEW MEXICO - Hatch beginning in desert areas east of Albuquerque, Bernalillo County. (Hutcherson, May 2). WYOMING - *Ageneotettix deorum* and *Aulocara eliotti* first instars 3-4 per square yard northwest of Lingle, Goshen County, May 2. (Patch). Counts at Guernsey study area, Platte County, May 2 averaged per 100 square feet: *Cordillacris occipitalis* and *Amphitornus coloradus* first instars 1, *Melanoplus confusus* second and third instars 1.5, *Xanthippus corallipes* fourth instars 0.5, *Psoloessa delicatula* fifth instars and adults 9.5, *Arphia conspersa* adults 0.5, and *Eritettix simplex tricarinatus* adults 1.5. Eight *P. delicatula* and 1 *A. conspersa* adults in 100-square-foot sample May 3 at Glendo study area, Platte County. (Pfadt).

GYPSY MOTH (*Porthetria dispar*) - NEW JERSEY - Larvae active May 1 at Jockey Hollow, Morris County; heavy at Locust in Highlands, Monmouth County. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Hatch 50 percent April 30 in Berks and Schuylkill Counties. (Jeffery).

MORMON CRICKET (*Anabrus simplex*) - NEVADA - First to third instars in Humboldt Canyon and Rosebud Canyon at Seven Troughs area, Pershing County. (Burnett).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEVADA - First male and female of season in hexalure baited modified Frick traps May 7 in Moapa Valley, Clark County. Soil samples from 41 acres on which cotton was grown last year in same area yielded 12 larvae and 2 pupae; indicates overwintering population of 15,000 per acre. (Nev. Coop. Rpt.).

SPRUCE NEEDLE MINER (*Taniva albolineana*) - CALIFORNIA - Light on 2 blue spruce trees at Sierraville, Sierra County. New infestation given eradication treatment. Infestations in Modoc, Lassen, and Plumas Counties eradicated. (Cal. Coop. Rpt.).

## HAWAII INSECT REPORT

General Vegetables - LEAF MINER FLIES (Liriomyza spp.) increasing on green onions at Koko Head, Waimanalo, Kahuku, and Waianae, Oahu. Medium in some fields. More increase expected. SOUTHERN GREEN STINK BUG (Nezara viridula) nymphal and adult buildup slight on snap and yard-long beans in farms at Waimanalo, Oahu. (Sato). TOBACCO FLEA BEETLE (Epitrix hirtipennis) adults medium, damage heavy, in acre of eggplants at Kaunakani, Kauai. Adults light, averaged 4 per leaf, damage light on eggplants at Koko Head and Pearl City, Oahu. (Sugawa, Funasaki). BLACK SLUG (Veronicella leydigi) and PINK-WINGED GRASSHOPPER (Atractomorpha sinensis) heavily damaging 0.5 acre of Chinese cabbage at Papaikou, Hawaii Island. Slugs 3-4 per plant. DIAMONDBACK MOTH (Plutella xylostella) larvae and pupae heavy, adults light, in 0.75 acre of head cabbage at Papaikou, Hawaii Island. (Matayoshi). MELON FLY (Dacus cucurbitae) larvae in 20-30 percent of unsprayed tomatoes in gardens at Hilo, Hawaii Island. (Yoshioka).

Fruits - All stages of a STINK BUG (Plautia stali) remain light on common guava fruits at Waimanalo and Kaneohe, Oahu; medium to heavy on strawberry guava at Koko Head. Adults light on ornamental pomegranate fruits at Kaneohe and Koko Head. (Kawamura et al.).

Man and Animals - Collected 386 Aedes vexans nocturnus and 1,251 Culex pipiens quinquefasciatus from 49 light traps on Oahu in April. Catches per trap ranged from zero to highs of 285 for Aedes and 264 for Culex at Waiahole. (Mosq. Cont. Br., Dept. of Health).

Structure - First significant FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) swarm of year on Oahu. Large swarms at Honolulu, Kailua, Kaneohe, Kahuku, Nanakuli, and many other areas. (Au).

Beneficial Insects - Adults of a SCIOMYZID FLY (Sepedon sauteri) light in small taro planting at Kaunakani, Kauai. Becoming common on Kauai in taro areas and other localities where freshwater snails abound. Introduced from Japan in 1966 to aid control of Lymnaea ollula (liverfluke snail). (Sugawa).

Miscellaneous Insects - VAGRANT GRASSHOPPER (Schistocerca vaga) female caught in Polihua Beach area, Lanai, for a new island record. Previously found only on Oahu, Kauai, and Molokai. (Kajiwara). A LONGHORN GRASSHOPPER (Euconocephalus nasutus) loud and annoying at night in weeds at Ewa, Waipahu, and Waianae on Oahu. Two males captured at Ewa; several adults escaped at Waipahu. (Au, Otsuka).

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 5/6-7, BL - Armyworm (Pseudaletia unipuncta) 1, beet armyworm (Spodoptera exigua) 2, black cutworm (Agrotis ipsilon) 3, cabbage looper (Trichoplusia ni) 1, corn earworm (Heliothis zea) 2, granulate cutworm (Feltia subterranea) 19, yellow-striped armyworm (Prodenia ornithogalli) 1. KANSAS - Walcott, 5/7, BL - Armyworm 3. MISSISSIPPI - Stoneville, 5/3-9, 2BL, Armyworm 16, beet armyworm 3, black cutworm 12, corn earworm 14, granulate cutworm 4, salt-marsh caterpillar (Estigmene acrea) 3, yellow-striped armyworm 2. MISSOURI - Fair Grove, 5/1-7 - Armyworm 28, black cutworm 1, variegated cutworm (Peridroma saucia) 5. Portageville 5/3-9 - Armyworm 4, European corn borer (Ostrinia nubilalis) 1. TEXAS - Waco, 5/3-9, 66-79°F., precip. 2.62 - Armyworm 4, black cutworm 2, corn earworm 18, granulate cutworm 8, variegated cutworm 21, yellow-striped armyworm 12.



## SURVEY METHODS

### Selected References 1952

#### Part XVII

Additional copies of Parts I through XVI of this bibliography are available from Survey and Detection Operations.

#### POPULATION MEASUREMENT

- ANDERSON, N. L. and WRIGHT, J. C. 1952. Grasshopper investigations on Montana range lands. Mont. Agr. Expt. Sta. Bul. 486, 46 pp.  
Includes survey method
- KUITERT, L. C. and NUTTER, G. C. 1952. Chinch bug control and subsequent renovation of St. Augustine grass lawns. Fla. Agr. Expt. Sta. Cir. S-50, 10 pp.  
Includes survey methods
- MILLER, L. W. and MARTYN, E. J. 1952. A sampling technique for underground grass grubs. Austral. Inst. Agr. Sci. J. 18(2):110-111.  
Oncopera intricata
- STARK, R. W. 1952. Analysis of a population sampling method for the lodgepole needle miner in Canadian Rocky Mountain parks. Canad. Ent. 84(10):316-321.  
Coleotechnites

#### FORECASTING

- PRATT, R. M. 1952. Forecasting citrus insect infestations. Fla. Grower 60(11): 21.

#### REARING

- COCKAYNE, E. A. 1952. A hint for breeding young larvae. Ent. Rec. and J. Variation 64(5):149-150.
- FEARNEHOUGH, T. D. 1952. A note on rearing Hydriomena ruberata Freyer. Ent. Rec. and J. Variation 64(3):88.
- JAYEWICKREME, S. H. 1952. Methods of rearing the larvae of some anopheline mosquitoes of Ceylon, with observations on their life history. Ceylon J. Sci. Sect. B:Zool. 25(1):29-53.
- JAYEWICKREME, S. H. and NILES, W. J. 1952. A technique for rearing Mansonioides larvae in the laboratory. Ceylon J. Sci. Sect. B:Zool. 25(1):1-6.
- KETTLEWELL, H. B. D. 1952. The breeding of Coscinia cribraria Linn. Ent. Rec. and J. Variation 64(4):106-107.
- MCLINTOCK, J. 1952. Continuous laboratory rearing of Culiseta inornata (Will.) (Diptera: Culicidae). Mosquito News 12(3):195-201.
- SMITH, R. W. 1952. Another method of rearing grasshoppers (Orthoptera) in the laboratory. Canad. Ent. 84(9):269-271.
- TSAO, C. H. and RICHARDS, A. G. 1952. Studies on arthropod cuticle. IX. Quantitative effects of diet, age, temperature and humidity on the cuticles of five representative species of insects. Ent. Soc. Amer. Ann. 45(4):585-599.

#### EQUIPMENT AND TECHNIQUES

HUSBANDS, R. C. 1952. Some techniques used in the study of Aedes eggs in irrigated pastures in California. Mosquito News 12(3):145-150.

JONES, J. C. and SCHELTEMA, J. L. 1952. A small-animal restrainer for feeding mosquitoes in small cages. Mosquito News 12(3):215.

LINDQUIST, O. H. 1952. A device for capturing adult insects in rearing containers and cages. Canad. Ent. 84(12):380-381.

MALTAIS, J. B. 1952. A simple apparatus for feeding aphids aseptically on chemically defined diets. Canad. Ent. 84(9):291-294.

SAILER, R. I. 1952. A technique for rearing certain Hemiptera. U. S. Bur. Ent. and Plant Quar. ET-303, 5 pp.

#### TRAPS

BAKER, H. and HIENTON, T. E. 1952. Traps have some value. USDA Ybk. Agr. pp. 406-411.

BANKS, C. J. 1952. An analysis of captures of Hemerobiidae and Chrysopidae in suction traps at Rothamsted, July, 1949. Roy. Ent. Soc. London Proc. Ser. A 27(4/6):45-53.

BELLAMY, R. E. and REEVES, W. C. 1952. A portable mosquito bait-trap. Mosquito News 12(4):256-258.

FROST, S. W. 1952. Light traps for insect collection, survey and control. Pa. Agr. Expt. Sta. Bul. 550, 32 pp.

JOHNSON, C. G. 1952. A new approach to the problems of the spread of aphids and to insect trapping. Nature (London) 170(4317):147-148.

ROBINSON, H. S. 1952. The use of anaesthetics in funnel mercury-vapour insect traps. Entomologist 85(1068):97-101.

YAGI, N. 1952. On fluorescent light trap. Jap. J. Plant Protect. 36. 6(6):263-265. In Jap.



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# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

ARMY CUTWORM adults appearing in Wyoming. Larvae infesting winter wheat in Montana. (p. 357).

BROWN WHEAT MITE increased in some wheatfields in Colorado. (p. 359).

ALFALFA WEEVIL larvae causing damage on alfalfa in east-central Missouri. Tip injury 15-60 percent in southern New Jersey. Adult activity declined but hatch increasing in Indiana. Alfalfa in areas of eastern Ohio beginning to show "frosting" from larval feeding. (p. 359).

SEED-CORN MAGGOT destroyed several plantings of cucumbers in New Jersey. (p. 362).

HORN FLY increased on untreated cattle in Alabama. Heavy on cattle in some areas of Mississippi, Oklahoma, and Missouri. Increased in southern Illinois. (p. 365).

Detection

● An ASSASSIN BUG reported for the first time in Hawaii. Not known to occur in the continental United States. (p. 368).

Other State records include a MIDGE and a EULOPHID WASP from Hawaii. (p. 368).

For new county records see page 368.

Some First Occurrences of Season

POTATO LEAFHOPPER adult in New York, SOUTHWESTERN CORN BORER adult in Alabama, and CODLING MOTH adults in Washington and Oregon.

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

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WEATHER BUREAU'S 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1969

The Weather Bureau's 30-day outlook for mid-May to mid-June is for temperatures to average below seasonal normals over the central third of the Nation. Above normal averages are indicated over the Great Basin and Pacific Northwest, as well as over the mid-Atlantic States, southern New England, and upper Ohio Valley. Elsewhere near normal is in prospect. Precipitation is expected to exceed normal over most of the Midwest and southern and central portions of the Great Plains and Mississippi Valley. Subnormal totals are indicated over portions of the northern Basin and northern Rockies, the far Southwest, and the mid-Atlantic States. In unspecified areas near normal rainfall is expected.

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

For Weather of the Week see page 369.



### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - MONTANA - Infested winter wheat on 7-10 thousand acres in Yellowstone County, 5-8 thousand acres in Carbon County, and on spring and winter wheat and barley in smaller, isolated areas of Phillips, Cascade, Toole, and Glacier Counties. (Pratt). IDAHO - Larvae averaged 4-8 per square foot on crested wheatgrass, destroyed nearly 100 percent of 7,500 Bureau of Land Management new seeding and 4,500 acres of 2-year-old seeding in winter camp Butte and Pot Hole Creek and areas of Elmore County. (PPC, Apr. 14). Infesting first flixweed and then crested wheatgrass in Pot Hole Creek area, Owyhee County, May 1. (Pollard). WYOMING - Moths appearing at Torrington, Goshen County. Larvae averaged 3 per crown in alfalfa near Burns, Laramie County. (Parshall).

ARMYWORM (Pseudaletia unipuncta) - ARKANSAS - Larvae ranged 10-20 per square foot in 100 acres of rye in Lincoln County, treatment required. No general outbreak expected. (Boyer, Barnes). MISSOURI - Flights not heavy. Larvae light to moderate, up to 14 per square foot on lodged barley around Cape Girardeau. Remains low on barley and other small grains in delta counties. Light in southeast area. Larval counts in barley 14 per square foot, averaged less than 1 per square foot. (Munson). DELAWARE - Adults very common in blacklight trap. (Burbutis).

ASTER LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Few found week ending May 9 in Kenosha and Waushara Counties, infestation in oats and rye in Sauk and Crawford Counties. Migrating from rye to oats. (Wis. Ins. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Spring treatment of foothill breeding grounds completed on May 1. Total of 27,193 acres treated. No significant migration to crop areas yet; light concentrations in small patches in breeding grounds. Mortality in treated areas excellent. (Cal. Coop. Rpt.). UTAH - Extremely light, ranged 1 in 200-400 sweeps on wild mustard; no nymphs observed May 12; pale forms ranged 5 in 150 sweeps May 14 in Curlew Valley area, Box Elder County. (Knowlton).

CORN EARWORM (Heliothis zea) - DELAWARE - Adult collected in Sussex County blacklight trap May 8. This species may overwinter, at least in small numbers, in State. (Burbutis).

CORN LEAF APHID (Rhopalosiphum maidis) - ALABAMA - Many, ranged 5-50 per plant on corn in one field in Morgan County. (Rutledge).

GREENBUG (Schizaphis graminum) - MINNESOTA - Light from Iowa border to Minneapolis and St. Paul. Ranged 0.5-1 per 100 sweeps on winter wheat and bluegrass, but none on spring grains. (Minn. Pest Rpt.). NEBRASKA - Ranged 0-1 per 20 sweeps in 4 wheatfields in Lancaster, Cass, Douglas, and Saunders Counties. (Keith). Four caught in suction trap at Lincoln, Lancaster County. (Pruess). KANSAS - Increased from 0-3 to 15-30 per 25 sweeps of wheat past 2 weeks in Marshall and Riley Counties. Highest in poorer stands. (Simpson). TEXAS - Noted on grain sorghum in Dallas and Denton area past 7 days. Light infestations in Wilbarger County; also in areas of Rio Grande Valley. Heavy and widespread in Comal County. (Turney et al., May 9). ARIZONA - Generally present in all sorghum fields in Salt River Valley, Maricopa County. Many spraying, no kill in tightly curled growing tips. Infested sorghum and field corn in Yuma County. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - NEW YORK - Single adult on flight trap in Tompkins County May 5. (N.Y. Wkly. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - WYOMING - Adults 2 per 100 sweeps on Lycium sp. at Torrington, Goshen County. (Parshall).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Generally light, ranged 10-30 per 25 sweeps; 300 per 25 sweeps in one field of alfalfa at Roswell, Chaves County. (Mathews). NEBRASKA - Ranged 1-6 per 20 sweeps in 6 alfalfa fields in Lancaster, Cass, Sarpy, Douglas, and Washington Counties. (Keith). In 5 of 12 fields in Dawson County; highest 4 per 100 sweeps. (Manglitz). MISSOURI - Light (less than 1 per sweep) in northwest and north-central areas. (Thomas, Peters).

#### CORN, SORGHUM, SUGARCANE

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Second instars very light, damaged new growth on Maricopa County sorghum. (Ariz. Coop. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW JERSEY - Still feeding on sweet corn. Continued controls recommended. (Ins.-Dis. Newsltr.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW YORK - Pupation 10 percent on May 7 in stalk pieces held out of doors over winter in Ulster County. (N.Y. Wkly. Rpt.). DELAWARE - Adults averaged about 2 per night in Sussex County blacklight trap collections. (Burbutis). ILLINOIS - Pupation 50 percent in southern areas, beginning in central areas. (Ill. Ins. Rpt.). WISCONSIN - Pupating in sandy soiled areas of central and southern areas. (Wis. Ins. Sur.). SOUTH DAKOTA - Winter mortality survey May 4-12 average by county: Brookings 7.5, Lincoln 10, Minnehaha 15, Moody 15. (Jones). IOWA - First pupae collected May 13 at Ankeny, Polk County. (Iowa Ins. Sur.). MISSOURI - First egg masses on May 14 in southeast area. Average of 163 borers on 22 farms in Carroll County spring survey. (Keaster). Pupation 33 percent in north-central area, 90 percent in southeast. (Munson).

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Caught 825 on 4 sticky boards May 7-13 at Cedarville. (Ins.-Dis. Newsltr.). CALIFORNIA - Heavy in seed corn in Ojai, Ventura County. (Cal. Coop. Rpt.).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ALABAMA - First moth observed in Madison County. (Eich et al.).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Reported on grain sorghum in Wise, Denton, and Dallas Counties. (Turney et al., May 9).

#### SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - SOUTH DAKOTA - Averaged 1 per sweep in alfalfa in Lincoln, Turner, Hutchinson, Yankton, and Clay Counties. (Jones). NEBRASKA - Activity continues in southwestern and panhandle areas. (Hendrix). WYOMING - Ranged 0-5 per linear foot in Laramie County wheatfields. (Parshall).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Moths heavier than normal in Barton County blacklight trap. (Simpson).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - High in rye, averaged about 600 per 100 sweeps in southwestern areas; central areas not as high in oats, averaged 10 per 100 sweeps in southwest compared with 1 per 100 sweeps centrally. (Wis. Ins. Sur.). MINNESOTA - Remains low, 1-7 per 100 sweeps, on small grain. (Minn. Pest Rpt.). NEBRASKA - Ranged 0-6 per 20 sweeps in 4 wheatfields in Lancaster, Cass, Douglas, and Saunders Counties. (Keith). KANSAS - Ranged 30-50 per 25 sweeps of Marshall and Riley County wheat. (Simpson). OKLAHOMA - Ranged 0-70 per head in wheat in Tulsa County. (Okla. Coop. Sur.). ARKANSAS - Noneconomic in all fields surveyed. (Boyer, Barnes).

RICE STINK BUG (Oebalus pugnax) - ARKANSAS - Low numbers, 0-10 in 100 sweeps in small grain in eastern areas. (Boyer, Barnes).

WHEAT STEM SAWFLY (*Cephus cinctus*) - NEVADA - Adults collected in meadow near Genoa, Douglas County, for a new county record. (Bechtel, Heringer).

BROWN WHEAT MITE (*Petrobia latens*) - COLORADO - Increasing, ranged 100-200 per square foot in some fields. Damage evident in scattered areas, controls required on wheat in Weld County. (Johnson). WYOMING - Light on Laramie County wheat. (Parshall).

#### TURF, PASTURES, RANGELAND

A WEEVIL (*Mecinus pyrastrer*) - MARYLAND - Adults swept from grass and weeds along a field near Easton, Talbot County, by W.S. Fields May 5, 1965. Determined by R.E. Warner. This is a new county record. (U. Md., Ent. Dept.).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - WISCONSIN - Spittle masses ranged about 3 per 10 stems in southwest to 13 per 10 stems in some fields in central sands area. (Wis. Ins. Sur.).

A PSYCHID MOTH (*Apterona crenulella*) - UTAH - Present but scarce in big sagebrush and rabbitbrush in Curlew Valley area of Box Elder County. (Knowlton, May 12).

#### FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW YORK - Larvae, 1-2 per 100 sweeps in Columbia County. Eggs present in Tompkins and Niagara Counties. Adults 1 per sweep in Genesee County, 0-10 per 100 sweeps in Ulster County. (N.Y. Wkly. Rpt., May 12). NEW JERSEY - Larvae 400-1,350 (averaged 966) per 100 sweeps in 3 fields in southern counties. Tip injury 15-60 percent. (Ins.-Dis. Newsltr.). MARYLAND - Injury generally below normal. No pupation noted in central and western sections. Average of 38 per square foot in 7 central counties. Tip damage ranges from less than 5 percent to 80 percent; most fields remain below 50 percent. (U. Md., Ent. Dept.). OHIO - Generally alfalfa in Guernsey, Muskingum, and Coshocton Counties in bad condition, in Carroll, Harrison, Muskingum, and Coshocton Counties beginning to show "frosting" from larval feeding. Egg clusters averaged 1 or more per 5 stems in east-central areas in unsprayed fields. In sprayed fields, larvae and adults about as high, egg clusters rare. Adults ranged 10 to 15 per 25 sweeps throughout northeastern areas generally. *H. punctata* (clover leaf weevil) larvae mixed with *H. postica* larvae in about equal numbers in alfalfa. (Richter).

INDIANA - Light tip feeding on 0-10 percent of plants in northern districts; hatch begun. Adult activity declined, hatch increasing, 10-60 percent of plants show feeding in central areas. (Huber, Wilson). MICHIGAN - Counts per 200 sweeps by county: Berrien 31, Kalamazoo 28, Calhoun 44, Muskegon 17, Kent 12, Ionia 31, Clinton 14, Gratiot 3, Livingston 48. (Newman, May 12).

TENNESSEE - *H. postica* heavy in alfalfa in Davidson and Madison Counties. (Knight, Butler). MISSOURI - Larvae very high and damage heavy in parts of east-central area. Larvae 10 to 160 per sweep, destroyed most of foliage on a new fall seeding at Weldon Spring, St. Charles County. Appeared lower this year than last at Mount Vernon, Lawrence County; few fields required control. New county records in Ray, Linn, Livingston, Grundy, Mercer, and Sullivan Counties. (Munson). NEBRASKA - Adults 0-24 (averaged 3.5) per 100 sweeps, larvae 0-7 (averaged 1.3) per 100 sweeps in 12 Dawson County fields. (Manglitz). SOUTH DAKOTA - Adults averaged 2 per 100 sweeps in alfalfa west of Spearfish, Lawrence County. Adult distribution uneven. (Jones et al.). WYOMING - Larvae 7-60 (averaged 33) per 100 sweeps in Goshen County alfalfa. Adults per 100 sweeps averaged 2.5 in Laramie County and 34 in Goshen County. (Parshall). COLORADO - Increasing in Weld, Larimer, and Boulder Counties. Adults ranged 30-100 per 100 sweeps, larvae 0-20 per 100 sweeps. Larvae in Kersey and Gilcrest areas of Weld County ranged 0-80 per 100 sweeps. (Johnson, Urano). NEVADA - Most heavily infested fields averaged 20-25 larvae per sweep in Churchill and southern Washoe Counties; damage evident. (Arnett et al.). Larvae averaged

2-3 per sweep at Schurz, Mineral County, and none in Fish Lake Valley, Esmeralda County. (Heringer). OREGON - Eggs in Benton County. (Every, May 9).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Larvae (second instar to full grown) ranged 15 per 50 sweeps; some adults present. (Wis. Ins. Sur.).

CLOVER HEAD WEEVIL (Hypera meles) - MISSOURI - Adults collected for first time in Cape Girardeau and Scott Counties. (Munson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - NEBRASKA - Ranged 0-5 per 20 sweeps in 6 alfalfa fields in Lancaster, Cass, Sarpy, Douglas, and Washington Counties. (Keith).

WEEVILS (Sitona spp.) - WISCONSIN - S. scissifrons most common in central areas in all alfalfa fields. Ranged from 3 to 30 per 100 sweeps. (Wis. Ins. Sur.). MINNESOTA - S. scissifrons ranged 20-300 per 100 sweeps in all alfalfa fields in southeastern district. (Minn. Pest Rpt.). IOWA - S. cylindricollis (sweetclover weevil) beginning to feed on sweetclover at Ames, Story County, May 14. (Iowa Ins. Sur.).

VETCH BRUCHID (Bruchus brachialis) - OKLAHOMA - Heavy in vetch in Love County. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - WYOMING - Larvae averaged 2 per 100 sweeps in 2 alfalfa fields near Hawk Springs, Goshen County. (Parshall).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light, ranged 1-5 per 10 sweeps in alfalfa in northeast and north-central areas. (Okla. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - NEW YORK - First mass in Tompkins County in alfalfa May 5. (N.Y. Wkly. Rpt.). MARYLAND - Heavy; spittle masses ranged 6-10 per square foot in 60 acres of alfalfa near Hancock, Washington County. Statewide ranged light to moderate. (U. Md., Ent. Dept.). INDIANA - Nymphs heaviest in southeast and northeast districts. Controls needed in many northeast district fields where early nymphs infested 20-70 percent of stems. (Huber, Wilson). MINNESOTA - Spittle masses common throughout southeastern district on alfalfa. Counts low, below 0.5 percent per stem. (Minn. Pest Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Adults in all net sweeps Statewide. (N.Y. Wkly. Rpt., May 12). MINNESOTA - Adults 10-60 per 100 sweeps on alfalfa in southeastern district. (Minn. Pest Rpt.). OKLAHOMA - Adults, ranged 1-14 per 10 sweeps in alfalfa in several northeast and east-central counties. (Okla. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Increasing, counts 5-16 per 25 sweeps on alfalfa in Chaves County at Roswell. (Mathews). ARIZONA - Ranged 80-200 per 100 sweeps of alfalfa at Yuma, Yuma County. (Ariz. Coop. Sur.). WYOMING - Nymphs and adults averaged 43 per 100 sweeps in Laramie and Goshen County alfalfa. (Parshall).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Infestations range from less than 1 to 6 per sweep in alfalfa in southwest and central area. Parasites plentiful and predators common. Few alates. (Wis. Ins. Sur.). MINNESOTA - Ranged 5-300 per 100 sweeps on alfalfa in southeastern district. No alates. Predators, mainly damsel bugs 0-10 per 100 sweeps. (Minn. Pest Rpt.). SOUTH DAKOTA - Average 1 per sweep in alfalfa in Lincoln, Turner, Hutchinson, Yankton, and Clay Counties. (Jones). NEBRASKA - Ranged 95-165 per 20 sweeps in 6 alfalfa fields in Lancaster, Cass, Sarpy, Douglas, and Washington Counties. (Keith). Ranged 8-278 (averaged 100) per 100 sweeps in 12 Dawson County fields. (Manglitz). KANSAS - Numbers nearly similar to 2 weeks ago on northeastern and north-central area alfalfa. (Simpson). OKLAHOMA - Ranged 30-250 per 10 sweeps in alfalfa in Tulsa, Mayes, Ottawa, Delaware, Adair, and Sequoyah Counties. Occasional parasitized aphids in most

fields. Ranged 300-400 per square foot in Garvin County. (Okla. Coop. Sur.). ARKANSAS - Active in roadside vetch and in alfalfa and white clover; noneconomic. Expected to be active until hotter weather. (Boyer, Barnes). ALABAMA - Remains heavy on Caley peas in Marengo and other blackbelt counties. Controls applied where seed to be harvested. Heavy on Yucca clover on 1 farm in Autauga County. (Miller et al.). UTAH - Light to moderate in alfalfa at Garland in Box Elder County. (Knowlton, May 14). COLORADO - Remains light (50-250 per 100 sweeps) in Weld, Larimer, and Boulder Counties. (Johnson). WYOMING - Light, ranged 5-300 per 100 sweeps in Laramie and Goshen Counties. (Parshall).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Live weevil counts (to establish relative overwintered numbers) per acre by county: Covington 1 (50) weevil on 1 of 4 farms (Pike), Limestone 1 (13) weevil on 1 of 4 farms (Eich et al.), Autauga 1 (13) weevil on 1 of 5 farms. Movement to cotton begun throughout State, numbers fewer than past 2 years. (McQueen). MISSISSIPPI - Collected 18 in 12 sex lure traps, 123 weevils to date in delta counties. (Pfrimmer et al.). LOUISIANA - A total of 131 weevils trapped from wing traps in Madison Parish. (Cleveland et al.). TEXAS - Averaged 45 per acre and maximum of 438 weevils in 14 of 43 cotton fields in McLennan and Falls Counties. Eleven collected on flight screens, total to date 63. Collected 52 weevils in 21 wing traps at hibernation sites in McLennan County, total to date 982. (Cowan et al.).

BOLLWORMS (Heliothis spp.) - ALABAMA - Few small larvae on young cotton throughout State. Eggs 1 per 100 plants in field in Autauga County. One H. zea moth collected in Madison County. (Magnusson et al.). MISSISSIPPI - Collected 128 in 45 sex lure traps, to date 307. (Pfrimmer et al.). TEXAS - Total to date on all host plants, 164 H. zea and 2 H. virescens in McLennan and Falls Counties. Two larvae taken on cotton identified H. virescens. First moth, H. virescens female, emerged from a hibernation cage. (Cowan et al.).

COTTON APHID (Aphis gossypii) - TEXAS - Light in 2 of 5 treated fields, none in 3. In 37 untreated fields in McLennan and Falls Counties, light in 22, medium in 14, none in 1. (Cowan et al.). ALABAMA - Present in untreated fields. One field ranged 10-50 per plant in Colbert County. (Eich et al.).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Collected 52 in 2 sex lure traps, 90 to date in delta counties. (Pfrimmer et al.). ALABAMA - Adults and nymphs on all legumes along field borders and roadsides in all 7 counties visited in central and northern areas. Migrated to older field of cotton in Autauga County, ranged one per 6 stalks along field border. (McQueen).

STRAWBERRY SPIDER MITE (Tetranychus turkestanii) - ARIZONA - Averaged 2 per leaf in Parker Valley area; heavy on cotton next to alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

THRIPS (Frankliniella spp.) - ARIZONA - F. occidentalis (western flower thrips) light to moderate in Maricopa, Pinal, Yuma, and Graham Counties. (Ariz. Coop. Sur.). TEXAS - Unspecified species light in 26 of 37 untreated cotton fields, none in 5 treated and 11 untreated fields in McLennan and Falls Counties. (Cowan et al.). ALABAMA - F. fusca (tobacco thrips) increasing in untreated cotton throughout State. Nymphs on buds. (Pike et al.).

## TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults light to moderate in tobacco beds in Charles and Prince Georges Counties. (U. Md., Ent. Dept.).

SPRINGTAILS - MARYLAND - Unusually high numbers in tobacco beds started under plastic in Charles County. (U. Md., Ent. Dept.).

## SUGARBEETS

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) - IDAHO - Heavy and damaging sugarbeets in Pasadena Basin, near Glens Ferry, Elmore County, May 1. (Homan).

A FLEA BEETLE (Epitrix sp.) - COLORADO - Adults damaging sugarbeets in Weld and Boulder Counties. Feeding apparent in 10-70 percent of plants. (Johnson).

ANTHOMYIID FLIES (Pegomya spp.) - IDAHO - P. hyoscyami (spinach leaf miner) averaged 5 eggs per sugarbeet plant in Caldwell, Canyon County, found May 13. (Homan). COLORADO - P. betae (beet leaf miner) eggs in all sugarbeet fields checked in Weld and Boulder Counties. (Johnson).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Adults ranged 0-4 per square yard in sugarbeet fields in Weld and Boulder Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - IDAHO - Winged adults on sugarbeets for first of season near Marsing, Owyhee County, May 13. (Homan).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - IDAHO - Adults requiring treatment to protect emerging potato plants near Parma, Canyon County, May 9. (Waters). OKLAHOMA - Adults, eggs, and small larvae present on home garden potatoes in Mayes County. Damage light but increasing. (Okla. Coop. Sur.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - ALABAMA - Adults remain low to moderate on tomatoes in several hundred acres on Chandler Mountain in St. Clair County. Controls applied. (Leeper et al.).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Treatments of tomatoes necessary at Yuma, Yuma County. (Ariz. Coop. Sur.).

## COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - NEW MEXICO - Larvae moderately heavy on cabbage at Mesquite, Dona Ana County. (Durkin).

## CUCURBITS

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Destroyed several plantings of cucumbers in Cumberland County. (Ins.-Dis. Newsltr.).

## GENERAL VEGETABLES

BLACK CUTWORM (Agrotis ipsilon) - DELAWARE - Adults averaging over 4 per night in Sussex County light trap collections. (Burbutis).

ONION THRIPS (Thrips tabaci) - COLORADO - Ranged 4-10 per plant on onions in Boulder County. (Johnson).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Carpocapsa pomonella) - WASHINGTON - First adults in sex traps May 4. (Buena). Total of 29 week ending May 5, eight days later than 1968. First adults May 6 in Upper Yakima Valley, Yakima County, also 8 days later (6 days after full bloom on Red Delicious). (Johnson et al.). Moth in sex trap May 5 at Wenatchee, Chelan County. (Rushmore). OREGON - First adults in Hood River County May 8; heavy flights May 10-11. (Piefer). Adults noted May 7 at Milton-Freewater, Umatilla County. (Burkhart).

TORTRICID MOTHS - CONNECTICUT - Archips argyrospilus (fruit-tree leaf roller) larvae common on apples through most of State. (Kollas, May 13). OREGON - Choristoneura rosaceana (oblique-banded leaf roller) tied and rolled leaves on apple and cherry trees in Multnomah and Clackamas Counties. (Larson).

PEACH TWIG BORER (Anarsia lineatella) - OREGON - Flagging evident on Jackson County peach. (Berry, Westcott, May 9).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Moths emerged in Bastrop and Washington Counties. (Green).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First summer generation adults on pear May 6 at Yakima, Yakima County. (Johnson). CONNECTICUT - Nymphs developing rapidly on pears; new eggs on leaves. (Kollas, May 13).

APHIDS - OREGON - Myzus persicae (green peach aphid) heavy in peach orchard in The Dalles, Wasco County; stem mothers reproducing. (Zwick, May 9). NEW JERSEY - M. persicae beginning to curl peach leaves in scattered orchards in southern Counties; beginning to build up on peach leaves in central and southern counties. Alates will soon migrate to alternate hosts. (Ins.-Dis. Newsltr.). CONNECTICUT - Aphis pomi (apple aphid) apparently increasing rapidly on apples in some areas; Dysaphis plantaginea (rosy apple aphid) lighter than apple aphid. (Kollas, May 13).

EUROPEAN RED MITE (Panonychus ulmi) - OREGON - Egg laying begun in Hood River, Hood River County. (Zwick, May 9). WASHINGTON - Few summer eggs on apples at petal fall May 1 in Zillah, Yakima County. (Johnson). CONNECTICUT - First generation laid eggs on apples. (Kollas, May 13).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - WASHINGTON - New infestations on terminal leaves of unsprayed Bartlett pears May 5 at Yakima, Yakima County. (Johnson).

BROWN GARDEN SNAIL (Helix aspersa) - CALIFORNIA - Heavy on peach trees at Gridley, Butte County. (Cal. Coop. Rpt.).

## CITRUS

ARMORED SCALES - FLORIDA - All stages of Unaspis citri scattered and few to moderate May 6 on 1,000 of 50,000 plants of Carrizzo citrange seedlings, Poncirus trifoliata x Citrus sinensis, at Clermont and May 9 on stems of Citrus sp. at fruit packing company at Ferndale, Lake County. (Henderson). CALIFORNIA - Aonidiella citrina (yellow scale) heavy on grapefruit trees at Porterville, Tulare County. (Cal. Coop. Rpt.).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Medium at Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

THRIPS - CALIFORNIA - Scirtothrips citri (citrus thrips) and Frankliniella occidentalis (western flower thrips) medium at Seeley, Imperial County. (Cal. Coop. Rpt.).

BROWN GARDEN SNAIL (Helix aspersa) - CALIFORNIA - Heavy at Gridley, Butte County. (Cal. Coop. Rpt.).

#### SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Adults numerous at northwestern Phoenix, Maricopa County. (Ariz. Coop. Sur.).

BLACK-HEADED FIREWORM (Rhopobota naevana) - NEW JERSEY - Readily found, especially on higher edges of early drawn cranberry bogs where new upright growth approaching predangle stage. (Ins.-Dis. Newsltr.).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW JERSEY - First eggs on southern area blueberries May 12. (Ins.-Dis. Newsltr.).

#### ORNAMENTALS

SAWFLIES - WISCONSIN - Profenusa canadensis adults numerous about hawthorns May 9 at Madison, Dane County; mating and laying eggs, as many as 7 eggs in some leaves. Hatch began May 12. (Wis. Ins. Sur.). DELAWARE - Endelomyia aethiops (rose-slug) starting to feed on New Castle County roses. (Burbutis).

ARMORED SCALES - FLORIDA - Phenacaspis cockerelli adults infested number of 3,000 plants of toog, Bischofia javanica, in nursery at Ft. Lauderdale, Broward County. (Clinton, May 6). Adults on 2 of 200 plants of bird-of-paradise in nursery at Winter Haven, Polk County. (Schmidt, McHenry). NEVADA - Lepidosaphes ulmi (oystershell scale) heavy on lilac at Elko, Elko County. (Peters). IDAHO - Diaspis carueli (juniper scale) severe on ornamental junipers May 9 at Twin Falls, Twin Falls County. (Youtz).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - FLORIDA - All stages general and moderate to severe on all 125 plants and all 600 rose plants in 2 nurseries at Tampa, Hillsborough County. (Hale, May 9).

#### FOREST AND SHADE TREES

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - IDAHO - Beginning to emerge and infest green logs near Emida (Palouse River Divide), Benewah County. Beginning to construct egg galleries May 7. (Furniss).

AN ENGRAVER BEETLE (Ips calligraphus) - OHIO - Moderate on white pine on Pike State Forest in Pike County May 2. (Barker).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Annual spring survey in nursery and residential plantings in Willamette Valley about three-fourths completed. Infested 5 mugho pines so far at residence in Portland, Multnomah County. Trees from out of State late in 1968. Infested pines destroyed. (Larson).

SPRUCE NEEDLE MINER (Taniva albolineana) - OHIO - Pupation about 50 percent complete at Painesville, Lake County, May 14. (Walker).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Larvae first emerged April 21 at Wascott, Douglas County. Overwintering larval survival low. (Wis. Ins. Sur.).



CHERMIDS - OHIO - Some nymphs of Adelges abietis (eastern spruce gall aphid) appearing; galls forming in Wayne County May 12. A. cooleyi (Cooley spruce gall aphid) just hatching on Douglas-fir in Wayne County May 12. (Campbell). A. strobilobius heavy on larch May 14 at Wooster, Wayne County. (Nault). WISCONSIN - A. cooleyi hatch begun on blue spruce and Douglas-fir in Dane County. A. Strobilobius and Pineus strobi (pine bark aphid) hatch begun; flocculence forming. (Wis. Ins. Sur.).

PINE SPITTLEBUG (Aphrophora pallelata) - ALABAMA - Nymphs 1-10 on pines on lawn and roadside planting in Morgan, Madison, Limestone, Jefferson, Barbour, Henry, and other isolated areas. (Eich et al.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Larvae on Scotch pine in Stark, Mahoning, and Columbiana Counties (Ball) and on red pine in Hamilton County (Wells) and Clark County. (Richter).

ELM LEAF BEETLE (Pyrrhalta luteola) - ALABAMA - Light first emergence on elm leaves in Lee and Tallapoosa Counties. (McQueen). MISSOURI - Eggs on American and Chinese elms in southern and central areas. (Munson). KANSAS - Overwintered adults beginning to feed; no eggs yet. (Thompson). NEVADA - Adults and larvae at Henderson, Clark County. (Zoller). IDAHO - First eggs of season May 6 at Parma, Canyon County. (Scott).

SPRING CANKERWORM (Paleacrita vernata) - NEBRASKA - Larvae active on elms at Lincoln, Lancaster County; defoliation very light, less than 1 percent. (Keith). MINNESOTA - Larvae about 0.5 inch long or more in central area; populations widely scattered. (Minn. Pest Rpt.). WISCONSIN - Larvae 0.25 inch long; defoliation noticeable on elms at Mazomanie, Dane County. Appears lower than in past few years. (Wis. Ins. Sur.).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - TENNESSEE - Very heavy on hard maple shade trees in central and eastern areas. (Quillin).

BROWN GARDEN SNAIL (Helix aspersa) - FLORIDA - Adults localized and few on number of 200 plants of Grevillea spp. and Surinam-cherry in nursery at Davie, Broward County. (Shirah, May 8).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 15 cases reported in U.S. May 11-17 as follows: TEXAS - Atascosa 1, Bee 1, Dimmit 1, Gillespie 1, Guadalupe 1, Hidalgo 2, Kimble 1, Live Oak 3, Pecos 2, Real 1; ARIZONA - Pima 1. Total of 263 cases reported in portion of Barrier Zone in Republic of Mexico May 4-10 as follows: Baja California 1, Territorio sur de Baja California 2, Sonora 149, Chihuahua 44, Coahuila 6, Nuevo Leon 20, Tamaulipas 41. Total of 17 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 66,718,000; New Mexico 2,440,000; Arizona 9,080,000; Mexico 80,370,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - ALABAMA - Increased on untreated cattle herds in Wilcox and Bibb Counties and other areas. (Farquhar et al.). MISSISSIPPI - About 200 per head on 75 beef cattle in Yazoo County. (Dinkins). OKLAHOMA - Up to 600 per head on cattle in Cherokee County and 300-500 per head in Payne County. Averaged 50 per head on steers and 150 on a bull in Tulsa County. Heavy in Cotton County and moderate in Cleveland County. (Okla. Coop. Sur.). MISSOURI - Ranged 50-200 (averaged 80) per head in northwestern area. (Peters). ILLINOIS - Increased past week in southernmost counties, averaged 115 per head. (Ill. Ins. Rpt.). IOWA - Building up on farm in Story County; 10 per head on pastured beef cattle in one location. (Iowa Ins. Sur.). NEBRASKA - Flies 1-5, 5-15, and 5-15 per head in 3 out of 4 feedlots in Lancaster County. (Campbell).

WYOMING - H. irritans ranged 0-80 (averaged 20) per herd on 2 Goshen County herds. (Parshall).

FACE FLY (Musca autumnalis) - MISSOURI - Up to 3 per head in northwestern area. (Munson). WASHINGTON - Few adults in pastures near Pullman, Whitman County. (Telford, May 9).

STABLE FLY (Stomoxys calcitrans) - WASHINGTON - Low; occasional adult collected since April 27 at Pullman, Whitman County. (Telford). NEBRASKA - Few flies in resting areas around Lancaster County feedlots; little activity. (Campbell).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Adults light in Noble County. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - Controls applied to 18,715 acres of breeding sites through May 15 in Metropolitan Mosquito Control District. Brood size moderate past 2 weeks. Virtually all single-brooded spring Aedes have emerged as adults. Multiple-brooded summer Aedes such as vexans ranged second to fourth instar. A. dorsalis dominant in one field collection. Pond and pothole levels shrinking due to no rains past 2 weeks. Many A. vexans egg beds dry; heavy rainfall will result in heavy hatches. (Minn. Pest Rpt.).

HARD-BACKED TICKS - DELAWARE - Dermacentor variabilis (American dog tick) very abundant and annoying last 3-4 weeks. (Burbutis). WISCONSIN - D. variabilis becoming more noticeable in several northern and central counties. (Wis. Ins. Sur.). OKLAHOMA - Mostly Amblyomma americanum (lone star tick) adults averaged 15 per 6 square inches on Cherokee County cattle; heavy on Mayes County cattle. (Okla. Coop. Sur.).

EAR TICK (Otobius megnini) - WYOMING - Up to 30 per ear in cattle herd north of Torrington, Goshen County. (Morel).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ILLINOIS - Found in newspaper office at Pittsfield, Pike County, for a new county record. (Ill. Ins. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults averaged 10 per 100 sweeps on Laramie and Goshen County alfalfa. (Parshall). MISSISSIPPI - Scymnus spp. about 1 per 20 plants on 10 acres of Yazoo County cotton. (Dinkins).

GREEN LACEWINGS (Chrysopa spp.) - MISSISSIPPI - About 1 larvae per 20 plants on 30 acres of 1-leaf cotton in Yazoo County. (Dinkins).

A DAMSEL BUG (Nabis sp.) - WYOMING - Adults averaged 5 per 100 sweeps on Laramie and Goshen County alfalfa. (Parshall).

AN ICHNEUMON WASP (Bathyplectes curculionis) - ILLINOIS - Percent parasitism increased from 10 in April to 23 first week of May. Up to 95 percent parasitism week of May 5 in few alfalfa fields in east-southeast district. (Ill. Ins. Rpt.).

A BRACONID (Dendrosoter protuberans) - MINNESOTA - About 20,000 imported from France for release this spring to parasitize larvae of bark beetles which spread Dutch elm disease. (Minn. Pest Rpt.).

A PHYTOSEIID MITE (Typhlodromus sp.) - IDAHO - Controlled Tetranychus mcDanieli on Canyon and Payette County apple trees if sprays did not penetrate into crowns. (Homan, May 4). OREGON - Egg laying begun at Hood River, Hood River County. (Zwick, May 9).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - First hatch of season May 12 in Wayne County. Eggs about 30 per linear yard on oats in Tuscarawas and Licking Counties. (Treece et al.). Egg deposition should peak next 5-14 days. (Richter). INDIANA - On borders of La Porte and St. Joseph Counties, eggs per linear foot on oats averaged 25-30 north of State Highway 2 and 3-4 in area near State Highway 4. Hatch just begun. Generally heavier in southern and eastern peripheral areas than in past years. Controls may be required in larger area of north-central and northeastern sections. (Shade, Wilson).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Locally heavy on mulberry trees at Porterville, Tulare County. (Cal. Coop. Rpt.).

CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Adults scattered and few on 1 of 20 trees of Florida trema, Trema micrantha, at Miami, Dade County. (Simpson, Dillon, May 9). This extends area where it has been collected. (Fla. Coop. Sur.).

GRASS BUGS (Labops spp.) - WYOMING - Two severe infestations of L. hesperius discolored edges of wheat strips bordering crested wheatgrass in Goshen County. Controls stopped damage. (Spackman, Skelton). MONTANA - L. hesperius on Fallon County crested wheatgrass and on Pondera County wheat. (Pratt). IDAHO - Labops spp. adults and 10 percent nymphs damaged crested wheatgrass May 4 near Mayfield, Elmore County. (Lambley, Scoggan). WASHINGTON - Many L. hesperius nymphs and some adults heavily damaged 2 wheatgrass seedings on rangeland at southern and southwestern Toppenish, Yakima Indian Reservation. Averaged 100 per 180-degree sweep. About 10 percent adults May 6. (Jackson, Nonini).

GRASSHOPPERS - ARIZONA - Melanoplus differentialis lightly damaged young sorghum in few fields in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). NEVADA - Mainly Oedaleonotus enigma hatch north of Elko, Elko County, and in Pumpernickel Valley, Humboldt County. (Burnett, Dann). UTAH - Nymphs remain very light on Curlew Valley rangelands, few Trimerotropis sp. present. Nymphs 1 per 25-50 sweeps on range and pasture at Cornish, Cache County. (Knowlton, May 12.). IDAHO - Aulocara elliotti and O. enigma first to third instars at lower elevations (about 3,000 feet) and southern exposures. Psoloessa delicatula and Xanthippus corallipes adults less than 1 to about 4 per square yard May 4 at Mountain Home, Elmore County. (Lambley, Scoggan). WYOMING - Averages per 100 square feet in 2 study areas of Platte County. At Glendo May 9: Eritettix simplex tricarlinatus fifth instars 0.5, P. delicatula adults 8, and Arphia conspersa adults 0.5. At Guernsey May 10: First instars of A. elliotti 1, Cordillacris occipitalis 2, Ageneotettix deorum 0.5, Amphitornus coloradus 0.5, and M. occidentalis 0.3; M. confusus second and third instars 1; P. delicatula fifth instars and adults 7.5; adults of E. simplex tricarlinatus 1.5, A. conspersa 0.5, and X. corallipes 1. (Pfadt).

MORMON CRICKET (Anabrus simplex) - NEVADA - First to fourth instars in Davis Canyon area, Diamond Mountains, Eureka County. (Burnett, Dann).

WOOLLY WHITEFLY (Aleurothrix floccosus) - CALIFORNIA - Nearly 800 infested blocks confirmed at San Diego, San Diego County. Total of 775 blocks treated; some for second time. (Cal. Coop. Rpt.).

## HAWAII INSECT REPORT

New State Records - AN ASSASSIN BUG (*Oncocephalus pacificus* Kirkaldy) adult caught at Waikiki, Honolulu, Oahu, September 1968; second adult caught at Wahiawa October 1968. No captures since. Reported from Guam and other Pacific islands. Determined by W. Gagne. (Drake). Not known to occur in the continental United States. (PPC). A MIDGE (*Goeldichironomus holoprasinus*) first noted by J.W. Beardsley in light trap on University of Hawaii campus at Honolulu, Oahu, March 1969. Breeding abundantly in aquatic situations. Common at Honolulu; has been reared from fishponds on windward Oahu. First described from Brazil; recorded from southern and western United States. Determined by W.W. Wirth. (Hardy). Fourteen adults of a EULOPHID WASP (*Tetrastichus chrysopae*) reared from cocoon of *Chrysopa lanata* (a green lacewing) collected April 13, 1969, on Bishop Museum grounds, Honolulu, Oahu. Determined by J.W. Beardsley. (Drake).

Turf and Pasture - A GRASS WEBWORM (*Herpetogramma licarsisalis*) remains generally low on all major islands. Damage negligible in pastures and lawns on Kauai, Oahu, and Hawaii Island. Adults trace in light traps throughout Oahu. Damage very light in pastures at Kipahulu, Hana, Haiku, and Waihee on Maui. (Yoshioka et al.).

General Vegetables - TUMID SPIDER MITE (*Tetranychus tumidus*) heavy to severe in 1.5 acres of sweetpotatoes at Waiahole, Oahu; foliar damage conspicuous. (Sato). TOMATO RUSSET MITE (*Aculops lycopersici*) severely damaged 0.25 acre of tomatoes at Kaumakani, Kauai; many plants dying. (Sugawa).

Forest and Shade Trees - A CONIFER APHID (*Cinara carolina*) remains light in 25 acres of Monterey pine at Kula Forest Reserve on Maui. (Miyahira). FULLER ROSE WEEVIL (*Pantomorus cervinus*) adults heavily damaging foliage of young *Eucalyptus* sp. trees in South Kohala on Hawaii. (Kobayashi, Kashiwamura).

Beneficial Insects - Thousands of larvae of a LADY BEETLE (*Cryptolaemus montrouzieri*) on several monkeypod trees, light on about 175, along Kapiolani Boulevard between Atkinson Drive and Ward Street at Honolulu, Oahu. Larvae descending branches to pupate under bark. Probably *Planococcus citri* (citrus mealybug) noticeable on terminal foliage. (Davis). A SCARAB (*Canthon humectus*) adults heavy, averaged 15 per pad, in pastures at Halepiula, North Kona on Hawaii Island. Introduced to inhibit *Haematobia irritans* (horn fly) breeding. (Kobayashi, Kashiwamura).

Miscellaneous Insects - VAGRANT GRASSHOPPER (*Schistocerca vaga*) adults heavy in kiawe thickets and grassy coverage on northwestern Lanai, from sea level to about 800 feet. One adult caught 10 miles away in pineapple area near airport. (Sakimura).

## INSECT DETECTION

New State Records - AN ASSASSIN BUG (*Oncocephalus pacificus* Kirkaldy) - Hawaii - Two specimens collected on Oahu 1968. Determined by W. Gagne. It does not occur in the continental United States. (p. 368). A MIDGE (*Goeldichironomus holoprasinus*) and a EULOPHID WASP (*Tetrastichus chrysopae*) Oahu Island, Hawaii (p. 368).

New County Records - WHEAT STEM SAWFLY (*Cephus cinctus*) Douglas County, Nevada; a WEEVIL (*Mecinus pyraeter*) Talbot County, Maryland; ALFALFA WEEVIL (*Hypera postica*) Grundy, Linn, Livingston, Mercer, Ray, and Sullivan Counties, Missouri. (p. 359). CLOVER HEAD WEEVIL (*Hypera meles*) Cape Girardeau and Scott Counties, Missouri (p. 360). BROWN RECLUSE SPIDER (*Loxosceles reclusa*) Pike County, Illinois (p. 366).

## CORRECTIONS

CEIR 19(20):351 - PINK BOLLWORM (*Pectinophora gossypiella*) - NEVADA - ... overwintering population of 15,000 per acre ... should read 7,000 per acre. (Nev. Coop. Rpt.).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 5/14-15, BL - Armyworm (*Pseudaletia unipuncta*) 5, beet armyworm (*Spodoptera exigua*) 1, black cutworm (*Agrotis ipsilon*) 3, corn earworm (*Heliothis zea*) 1, granulate cutworm (*Feltia subterranea*) 45, tobacco hornworm (*Manduca sexta*) 2, variegated cutworm (*Peridroma saucia*) 1, yellow-striped armyworm (*Prodenia ornithogalli*) 2. KANSAS - Manhattan, 5/13-14, BL - Armyworm 10, wheat head armyworm (*Faronta diffusa*) 10. Tribune, 5/13, BL - Army cutworm (*Chorizagrotis auxiliaris*) 3, wheat head armyworm 27. Wolcott, 5/10-12, BL - Armyworm 3, wheat head armyworm 1. MISSISSIPPI - Stoneville, 5/10-16, 2 BL, 50-80° F., precip. 0.15 - Armyworm 5, beet armyworm 7, black cutworm 14, corn earworm 18, granulate cutworm 2, salt-marsh caterpillar (*Estigmene acrea*) 1, tobacco hornworm 2, yellow-striped armyworm 2. MISSOURI - Fair Grove, 5/8-14, BL - Armyworm 38, black cutworm 1, European corn borer (*Ostrinia nubilalis*) 1, variegated cutworm 2. Portageville, 5/10-16, BL - Armyworm 1, black cutworm 1, variegated cutworm 1. OHIO - Wooster, 5/13-15 - Armyworm 23, black cutworm 2. TEXAS - Waco, 5/10-16, 59-82°F., precip. 0.25-3.0 - Armyworm 1, beet armyworm 2, black cutworm 2, corn earworm 8, granulate cutworm 8, variegated cutworm 16, yellow-striped armyworm 4.

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Weather of the week continued from page 356.

## WEATHER OF THE WEEK ENDING MAY 19

HIGHLIGHTS: Warm weather predominated in the West with some cooling in the Northwest late in the week. The East began cool but warmed by the weekend. Numerous thundershowers spread an uneven pattern of rain over the east half of the Nation.

PRECIPITATION: Heavy thundershowers drenched the southern Great Plains, and moderate to heavy downpours soaked other parts of the South from Texas to Georgia early in the week. Some localities received 24-hour amounts ranging from 3 to more than 4.5 inches. Twisters struck scattered locations from Texas to Wisconsin on Tuesday, Wednesday, and Thursday afternoons and evenings. Reports are incomplete but damage is believed to be comparatively light as many of the storms touched down in sparsely populated areas. Large hail fell in the Abilene and Lubbock, Texas, areas Wednesday evening. Winds gusted to 80 m.p.h. at Watertown, South Dakota. The weekend brought more than 2 dozen tornadoes, mostly from the Ohio River to the mid-South but a few occurred in such widely separated places as Sinclairville, New York, and Pensacola, Florida. Most of the storms caused only light damage and no personal injuries. Showers occurred from Lower Michigan to New England and southward to the Gulf of Mexico and from the Pacific Northwest to the northern Great Plains.

TEMPERATURE: The southwestern deserts warmed to 100° or higher on 1 or 2 days early in the week. Blythe, California, registered 102° on Monday and 103° on Tuesday. Southerly winds pushed temperatures over the Great Plains to the 80's and 90's. In contrast to the warming trend over the West and Central, a deep northwesterly current cooled the East. Frost occurred in the northern and central Appalachians on 1 or 2 mornings. Bristol, Tennessee, registered 34° on Tuesday morning. Cold air spilled into the northern Rockies and the northern Great Plains on Thursday with maximums in the 50's common on Thursday and Friday, afternoon temperatures reached the 80's and 90's in this area earlier in the week. Meanwhile, a warming trend began in the East. Temperatures over most of the Northeast climbed into the 80's Saturday afternoon, 87° at Boston, Massachusetts. (Summary supplied by Environmental Data Service, ESSA).





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**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

**Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

ARMY CUTWORM causing some damage to barley in North Dakota and Idaho. (p. 374).

GREENBUG reported on grain sorghum in south Texas. Appearing on wheat in Colorado, and oats in Wisconsin. (pp. 374-375).

PALE WESTERN CUTWORM and BROWN WHEAT MITE damaging wheat in South Dakota. (p. 376).

ALFALFA WEEVIL increasing in Nevada and Colorado. Building up in east, central, and west districts of Illinois. Feeding damage in southwestern Ohio over 50 percent. Controls warranted in many alfalfa fields in Indiana. (pp. 376-377).

THRIPS increased on cotton in Texas and Georgia. (p. 379).

COLORADO POTATO BEETLE adults appearing in Washington, Idaho, Colorado, Kansas, Tennessee, Virginia, Maryland, and New Jersey; caused some damage in Idaho and troublesome in Maryland. (pp. 379-380).

PEAR PSYLLA first summer-generation adults appearing in Oregon and Washington. (p. 382).

CITRUS RUST MITE increased, highest in 18 years of record for mid-May on Florida citrus. (p. 383).

GEOMETRID MOTH larvae heavy on red maples with some tree mortality and extensive dieback expected in Pennsylvania; also destructive and heavy on oaks and ornamentals in New Jersey. (p. 385).

HORN FLY heavy on untreated cattle in Georgia. Heavy on cattle in Texas and Oklahoma. (p. 386).

Detection

New State records include COTTON LEAF PERFORATOR in Florida (p. 379), a DERMESTID BEETLE in Hawaii (p. 381), and BROWN RECLUSE SPIDER in Ohio (p. 387).

For new county and island records see page 389.

Special Reports

Potato Psyllid Survey, Spring Breeding Areas of Texas. (p. 373).

Change in Scientific Name. (p. 381).

Distribution of San Jose Scale (map). (p. 390).

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

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WEATHER OF THE WEEK ENDING MAY 26

**HIGHLIGHTS:** Precipitation fell in most States this week. Smallest amounts fell in Utah, Nevada, and eastern Colorado. Severe weather occurred in the South and in the south-central Great Plains.

**PRECIPITATION:** The week began with a lessening of the severe tornado activity experienced over last weekend but activity increased to severe proportions again by Wednesday. Rain showers were widespread in Eastern United States with heaviest activity in the southeastern States and Florida. A small tornado touched down near Tallahassee but no damage was reported. A cloudburst, accompanied by hail, hit near Wakeeny, Kansas, and damaged crops. Showers were present along cool air entering the States Monday and moving to a line from New England to Oklahoma and northwestward along the Rockies by Wednesday. By late Wednesday, tornadoes and violent thunderstorms had struck from the Texas Panhandle to northwestern Missouri. Scattered light snow and sleet brought a touch of winter to Wisconsin and northern Illinois. Snow also fell in South Dakota and Montana. By Thursday the severe weather in the Nation's midsection had subsided. Widely scattered thundershowers fell in Florida and California reported drizzle along the coast. Unsettled weather began to increase again and the week ended with widespread thunderstorm and tornado activity, mostly in the warm humid air in the South. Hail occurred in most of the Southern States. On Friday, Morgan City, Mississippi, reported golf ball size hail which damaged crops in that area. Total precipitation for the week shows the greatest amount on the southeast Atlantic coast. Savannah, Georgia, accumulated in excess of five inches. Another maximum area extended from Wilmington, North Carolina, to central Virginia, ranging from four to two inches respectively.

**TEMPERATURE:** The warming trend west of the Rockies has continued with 90° readings being reported as far north as Seattle by Saturday. Some desert stations in the Southwest exceeded 100° every day in the week. The Great Basin area was as high as 7° above normal. Cool air pushed into the North Central States on Monday and advanced to cover most of the area east of the Rockies by the end of the period. The coolest weather occurred from New England, southwestward to Nebraska and northern Kansas. Frost was reported on several days in the Great Lakes area. Frost damage to early strawberries was reported in Minnesota. Below normal temperature on the southeast coast was due to the cloudy conditions there associated with frequent rainfall. (Summary supplied by Environmental Data Service, ESSA.)

**SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

Potato Psyllid Survey, Spring Breeding Areas of Texas

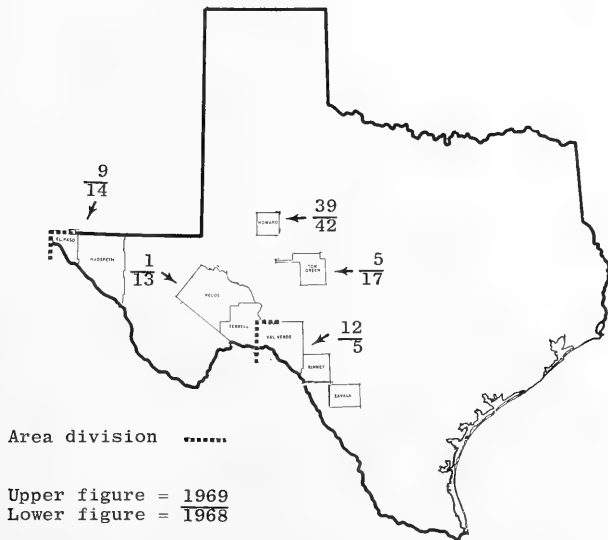
The potato psyllid (Paratrioza cockerelli (Sulc)) survey in Texas was completed April 18, 1969. Compared with 1968, psyllid counts remained constant in the Big Spring area; decreased in the San Angelo, Marathon-Sanderson, and El Paso areas; and increased in the Del Rio area. Conditions have been unusually dry in the survey areas this year. Lycium host plants are in good to excellent condition in all areas and heavily leafed. Psyllid egg deposits were light.

Potato Psyllid Survey on Overwintering Hosts in Texas

Average Number Per 100 Sweeps

<u>District</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
Big Spring (Howard County)	7	42	39
San Angelo (Tom Green County)	4	17	5
Del Rio (Val Verde, Kinney, and Zavala Counties)	1	5	12
Marathon-Sanderson (Terrell and Pecos Counties)	0	13	1
El Paso (El Paso and Hudspeth Counties)	27	14	9

(PPC)



ARMY CUTWORM (Chorizagrotis auxiliaris) - NORTH DAKOTA - Scattered infestations and damage in southwest counties; 6 per square foot on Hettinger County oats; 2 per square foot reduced stands 50 percent in parts of some barley fields in Golden Valley County. Larvae one-third to fully grown in Grant County. (Brandvik). WYOMING - Larvae cutting off corn plants in 10-acre field near Lingle, Goshen County. Field treated. (Skelton). Larvae ranged 0-3 per square foot in alfalfa of Converse, Niobrara, and Weston Counties. Niobrara is new county record. (Parshall). IDAHO - New planting of barley up to 6 inches tall, 40 percent destroyed at Bancroft, Caribou County, May 21. (Alldaffer). NEVADA - Several alfalfa fields in Orovada, Humboldt County, to be treated to prevent damage. (Sebbas).

ARMYWORM (Pseudaletia unipuncta) - VIRGINIA - Adults moderate in Montgomery County light trap. (Pienkowski, May 14). MARYLAND - First larvae of season at Hillsboro, Caroline County. Two second instars in lodged barley. Well below normal in small grains this year. (U. Md., Ent. Dept.). ILLINOIS - Larvae averaged 1 per 25 sweeps in southern half of State. Averaged about 1 per 50 linear row feet. (Ill. Ins. Rpt.).

ASTER LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - First adults of season, 15 per 100 sweeps, on winter wheat in Hettinger County. (Brandvik). MINNESOTA - Apparently blown into State previous period. Averaged 12 per 100 sweeps of oats and 1 per 100 sweeps of rye in central and east-central districts. (Minn. Pest Rpt.). WISCONSIN - Noticeable increase May 16 and 19. Populations erratic, vary 0-30 per 100 sweeps depending on site and host. Highest generally in rye and lowest in oats. Counts per 100 sweeps averaged 8 in Grant County, up to 30 in Dane County, 4 in Waushara County, and 1-3 in La Crosse and Trempealeau Counties. (Wis. Ins. Sur.).

BUDWORMS (Heliothis spp.) - GEORGIA - Moderate across tobacco belt. (Womack). ALABAMA - Larvae feeding in buds of 5-10 percent of tobacco in 5-acre field in Covington County. Controls applied. (McQueen).

CORN EARWORM (Heliothis zea) - VIRGINIA - Adults light in Montgomery County light trap. (Pienkowski, May 14). SOUTH CAROLINA - Eggs noted on beans in Richland County. (Thomas). GEORGIA - Moderate on soybeans and moderate on experimental planting of sunflowers in Tift County. (Todd, May 17). Heavy on corn, damage moderate on peas, in same county. (Chalfant). FLORIDA - Larvae infested strawberry fruits at farm near Raiford, Bradford County, May 15. (Hetrick). Only few fruits infested. (Fla. Coop. Sur.). ALABAMA - Small to half-grown larvae on 3-15 percent of waist-high corn in several large fields in Henry and Houston Counties. (McQueen). ARKANSAS - Appears lighter than normal for time of year. Survey negative in many fields while 1-4 larvae per 100 sweeps found in some fields. No larvae found in Desha County. Light traps failed to take moths that gave rise to few first-generation larvae. First moths in light traps this year were 3 at Hope, Hempstead County, May 17, 19, and 20. (Boyer et al.). OKLAHOMA - First larvae of season on alfalfa in Tulsa and Muskogee Counties. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Trace in seedling corn in southwest area. (Brooks). OKLAHOMA - Ranged 25-30 per whorl in small sorghum plants in Caddo County. Winged forms light on 12 to 24-inch corn in Tulsa and Muskogee Counties. (Okla. Coop. Sur.). TEXAS - Reported on grain sorghum from central areas and Brazos, Burleson, Hill, Jackson, and several other counties. (Green).

GREENBUG (Schizaphis graminum) - TEXAS - During week ending May 16, active on grain sorghum in Blacklands area; light activity noted in Rolling Plains and southern areas. Currently reported on sorghums in Maverick, Uvalde, Zavala, Dimmit, Webb, Bee, San Patricio, and Refugio Counties. Medium to heavy on grain sorghum at Eagle Pass, Maverick County; controls applied. Infested grain sorghum in Bell and Bastrop Counties. Detected on grain sorghum up to 6 inches in Pecos County and on red top cane in Kinney County. Reported on emerging grain sorghum in Lubbock and Crosby Counties, and on Johnson grass in Potter and Randall Counties in panhandle area. (Deer et al.). OKLAHOMA - Ranged 1-5 per plant on small sudex plants in Alfalfa County. Averaged less than 1 per linear foot in volunteer sorghum in Beckham County. (Okla. Coop. Sur.). KANSAS - None found on

wheat in southwest and west-central areas. (Brooks). Trace (1-3 per 25 sweeps) in wheat in Barton, Stafford, and Reno Counties. Reported on seedling sorghum in Montgomery and Cowley Counties. Infestations apparently present in most fields. No damage or population estimates available. (Simpson). COLORADO - Appearing on wheat in Cheyenne and Kit Carson Counties; up to 100 per 100 sweeps (Johnson). WISCONSIN - Few appeared in oats in Spring Green area. None detected in central or west-central counties. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - VIRGINIA - One per 100 sweeps on birdsfoot trefoil in Montgomery County. (Plenkowski, May 15). OHIO - First adult noted in Wayne County at Wooster May 17. (Flessel). Adults should increase in southern counties. (Richter). ILLINOIS - Averaged 95 per 100 sweeps in alfalfa in nearly all sections. (Ill. Ins. Rpt.).

POTATO PSYLLID (*Paratriozia cockerelli*) - COLORADO - Adults 0-2 per 100 sweeps in potato fields at Gilcrest, Weld County, where systemics not applied. (Urano).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - SOUTH DAKOTA - Eight per 100 sweeps on alfalfa east of Spearfish, Lawrence County. (Jones, Walstrom). WYOMING - Nymphs and adults 4 per 100 sweeps in one alfalfa field of Weston County. This is new county record. None in alfalfa checked in Niobrara and Converse Counties. (Parshall).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - VIRGINIA - Moth emergence behind schedule; only 2 moths collected in light trap to May 14 on Eastern Shore. (Hofmaster). MARYLAND - Adults emerging in eastern and southern counties. Pupation 60-90 percent in corn stubble in Talbot, Queen Annes, and Caroline Counties. Adult emergence 10 percent. Pupation appears retarded due to cool spring. (U. Md., Ent. Dept.). ILLINOIS - Nearly 100 percent pupation in southern section; emergence beginning. Pupation 20 percent in central section, near 10 percent in northern section. (Ill. Ins. Rpt.). WISCONSIN - About 43 percent of larvae pupated at Mazomanie. (Wis. Ins. Sur.). MINNESOTA - First pupation in Sherburne County averaged 54 percent in standing corn, much lower in fields disked or seeded down with small grain. No pupation in heavier soils of Wright and Hennepin Counties. (Minn. Pest Rpt.). IOWA - First pupae collected on May 13; 26 percent pupation May 16 with 251 day degrees. (Iowa Ins. Inf.). NEBRASKA - Pupation about 24 percent in 12 fields surveyed in Hall County May 20. (Hill, Short). KANSAS - First adults of season collected May 16 in blacklight trap in Wyandotte County. (Simpson).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - VIRGINIA - Adults averaged 1 per 5 plants in 2 fields of early corn in Pittsylvania County. (W.A. Allen, May 13). MARYLAND - Increasing rapidly on Eastern Shore. Adults 1-4 per plant in many fields. (U. Md., Ent. Dept.). NEW JERSEY - Feeding remains heavy on sweet corn at Lumberton and Medford. Continued controls advised. (Ins.-Dis. Newsltr.).

YELLOW SUGARCANE APHID (*Sipha flava*) - TEXAS - Activity reported on grain sorghum from Collin, Fannin, Lamar, Delta, Hunt, Wilbarger, Wichita, Foard, Haskell, Stonewall, Jones, and Shackelford Counties. Heaviest in Foard and Jackson Counties. (Boring et al., May 16). Light in Dallas and Denton areas of Dallas and Denton Counties. (Turney). OKLAHOMA - Ranged up to 8 per leaf on lower leaves of 50 percent of corn checked in Tulsa and Muskogee Counties. Damaging small sorghum plants in north-central, northeast, and east-central areas. (Okla. Coop. Sur.).

## SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OHIO - Adults and young first-generation nymphs low on wheat past 2 weeks. (Richter). WISCONSIN - Averaged up to 600 per 100 sweeps on rye in some locations; less than 10 per 100 sweeps in oats, highest in taller oats. Parasitism low in Waushara and Trempealeau Counties. (Wis. Ins. Sur.). MINNESOTA - Averaged 15 per 100 sweeps of rye and trace to 60 per 100 sweeps of oats in central and east-central districts. (Minn. Pest Rpt.). NORTH DAKOTA - Alate and apterous forms 8 per 100 sweeps on 6 to 8-inch rye in Richland, Ransom, and Sargent Counties. (Brandvik, May 16). SOUTH DAKOTA - Counts in 40 random row feet: 1 alate and 2 nymphs on 2-leaf spring wheat May 12 at Dry Lake, Hamlin County, and 2 alates and 9 nymphs on 4-leaf oats May 20 in Clay County. (Kieckhefer). KANSAS - Ranged 5-12 per 25 sweeps on wheat in Barton, Stafford, and Reno Counties. (Simpson). CALIFORNIA - Medium on wheat in Zamora, Yolo County. (Cal. Coop. Rpt.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - SOUTH DAKOTA - Economic on winter wheat near Okaton, Jones County, and at Stanford, Jackson County. Severe damage evident in some spots. (Calkins).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Larvae 35 percent pupated in spring plowed wheatfield in Oliver County; mortality 20 percent. (Brandvik).

BROWN WHEAT MITE (Petrobia latens) - SOUTH DAKOTA - First observed in Butte County May 15. Infested several thousand acres of winter wheat in western area. Known areas of infestation included fields near Newell, Butte County; Hereford and Elm Springs, Meade County; and in Harding County. Severe enough (at least 20-25 per plant) to yellow and mottle wheat. Controls applied. Minimum of 5,000 acres sprayed in one location. (Kantack). COLORADO - Up to 500 per 100 sweeps of wheat throughout northeastern area. (Johnson).

## TURF, PASTURES, RANGELAND

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - NEVADA - First-instar to half-grown larvae medium on desert peach (Prunus andersoni) and bitterbrush (Purshia tridentata) in Jacks Valley, Douglas County. (Bechtel, Martinelli).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Cooperative survey in Whatcom County April 21-30 negative. (McCue et al.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VERMONT - Adults averaged 10-15 per 100 sweeps, 10 percent of stems with eggs. No hatch reported. (Nielsen, May 19). NEW HAMPSHIRE - Infested occasional alfalfa tip. Up to 40 adults per 100 sweeps at New Boston, Hillsborough County, and at Kensington, Rockingham County. (George, Sutherland). NEW YORK - Low, 7 larvae found in Ulster County. (N.Y. Wkly. Rpt., May 19). NEW JERSEY - Present statewide; very few growers applied or intend to apply spray before first cutting. Larvae 900-1,600 (average 1,250) per 100 sweeps in 2 southern fields May 20; tip injury 30-65 percent. (Ins.-Dis. Newsltr.). MARYLAND - Pupation underway in central counties. (U. Md., Ent. Dept.). OHIO - Egg deposition passed peak throughout State. Larvae abundant in untreated fields; ranged 0-15 per terminal, averaged 4-6. Feeding damage in southwestern areas over 50 percent, most fields 70-80 percent. Larvae 20+ per sweep in many unsprayed fields. Very few prepupal cocoons observed in Wayne County (Flessel) and at Ripley in Brown County. In Medina County, larval damage nearing 50-75 percent in unsprayed fields; less than 10 percent in sprayed fields. (Thoburn). In Wayne County, damage in untreated fields 50-75 percent, 25 percent in sprayed fields. (Glass). MICHIGAN - Adults and eggs abundant in St. Clair, Bay, and Newaygo Counties and southward. Hatch delayed by cool weather. (Ruppel, May 19). Bay and Newaygo new county records. (PPC). INDIANA - Tip feeding ranged 20-50 percent. Larvae ranged 500-1,000 and adults averaged 10 per 100 sweeps in northeast district. Controls warranted in many fields. In northwest district, adults active and ranged 76-320



per 100 sweeps during day sampling. Larvae ranged 80-1,500 per 100 sweeps (mostly second instars). Light tip feeding ranged 0-40 percent (average 15). (Hintz, Huber, May 16). ILLINOIS - Larvae leveling off in southern areas, building up in east, central, and west districts. Larval averages per 100 sweeps (and percent tip feeding) by district: West-southwest 2,450 (53), east-southeast 4,725 (78), central 882 (28), west 776 (23). (Ill. Ins. Rpt.). NORTH DAKOTA - Adults active, 1 per 100 sweeps, on 4 to 6-inch alfalfa in Oliver County. (Brandvik). SOUTH DAKOTA - Adults 8 per 100 sweeps in alfalfa east of Spearfish, Lawrence County. (Jones, Walstrom). IOWA - Larvae collected in Washington, Jackson, and Dubuque Counties May 22 for new county records. Infestations very light. Larvae 0-8 per 10 sweeps in Muscatine and Scott Counties. (Iowa Ins. Sur.). MISSOURI - Adults taken in Caldwell County May 22 for a new county record. (Munson). SOUTH CAROLINA - Remains heavy in all fields. Resistant varieties of alfalfa observed in Newberry County and from sweep samples, estimated about 50 percent less weevil population. (Thomas). ARKANSAS - Peak passed in northeastern area. Weevils per 10 sweeps in untreated check plots in Mississippi County dropped from 70-80 to 20-30. Adults outnumber larvae in untreated plots while larvae outnumber adults in treated plots. (Dumas).

KANSAS - Alfalfa weevil averaged 1 per 50 sweeps in alfalfa in Seward County for new county record. Larvae averaged 50 per 10 sweeps in alfalfa field in Scott County. Most larvae small, no adults found. (Brooks). TEXAS - Larvae collected on alfalfa from Fort Bend County identified by R.E. Warner and D.M. Anderson. Adults collected in Dallas, Ellis, Rockwall, Kaufman, Cooke, and Collin Counties April 28-29 identified by H.R. Burke. These are new county records. (Green). COLORADO - Increasing on northeastern area alfalfa; larvae 0-630 and adults 0-60 per 100 sweeps. (Rothman, Johnson). WYOMING - Adults ranged 0-70 per 100 sweeps in alfalfa of Converse, Niobrara, and Weston Counties. Averages per 100 sweeps by county: Converse 35 adults, 2 larvae; Niobrara 1 adult, no larvae; Weston 2 adults, 1 larva. Alfalfa 6-15 inches high. (Parshall). NEVADA - Larvae and damage increasing rapidly in west-central counties, controls applied. Larvae per sweep ranged 80-100 in Churchill County, 20-45 in Douglas County, 40-60 in Pershing County, 20-150 in southern Washoe County. Infestations about double previous week and damage more than doubled due to increased numbers and larger larval size. (Arnett et al.). From central Lincoln County north through White Pine County adults averaged 1-2 per sweep, larvae 1-10 per sweep; many eggs present in various stages of development. Adults mating and many gravid females present. (Heringer).

CLOVER LEAF WEEVIL (Hypera punctata) - OHIO - Larvae on alfalfa about 3 per tip in southern area. (Richter).

CLOVER HEAD WEEVIL (Hypera meles) - MISSOURI - Adults collected from red clover in Saline and Pettis Counties May 20 for new county records. (Munson).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MISSOURI - Collected from alfalfa in Caldwell County May 22 for new record. (Munson).

A WEEVIL (Sitona scissifrons) - WISCONSIN - Averaged 1-2 per sweep in central and west-central alfalfa. (Wis. Ins. Sur.).

Alfalfa Pest Survey in Massachusetts - Survey conducted May 13 by Department of Entomology, University of Massachusetts, in 5 alfalfa fields in Hampshire County. Average counts per 100 sweeps as follows: Hypera postica (alfalfa weevil) - adults 5.4, larvae 2.6; Acyrtosiphon pisum (pea aphid) 7.4; Lygus lineolaris (tarnished plant bug) 10; Sitona hispidulus (clover root curculio) 4.2; parasitic Hymenoptera 19.6. (Miller).

A BLISTER BEETLE (Lytta cyanipennis) - WASHINGTON - Reported causing 10 percent damage to 20 acres of alfalfa May 15 at Quincy, Grant County. (Foeppl, Retan).

EUROPEAN CLOVER LEAF TIER (Mirificarma formosella) - CALIFORNIA - Modified Frick trap baited with hexalure (pink bollworm sex lure) placed in known infested field in Lincoln, Placer County, yielded 40 males and 3 females. (Cal. Coop. Rpt.).

PEA APHID (*Acyrtosiphon pisum*) - MINNESOTA - Ranged 150-200 per 100 sweeps of alfalfa in central and east-central districts. (Minn. Pest Rpt.). INDIANA - Light, 700-2,500 per 100 sweeps in northwest area alfalfa; 25-30 percent parasitized. (Huber, May 16). IOWA - Ranged 10-60 per 10 sweeps in Washington, Jackson, Dubuque, Muscatine, and Scott Counties. (Iowa Ins. Sur.). OKLAHOMA - Ranged 30-300 per 10 sweeps in alfalfa in Tulsa, Washington, Muskogee, Wagoner, Le Flore, and Tillman Counties. Averaged 1,500 per square foot in Austrian Winter peas in Tillman County. (Okla. Coop. Sur.). WYOMING - Adults and nymphs ranged 10-150 (averaged 76) per 100 sweeps in alfalfa in Converse, Niobrara, and Weston Counties. About 8 percent winged forms in one field in Converse County. (Parshall). WASHINGTON - Less than 5 per 25 sweeps in most fields at Touchet, Walla Walla County. (Featherston).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - IOWA - Ranged less than one to 6 spittle masses per 10 stems on alfalfa in Washington, Jackson, Dubuque, Muscatine, and Scott Counties. (Iowa Ins. Sur.). MARYLAND - Third and fourth instars ranged 10-40 per 100 sweeps of clover in Queen Annes, Caroline, and Dorchester Counties. (U. Md., Ent. Dept.).

LYGUS BUGS (*Lygus* spp.) - MICHIGAN - *L. lineolaris* (tarnished plant bug) increasing in alfalfa. Counts per 200 sweeps by county as follows: Monroe 186, Lenawee 202, Washtenaw 74, Oakland 86, Wayne 94, and Livingston 114. (Janes, May 19). OKLAHOMA - *L. lineolaris* ranged 4-20 per 10 sweeps in alfalfa in Washington, Tulsa, Wagoner, Muskogee, and Le Flore Counties. (Okla. Coop. Sur.). WYOMING - *Lygus* sp. nymph and adult averages per 100 sweeps of alfalfa by county: 30 in Converse, 16 in Niobrara, 14 in Weston County. (Parshall).

VETCH BRUCHID (*Bruchus brachialis*) - IDAHO - Populations, apparently migrants, ranged 3-4 and occasionally more per sweep along margins of rape seed fields in Lewiston area, Nez Perce County, May 23. In middle of fields about 1 per sweep. (Allison).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - GEORGIA - Ten overwintering adults collected from traps May 13-19 in Randolph County (Womack); 10 from 3 traps May 21-22 in Spalding County (Beckham). ALABAMA - Overwintered weevils heavy on 2 to 7-leaf cotton last 7 days. Highest live weevil counts per acre by county: Henry 1,200, Monroe 100, Covington 975, and Autauga 700. (McQueen). MISSISSIPPI - Live weevils found on 15 acres of cotton in 4 to 5-leaf stage in Yazoo County. Controls applied. (Dinkins). Collected 68 weevils in 28 sex lure traps in delta counties; total to date 191. (Pfrimmer et al.). LOUISIANA - In Madison Parish, from 17 winged traps near hibernation sites total of 426 weevils collected to date. Collected 46 weevils from 145 winged traps on isolated island in Mississippi River; total to date 1,706. From 10 winged traps near hibernation sites and checked daily, 14 weevils taken; total to date 55. Totals from all winged traps in Madison Parish 2,207. (Cleveland et al.). TEXAS - Light in Bee County. Heavy migrations noted moving into fields in eastern Live Oak and western San Patricio Counties. Large numbers of weevils reported in pheromone traps in Stonewall and Wilbarger Counties. (Green, May 16). Appearing along Rio Grande and in fields near some brush lines in Rio Grande Valley. Appearing in all fields in Tynan area, Bee County. Some overwintered weevils reported moving into fields in Jim Wells County. First overwintered boll weevils detected on pheromone traps in northeast Glasscock County May 12. No overwintered weevils captured on traps in Martin County to date. (Deer, Neeb). In 2 of 4 untreated cotton fields in McLennan and Falls Counties, averaged 18 per acre, ranged 0-250. In 18 of 39 untreated fields, averaged 125 per acre, ranged 0-656. Collected on flight screens 3, total to date 66. In McLennan County hibernation sites, 24 weevils in wing traps, total to date 1,006. (Cowan et al.).

**BOLLWORMS (*Heliothis* spp.)** - GEORGIA - Moderate numbers feeding in terminals of young cotton plants in Turner County. (Womack, May 17). ALABAMA - Small larvae and eggs light on 4 to 8-leaf cotton in Henry, Covington, and Houston Counties. Some ragging of young leaves but no economic damage. (McQueen). MISSISSIPPI - Collected 699 moths in 55 sex-lure traps in delta counties; total to date 1,006. (Pfrimmer et al.). TEXAS - Eggs and/or larvae collected on native hosts. Twenty larvae previously collected on native hosts identified as *H. zea*. Total to date on all hosts: 184 *H. zea* and 2 *H. virescens*. First *H. virescens* moth in light trap in McLennan and Falls Counties. (Cowan et al.). *H. zea* and *H. virescens* larvae in most fields in Rio Grande Valley; damage negligible. Light terminal damage reported from Nueces and Jim Wells Counties. (Deer).

**COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*)** - FLORIDA - Adults collected from cotton at Vero Beach, Indian River County, April 8 by F. Saba. This is new State record. (Fla. Coop. Sur.).

**COTTON APHID (*Aphis gossypii*)** - SOUTH CAROLINA - Numerous and severely damaging on seedling cotton in Florence County. (Sparks). ALABAMA - Continues very high on large farm of 4 to 8-leaf cotton in Henry County. Generally light to spotty throughout southern and central areas. Spotty in Washington County. (Estes et al.). TENNESSEE - Present in all cotton fields in western area; conditions favorable for buildup. (Locke). MISSISSIPPI - Moderate on 2 to 3-leaf stage cotton in Pontotoc County. Averaged 20-30 per 20 plants, some leaf damage. (Dinkins). TEXAS - In McLennan and Falls Counties, light in 26 treated fields, medium in 7; and heavy in 5 untreated fields. (Cowan et al.). Light in scattered fields in lower Rio Grande Valley. (Deer, May 16).

**COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*)** - TEXAS - Increasing in some fields in Cameron and Willacy Counties, but over most of Rio Grande Valley, numbers low and remain constant. (Deer, May 16).

**THRIPS** - TEXAS - Increased in McLennan and Falls Counties; light in 5 of 11 treated fields; light in 17, medium in 3, and heavy in 6 of 33 untreated fields. (Cowan et al.). MISSISSIPPI - Low in most cotton fields in Stoneville, Washington County area. (Pfrimmer et al.). GEORGIA - Increasing and crinkling leaves of young cotton plants in southern area. (Womack). ALABAMA - *Frankliniella fusca* (tobacco thrips) and other thrips in all fields examined in southern areas where controls not applied. (McQueen).

#### **TOBACCO**

**TOBACCO FLEA BEETLE (*Epitrix hirtipennis*)** - MARYLAND - Light, 1-2 per plant, on newly set tobacco in Prince Georges County. (U. Md., Ent. Dept.).

#### **SUGARBEETS**

**RED-BACKED CUTWORM (*Euxoa ochrogaster*)** - WASHINGTON - Larval damage about 30-40 percent to 10 acres of sugarbeets May 19 at Wapato, Yakima County. (Landis).

#### **POTATOES, TOMATOES, PEPPERS**

**COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*)** - NEW JERSEY - Continues to feed and lay eggs on tomato transplants in most southern county fields. (Ins.-Dis. Newsltr.). MARYLAND - Adults and second instars heavy on large plantings of potatoes in southern Prince Georges County. Adults troublesome on Eastern Shore. Soil systemic apparently not controlling adults on lower shore. (U. Md., Ent. Dept.). VIRGINIA - Overwintered adults appear more numerous. Egg masses numerous and well distributed but very little hatching occurred at Painter, Accomack County, by May 13. Damage may be severe, especially on untreated tomatoes. (Hofmaster). TENNESSEE - Moderate on Warren County potatoes. (Gordon).

KANSAS - Adults ranged 1 per 5 plants to 2 per plant in commercial potato plantings in Stafford County. In some fields egg masses averaged 1-2 per plant. No larvae found. (Simpson). COLORADO - Adults laid eggs on potatoes at Gilcrest and Platteville, Weld County. (Urano). IDAHO - Adults and larvae damaged about 10 percent of backyard potato planting at Weiser, Washington County, May 15. (Gross). WASHINGTON - First adult in flight at Yakima, Yakima County, May 8, and first eggs on potatoes May 13 at Pasco, Franklin County. (Landis).

EUROPEAN POTATO FLEA BEETLE (Psylliodes affinis) - NEW YORK - Original collection in North America made by J.A. Wilcox during July 1968 at Port of Albany, Albany County. Subsequent collections made at 3 sites in central Albany County and one site at East Durham, Greene County, by J.A. Wilcox and R.W. Flowers. Largest numbers found at East Durham. All collections made from bitter nightshade (Solanum dulcamara). Checks at nearby potato patches negative. It is believed, due to the number of specimens collected and the distance between collection sites, that P. affinis is generally established in this area. The life history of P. affinis is the same as the native potato flea beetle (Epitrix cucumeris), consequently it is not expected to become an important economic pest. It is believed routine control procedures practiced by potato growers in the area to contend with native flea beetles and other pests should control European potato flea beetle. (Wilcox). For original report of European potato flea beetle in North America and background report, see CEIR 18(41):960, 965. (PPC).

SAY STINK BUG (Pitedia sayi) - WASHINGTON - Adults in yellow pan trap at Pasco, Franklin County, May 6. First seasonal record. Important on potatoes in Columbia Basin past few years. (Landis).

#### BEANS AND PEAS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - First adults of season heavily damaged garden bean plantings in southern Prince Georges County. (U. Md., Ent. Dept.) SOUTH CAROLINA - Many egg masses in several counties. Most should hatch in about 7 days and population should begin to increase in all fields. (Thomas). ALABAMA - Overwintered adults increased in home gardens. Over 75 percent of young beans in 2 home gardens in Henry County had one or more beetles with egg laying just beginning. (McQueen).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Increased on peas in Sussex County with some counts averaging over 10 per 10 sweeps. (Burbutis). MARYLAND - Increasing on 50 acres of peas near Vienna, Dorchester County. (U. Md., Ent. Dept.). IDAHO - None found in Nez Perce County peas. (Allison).

#### COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - GEORGIA - Larvae heavy on collards, turnips, and cabbage in Tift County. (Chalfant).

YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma) - ALABAMA - Larvae unusually heavy, defoliated turnips in home garden in Greene County. Damaging populations usually farther south in coastal counties. (Johnson et al.). This is a new county record. (PPC).

CABBAGE CURCULIO (Ceutorhynchus rapae) - VIRGINIA - Numerous reports of damage to cabbage on Eastern Shore; immature forms feeding in midribs and stems. (Hofmaster).

CABBAGE MAGGOT (Hylemya brassicae) - CALIFORNIA - Larvae heavy in turnip roots in Guadalupe, Santa Barbara County. (Cal. Coop. Rpt.).

## GENERAL VEGETABLES

ASPARAGUS BEETLES (*Crioceris* spp.) - NEW JERSEY - *C. asparagi* (asparagus beetle) becoming scarce on asparagus. *C. duodecimpunctata* (spotted asparagus beetle) increasing sharply in many cutting fields. (Ins.-Dis. Newsltr.).

SWEETPOTATO FLEA BEETLE (*Chaetocnema confinis*) - MARYLAND - Adults 2-4 per 10 plants on newly set sweetpotatoes near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

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## HAWAII INSECT REPORT

New State Records - Thirty larvae of a DERMESTID BEETLE (*Trogoderma inclusum* LeConte) taken from trogotrap in feed store in Honolulu, Oahu, on February 12, 1969, during routine survey for khapra beetle (*T. granarium*). *T. inclusum* is pest of stored grains, primarily seeds, on the mainland U.S. Reported also from England and Italy. Determination by C.J. Hansel. (Olson, Wong).

Cotton - PINK BOLLWORM (*Pectinophora gossypiella*) larvae heavy on wild cotton inspected along roadsides in Waianae, Oahu. Over 50 percent of bolls infested with one or more larvae. (Davis, Bartlett, Funasaki).

General Vegetables - CELERY APHID (*Brachycolus heraclei*) medium on 0.25 acre of celery in Kaumakani, Kauai. First report on Kauai. (Sugawa). LEAF MINER FLIES (*Liriomyza* spp.) continue to increase in green onion fields on Oahu. Heavy in few fields, medium in many fields. BEET ARMYWORM (*Spodoptera exigua*) generally light at Waimanalo and Koko Head, trace in Waianae and Kahuku. (Funasaki). GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) generally heavy on snap beans, eggplants, cucumbers, and tomatoes in Waianae, Waimanalo, and in scattered plantings of one or more of these crops in other areas on Oahu. Heavy on Italian squash in Koko Head, pumpkin in Pearl City, and bittermelon in Pupukeya. (Sato, Yamamoto).

Fruits - ORIENTAL FRUIT FLY (*Dacus dorsalis*) pupae light in half-ripe to ripe papayas and heavy in half-ripe to ripe guavas at experimental farm in Kapoho, Hawaii; 124 papayas yielded 1,762 pupae or 14 per fruit; 610 guavas yielded 34,668 pupae or 57 per fruit. Parasitism by *Opius vandenboschi* and *O. oophilus* (braconids) heavy in guavas. (Hawaiian Fruit Fly Investigations, USDA). BLACK CITRUS APHID (*Toxoptera aurantii*) heavy on terminal foliage of recently pruned mango trees in Koloa, Kauai. Larvae and adults of a lady beetle (*Platyomus lividigaster*) abundant and preying on aphids. (Sugawa).

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## CHANGE IN SCIENTIFIC NAME

### Carpocapsa a Synonym of Laspeyresia

Recent authorities (i.e., Obraztsov, 1959, p. 188; Hannemann, 1961, p. 92) are of the opinion that Carpocapsa Treitschke, 1830 is a junior synonym of Laspeyresia Hübner, 1826. Thus, the present correct combination for the codling moth, Carpocapsa pomonella (L.), should be Laspeyresia pomonella (L.).

### References

Hannemann, H.J. 1961. Die Tierwelt Deutschlands. 48 Teil. Klein-schmetterlinge oder Microlepidoptera 1. Die Wickler (s. str.) Tortricidae. 233 pp., 22 pls.

Obraztsov, N.S. 1959. Die Gattungen der Palaearktischen Tortricidae. II Die Unterfamilie Olethreutinae. Tijdschr. v. Ent., 102(2):175-216.

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## DECIDUOUS FRUITS AND NUTS

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - WASHINGTON - First larval entries in peach shoots May 10 at Parker Heights, Yakima County. (Johnson). COLORADO - Adults light around Mesa County peaches; mostly 1-2 per 5 traps with maximum of 8 per trap. (Sisson). NEW JERSEY - "Flagged" terminals in abandoned peach orchard near Elm, Camden County. (Ins.-Dis. Newsltr.).

**CODLING MOTH** (*Laspeyresia pomonella*) - OHIO - First hatch May 12-16 or at about petal fall. Hatch peaked May 18 and will continue another 7-14 days in Wayne County. (Forsythe).

**RED-BANDED LEAF ROLLER** (*Argyrotaenia velutinana*) - MICHIGAN - Egg laying continues in Van Buren County; about 5-10 percent hatched. (Janes, May 19).

**PLUM CURCULIO** (*Conotrachelus nenuphar*) - ALABAMA - Heavier than normal on plums and peaches throughout southern and central areas. Fruits 25-100 percent infested on many unprotected wild and cultivated trees. (Bagby et al.). NEW JERSEY - Found 7 in 10 minutes May 20 at Glassboro, Gloucester County. (Ins.-Dis. Newsltr.).

**A ROVE BEETLE** (*Pelecomalium testaceum*) - WASHINGTON - Very abundant, damaging apple blossoms May 13 at Bellingham, Whatcom County. Determined by M.H. Hatch. (McCue, et al.).

**PEAR PSYLLA** (*Psylla pyricola*) - OREGON - First summer-generation adults appearing in Hood River County. (Peifer). WASHINGTON - First summer-generation adults appearing May 19 at Wenatchee, Chelan County. (Burts). MICHIGAN - Beginning fifth instar in Berrien County. (Janes, May 19).

**ROSY APPLE APHID** (*Dysaphis plantaginea*) - NEW JERSEY - Very heavy in unsprayed apple orchards. (Ins.-Dis. Newsltr.). CONNECTICUT - Few at New Haven, New Haven County; some apple leaves curling. (Kollas, May 20). OHIO - Small colonies on Wayne County apples May 16. (Forsythe).

**APHIDS** - COLORADO - *Myzus persicae* (green peach aphid) foliar damage heavy in unsprayed or poorly sprayed peach orchards in Mesa County; orchards with good spray program unaffected. (Sisson). WASHINGTON - *Brachycaudus persicae* (black peach aphid) winged and wingless forms on peach trees May 12 at Yakima, Yakima County. (Powell). First *Aphis pomi* (apple aphid) *alatae* at Yakima, Yakima County, May 10; migrants in flight May 15 (Landis et al.); moderate on lower leaves of apples May 12 at Greenbluff, Spokane County (Retan). First *Rhopalosiphum fitchii* (apple grain aphid) winged migrants from apple May 16 at Yakima, Yakima County. (Johnson).

**A CHERRY FRUIT FLY** (*Rhagoletis indifferens*) - OREGON - Adults emerged May 14 at The Dalles, Wasco County. (Thienes). IDAHO - First adults of season May 19 at Weiser, Washington County. (Hackler).

**EUROPEAN APPLE SAWFLY** (*Hoplocampa testudinea*) - CONNECTICUT - Active at Storrs, Tolland County. Eggs laid in some developing apple fruit. (Kollas, May 20).

**EUROPEAN RED MITE** (*Panonychus ulmi*) - WASHINGTON - First-generation eggs on Red Delicious apples at 50 percent bloom May 6 at Selah, Yakima County. (Gregorich). OHIO - Hatch about 75 percent complete. (Forsythe). NEW JERSEY - Very light in most apple orchards. (Ins.-Dis. Newsltr.). NEW YORK - Nymphs noted May 14 at Crown Point, Clinton County. (N.Y. Wkly. Rpt.). CONNECTICUT - Scarce except on unsprayed apple trees at New Haven, New Haven County. (Kollas, May 20). RHODE ISLAND - Most winter eggs hatched May 4 at Kingston, Washington County. (Field). NEW HAMPSHIRE - First generation laying eggs at Stratham, Rockingham County. (Sutherland).

A SPIDER MITE (*Tetranychus mcdanieli*) - WASHINGTON - Moderate to heavy on suckers and lower leaves of apples in Spokane, Yakima, and Chelan Counties. (Retan et al., May 16).

PECAN NUT CASEBEARER (*Acrobasis caryae*) - TEXAS - Moths emerged from pupae on bands and eggs laid in counties south of line from Brazos to Milam to Kerr and Val Verde Counties; also progressed past week in San Saba, Hood, and Young Counties. Spraying began in Guadalupe, De Witt, and Gonzales County area May 13-14 and later in Bastrop, Washington, and Milam Counties. Eggs laid as of May 19 in Limestone County. (Green).

OMNIVOROUS LEAF TIER (*Cnephasia longana*) - OREGON - Unusually heavy this spring in Willamette Valley. Noted in filbert orchards. (Every).

PHYLLOXERAS (*Phylloxera* spp.) - TEXAS - *P. devastatrix* (pecan phylloxera) heavy in Dallas, Denton, Ellis Counties. (Green). OKLAHOMA - *Phylloxera* spp. heavy on Cotton County pecans; moderate in Bryan County. (Okla. Coop. Sur.). ARKANSAS - *P. devastatrix* galls heavy on leaf stems in old 65-acre pecan orchard in Sumter County and on fewer trees in Dallas County. (Bagby et al.).

BLACK PECAN APHID (*Myzocallis caryaefoliae*) - ALABAMA - Extremely heavy on 15-foot seedling tree at Auburn, Lee County. Scattered infestations light on many trees in Lee, Dallas, and Sumter Counties. (Leeper et al.) OKLAHOMA - Up to 35 per leaflet on Payne County pecans; moderate on Washington County pecans. (Okla. Coop. Sur.).

PECAN LEAFROLL MITE (*Aceria caryae*) - OKLAHOMA - Light on pecan at Stillwater, Payne County. (Okla. Coop. Sur.).

#### CITRUS

Citrus Insect Situation in Florida - Mid-May - CITRUS RUST MITE (*Phyllocoptura oleivora*) infested 79 (norm 55) percent of groves; 57 (norm 35) percent economic. Increased greatly, further increase expected. In high range on leaves, highest in 18 years of record for mid-May. Much above normal on fruit; will soon be at high level. Highest districts north, west, south, and central. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 36 (norm 53) percent of groves; 16 (norm 29) percent economic. Still below normal and in low range statewide. Heavy in 8 percent of groves in scattered locations. Increase expected through June. Highest districts central, north, and west. CITRUS RED MITE (*Panonychus citri*) infested 41 (norm 52) percent of groves; 13 (norm 26) percent economic. Below normal and at low level statewide. Slight increase expected and heavy infestations likely to develop in about 5 percent of groves. Highest districts west and north. SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) infested 16 percent of groves; 7 percent economic. Increased and near average May level of past 7 years. Scattered heavy infestations may be expected into June in groves not treated with miticide. GLOVER SCALE (*Lepidosaphes gloverii*) infested 81 (norm 82) percent of groves; 12 (norm 27) percent economic. Slightly below average and in moderate range. Slight increase expected. Highest districts south, east, and north. PURPLE SCALE (*L. beckii*) infested 82 (norm 81) percent of groves; 6 (norm 11) percent economic. Below normal and at moderate level. Increase expected but very few infestations will be severe. YELLOW SCALE (*Aonidiella citrina*) infested 76 (norm 65) percent of groves; 7 (norm 9) percent economic. Slightly more abundant than normal but only few infestations heavy. Little change expected from current moderate level. Highest districts north and south. CHAFF SCALE (*Parlatoria pergandii*) infested 50 (norm 68) percent of groves; 2 (norm 13) percent economic. Expected to continue low and subnormal despite slight increase. BLACK SCALE (*Saissetia oleae*) infested 21 (norm 32) percent of groves; 3 (norm 13) percent economic. Summer increase has started and will continue into July. Current population below normal and in low range. Highest districts east and central. An ARMORED SCALE (*Unaspis citri*) infested 20 percent of groves; moderate or heavy in 7 percent. Will continue to spread. MEALYBUGS infested 16 percent of groves; 2 percent economic. Still low but expected rapid increase will cause

heavy infestations in scattered groves. WHITEFLIES infested 71 percent of groves; 10 percent economic. Larval forms near normal. Expected to increase and enter high range. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Infested tangerines at Holtville, Imperial County. (Cal. Coop. Rpt.).

CARMINE SPIDER MITE (Tetranychus cinnabarinus) - CALIFORNIA - Infested tangerines at Holtville, Imperial County. (Cal. Coop. Rpt.).

#### SMALL FRUITS

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Unusually heavy in Willamette Valley this spring. Noted in cranberries and strawberries; more attention given to controls on strawberries. (Every).

BLACK-HEADED FIREWORM (Rhopobota naevana) - NEW JERSEY - Active on cranberry bogs where winter flood removed in April. (Ins.-Dis. Newsltr.).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Eggs on Burlington County blueberries May 20. (Ins.-Dis. Newsltr.).

GRAPE FLEA BEETLE (Altica chalybea) - OHIO - Adults heavy, about 5 per branch, in vineyard in northern Montgomery County. On grapes in Fayette County (Hamrick) and other parts of State (Still).

A WEEVIL (Brachyrhinus rugosostriatus) - CALIFORNIA - Medium on strawberries at Tulelake, Siskiyou County. (Cal. Coop. Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - CALIFORNIA - Heavy on grapevines in 80-acre planting at Madera, Madera County. (Cal. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Increased on strawberries in southwestern area. (Janes, May 19).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Aerial survey in early April indicated low populations in Mecklenburg and Halifax County area; increase in Campbell County. Aerial surveys showed occasional red-brown tree over State forests in Cumberland, Buckingham, and Prince Edward Counties. Aerial surveys showed low numbers in northern Prince George and Surrey Counties in March 1969 and Louisa County in December 1968. February 1969 survey showed no additional damage in Hanover County where 1968 activity had been of concern. (For. Pest Surv. Rpt.).

FIR ENGRAVER (Scolytus ventralis) - WASHINGTON - Outbreak numbers of prepupae on grand fir at Fields Spring State Park, Asotin County. (Saunders, Barstow).

CHERMIDS (Adelges spp.) - OHIO - A. abietis (eastern spruce gall aphid) hatch complete. Galls forming on 54 percent of Norway spruce trees in 4-acre block May 23. (Campbell). WISCONSIN - A. cooleyi (Cooley spruce gall aphid) hatch underway in southern counties. Some nymphs forming wing pads on Douglas-fir at Middleton, Dane County. Many eggs from stem mothers not hatched. (Wis. Ins. Sur.).

BALSAM TWIG APHID (Mindarus abietinus) - WISCONSIN - Active in stand of balsam Christmas trees in Monroe County May 19. Infested 10-70 percent of new shoots on 90 percent of trees; curling evident. (Wis. Ins. Sur.).

PINE SPITTLEBUG (Aphrophora parallela) - WISCONSIN - Nymphs on old growth of Jackson County Scotch pine May 19. Spittle masses becoming evident. (Wis. Ins. Sur.).



PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WISCONSIN - Hatched at Spring Green, Sauk County; about 40 percent of crawlers exposed on white pine needles. (Wis. Ins. Sur.). NORTH DAKOTA - Eggs averaged 2-3 per spruce needle at Fargo, Cass County. (McBride).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OHIO - Pupation completed on Hamilton County mugho pine May 20. (Kennedy).

AN OLETHREUTID MOTH (Petrova luculentana) - SOUTH DAKOTA - Reared from ponderosa pine collected from De Smet Forest at De Smet, Kingsbury County. This is relatively rare species in State. (McKnight).

A CONIFER SAWFLY (Neodiprion pratti pratti) - VIRGINIA - Generally low across State; defoliation less than 20 percent. Hatching at Farmville, Prince Edward County. (For. Pest Surv. Rpt., Apr.). OHIO - Larvae completely defoliated short-leaf pines as tall as 25 feet. Affected as much as half of trees in many stands. Heaviest in Scioto County; also damaging in Ross and Pike Counties. (Houf).

GEOMETRID MOTHS - MINNESOTA - Paleacrita vernata (spring cankerworm) probably in third and fourth instar. St. Paul municipal crews started spraying for cankerworm May 14. To date, several hundred boulevard trees treated in Randolph to Jefferson and Snelling to Mississippi River area. (Minn. Pest Rpt.). PENNSYLVANIA - Physostegania pustularia larvae heavy on Perry County red maples for third year of heavy defoliation. Expected to be abundant in many central and eastern counties. Some tree mortality and extensive dieback to red maple expected this year. (Pa. For. Pest Rpt., May). NEW JERSEY - Cankerworms very destructive in section of Medford Lakes, Burlington County. Completely defoliated oaks and severely injured many other plants, including valued ornamentals. Extremely heavy along Tuckerton Road bordering Medford Lakes and Medford Township for about 2.2 miles. At least 500 acres in defoliated areas. (Ins.-Dis. Newsltr.).

SADDLED PROMINENT (Heterocampa guttivitta) - PENNSYLVANIA - Surveys completed in 33 areas of Wayne, Monroe, and Lackawanna Counties. Mortality of overwintered pupae 50-90 percent in most areas; unknown dipterous parasite, one of principal causes, emerging from pupal cases since early April. This parasite eliminated defoliation threat at Tobyhanna Military Depot. Defoliation will probably be moderate to heavy in several areas of Wayne and Monroe Counties on beech and sugar maple where parasite low. Moths expected in late May or early June with defoliation from mid-June through July. (Pa. For. Pest Rpt., May).

A TORTRICID MOTH (Croesia semipurpurana) - VIRGINIA - Limited egg survey shows high numbers continuing locally along western boundary from Alleghany and Bath Counties. (For. Pest Surv. Rpt., Apr.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEVADA - Larvae light to heavy on elm, poplar, and willow in southern Washoe County. (Nev. Coop. Rpt.).

CHRYSOMELID BEETLES - MISSOURI - Pyrrhalta luteola (elm leaf beetle) egg masses, 7-112 per square foot, just hatching May 13 on Chinese elm in southeastern area. (Thompson). ALABAMA - Larvae of Chrysomela scripta complex (cottonwood leaf beetles) heavy; partly defoliated many willows along streams and some isolated highway ornamentals. New adults laying eggs. (Henderson et al.). RHODE ISLAND - Plagioderia versicolora (imported willow leaf beetle) adults active May 7 in Providence County. (Hartley). NEW HAMPSHIRE - First P. versicolora adults May 13 at Litchfield, Hillsborough County, and May 15 at Durham, Strafford County. Egg laying started at Durham. (Sutherland).

BARK BEETLES - WISCONSIN - Mating pairs of Hylurgopinus rufipes (native elm bark beetle) in nuptial chambers May 5 in standing elms which died in 1968 in Menominee County. Egg laying underway. Few still hibernating. Noted May 15 in bark of living elms in Winnebago County. Heavy in elms May 6 at Green Bay, Brown County. (Wis. Ins. Sur.). IOWA - Scolytus multistriatus (smaller European elm bark beetle) adult flight imminent. (Iowa Ins. Inf.).

**SAWFLIES - CALIFORNIA** - Tomostethus multicinctus (brown-headed ash sawfly) heavy on Modesto ash trees at Redding, Shasta County. (Cal. Coop. Rpt.). **NEW JERSEY** - Fenusa pusilla (birch leaf miner) common on birch statewide. (Ins.-Dis. Newsltr.). **RHODE ISLAND** - F. pusilla adults active May 4 in Washington County. (Mathewson). **NEW HAMPSHIRE** - F. pusilla adults ovipositing May 10 at Durham, Strafford County, and May 13 at Litchfield, Hillsborough County. (Conklin, Sutherland). Hatching May 16 at Durham. (Conklin).

**PERIODICAL CICADA (Magiccicada septendecim) - VIRGINIA** - Moderate to heavy in Montgomery, Pulaski, Patrick, Wythe, and Alleghany Counties. (W.A. Allen).

#### MAN AND ANIMALS

**SCREW-WORM (Cochliomyia hominivorax) - Total of 15 cases reported in U.S. May 18-24 as follows: TEXAS - Crockett 1, Dimmit 2, Frio 2, Hidalgo 1, Jim Hogg 2, Jim Wells 1, Kimble 1, Live Oak 2, Starr 1, Zavala 1; ARIZONA - Cochise 1. Total of 163 cases reported in portion of Barrier Zone in Republic of Mexico May 11-17 as follows: Sonora 73, Chihuahua 49, Coahuila 18, Nuevo Leon 6, Tamaulipas 17. Total of 10 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 65,080,000; New Mexico 2,340,000; Arizona 8,780,000; California 600,000; Mexico 86,318,000. (Anim. Health Div.).**

**FACE FLY (Musca autumnalis) - CALIFORNIA** - Adults collected from cows and horses in Shasta County May 22 by D. Mace and E. Lusk. This is first report of season and a new county record. Heavy on faces of cattle; causing "weeping" and annoyance. No larvae found. (Cal. Coop. Rpt.). **ILLINOIS** - Averaged 2.6 per animal in southwest district. (Ill. Ins. Rpt.).

**HORN FLY (Haematobia irritans) - GEORGIA** - Heavy on untreated cattle across State. (NoIan, May 17). **TEXAS** - Heavy on cattle in Edwards, Crockett, Pecos, and Kinney Counties. (Neeb). **OKLAHOMA** - Ranged 250-400 per head on cattle in Major and Woodward Counties; averaged 100 per head in Payne County. (Okla. Coop. Sur.). **IOWA** - About 10-15 per head on beef cattle in Story County. Rapid increase expected if no controls used. (Iowa Ins. Inf.). **ILLINOIS** - Average per head by district: Southwest 29.6 and southeast 139.6. (Ill. Ins. Rpt.). **MARYLAND** - First adults of season 30-80 per head on dairy cattle at Beltsville, Prince Georges County. (U. Md., Ent. Dept.).

**A BLACK FLY (Simulium venustum) - NORTH DAKOTA** - Annoyance increased. Heaviest along Red and Sheyenne Rivers in eastern area; about 5,000 flies fed on undersides of horses. (Brandvik, May 16).

**TABANID FLIES - ARKANSAS** - Horse flies heavier than normal, causing concern on Miller County cattle. (Barnes). **ALABAMA** - Adults of Chrysops spp. (deer flies) light; annoying man and horses in low areas of Lee and Macon Counties. (Barwood).

**MOSQUITOES - MINNESOTA** - No significant numbers of Aedes spp. larvae to date at Minneapolis and St. Paul. Bite collections in untreated areas showed some high counts (39 per 5 minutes); A. dorsalis, A. sticticus, and A. excrucians dominant. Rains not heavy enough to produce brood of Aedes. (Minn. Pest Rpt.).

**HARD-BACKED TICKS - WASHINGTON** - Dermacentor andersoni (Rocky Mountain wood tick) numerous in Yakima and Whitman Counties. (Jackson et al., May 16). **COLORADO** - D. andersoni very heavy, as high as 50 per person, in foothills of Larimer County. (Johnson). **OKLAHOMA** - Amblyomma maculatum (Gulf Coast tick) heavy on several cattle herds in Johnston County; mostly in ears. (Okla. Coop. Sur.). **RHODE ISLAND** - D. variabilis (American dog tick) numerous statewide; more so than last year in Providence and Washington Counties May 12. (King, Field). **NEW HAMPSHIRE** - First D. variabilis of season reported at Newmarket, Rockingham County. (Sutherland).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - OHIO - Collected in home in Huron County May 14. Determined by W.J. Gertsch. This is a new State record. (Richter).

#### HOUSEHOLDS AND STRUCTURES

A DERMESTID BEETLE (Novelsis aequalis) - DISTRICT OF COLUMBIA - Nearly full-grown larva found near fur gloves in basement of house, May 21, by H. Sollers-Riedel. Determined by J.M. Kingsolver. Collections from District of Columbia limited to few specimens. Known only from Mexico, Texas, and Maryland. (Sollers-Riedel).

LEAD-CABLE BORER (Scobicia declivis) - CALIFORNIA - Heavy flights swarming on and into new houses at Santa Rosa, Sonoma County. Affected at least 12 structures under construction. (Cal. Coop. Rpt.).

WESTERN DRYWOOD TERMITE (Incisitermes minor) - CALIFORNIA - Medium to heavy in residence at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - VIRGINIA - Hippodamia convergens (convergent lady beetle) moderate; fed on Acyrtosiphon pisum (pea aphid) in Charlotte County red clover. (W.A. Allen, May 14). INDIANA - H. tredecimpunctata and Ceratomegilla maculata adults very abundant, 50-170 per 100 sweeps of alfalfa in northwest district. (Huber, May 16). WYOMING - Adults of unspecified species 1-12 per 100 sweeps on alfalfa in Converse, Niobrara, and Weston Counties. (Parshall). NEVADA - H. convergens most common predator; controlled pea aphid on alfalfa. (Nev. Coop. Rpt.). WASHINGTON - First lady beetle larvae May 16 at Yakima, Yakima County; associated with Rhopalosiphum fitchii (apple grain aphid). (Johnson).

BRACONIDS (Aphidius spp.) - NEVADA - High counts of Aphidius sp. controlled pea aphid in alfalfa fields. (Nev. Coop. Rpt.). WASHINGTON - A. smithi averaged 2 per 25 sweeps of alfalfa May 12 at Touchet, Walla Walla County. Became dominant over other parasites of pea aphid in past 2 years. (Featherston).

A DAMSEL BUG (Nabis sp.) - WYOMING - Adults 0-5 per 100 sweeps on alfalfa in Converse, Niobrara, and Weston Counties. (Parshall).

A BEE FLY (Heterostylum robustum) - WASHINGTON - Heavy in 3 Nomia melanderi (alkali bee) nest sites near Touchet, Walla Walla County; parasite larvae were 6-10 times more numerous than alkali bee prepupae in some soil samples. (Johansen, Eves).

A PHYTOSEIID MITE (Typhlodromus occidentalis) - WASHINGTON - Synchronized with Tetranychus mcDanielli prey in Yakima and Chelan Counties. Found for first time at Greenbluff, Spokane County, where introduced last year. (Gregorich et al., May 16).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL COMPLEX (Anthonomus grandis complex) - ARIZONA - Sterile males placed in 20 traps in Avra Valley and 5 traps in Molino Basin. No weevils collected during April. (PPC West. Reg.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MAINE - Surveys disclosed infestations east to Phippsburg, Sagadahoc County, and 6 towns in Cumberland County. In Casco Bay, 21 of 26 islands found infested. NEW HAMPSHIRE - Survey completed. Total of 80 townships surveyed, 2 infested; 1 site in Henniker Township, Merrimack County, and 3 sites in Moultonboro Township, Carroll County.

CONNECTICUT - Survey negative. RHODE ISLAND - Survey negative. (PPC East. Reg., Apr. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - Adults and larvae light on oats on farm at Ravenswood, Jackson County. Collected by S.A. Moore May 21. Same situation on oats on farm at Gallipolis Ferry, Mason County. Collected by Sissons and Brinker May 21. Both determined by R.E. White. Both are new county records. (PPC). PENNSYLVANIA - Overwintering beetles found in Beaver County April 16. Negative in Crawford, Lawrence, and Mercer Counties. Survey began in York County April 28 and Chester County April 30. (PPC East. Reg.). Following new county records found in May: Jefferson, Centre, Huntington, Somerset, and Cambria. (PPC). OHIO - Eggs appearing statewide on oats and some wheat. Egg deposition reaching peak and expected to continue about 2 more weeks. Eggs 86 and larvae 11 in 3 linear feet of oats at Dover, Tuscarawas County. (Treece). Larval damage up to 10 percent in agronomy plots in Franklin County. (Lyon). Adults 65 per 50 sweeps, few eggs, and no larvae in 20-acre oatfield in Medina County. (Lyon). Larval damage scattered and light in Coshocton County. (Boyle). Larvae in southwestern area generally light. Eggs 20 and larvae 25 per 3 linear feet in Preble County oatfield. (Richter). INDIANA - Adults 0-4 per sweep of oats in northeast district. Hatch beginning in La Porte and St. Joseph County line area. Eggs averaged per linear foot on oats: 40-85 at New Carlisle and 6-8 in area near U.S. Highway 6. Adult activity ceased on wheat; second instars dominant. (Hintz, Shade, May 16). MICHIGAN - Adults averaged 65 and 71 per square foot in 2 Berrien County oatfields; few first instars present. Infestations spotty but widespread across State. (Ruppel, May 19).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Surveys negative during April in Cameron, Hidalgo, Jim Hogg, La Salle, and Webb Counties. (PPC South. Reg.).

A GRASS BUG (Labops hesperius) - IDAHO - Probably this species damaged about half of crested wheat and wild ryegrasses in 30 by 15-mile area in Elmore County; controls required. (Edwards). OREGON - Adults damaged bromegrass, intermediate wheatgrass, pubescent wheatgrass, and orchard grass in Lake and Baker Counties. Much damage to at least 1,000 acres in Baker County. Most of area has been in soil bank land. Infests 400 known acres in Lake County, also in soil bank land for about 10 years. Range areas may be infested. Identified by J.D. Lattin. (Every).

GRASSHOPPERS - NORTH DAKOTA - Hatch light, comparable to last season, in lighter soil areas in Richland County. Ranged 1-18 (averaged 8) first instars per square yard. Egg development ahead of 1968 with 4 percent clear, 13 percent coagulated, 30 percent eyespot, and 53 percent segmented. No desiccated or parasitized eggs. No widespread problem expected this season. (Brandvik, May 16). MINNESOTA - Some hatch and first instars in Sherburne County. Melanoplus bivittatus eggs all segmented to fully formed. Few Camnula pellucida egg pods found; all fully formed with some hatch. M. packardii eggs in eyespot. M. differentialis and M. femurrubrum eggs clear to coagulated. Week of warm weather should cause major hatch of M. bivittatus and C. pellucida in sandy soil areas. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Egg clusters found outside regulated area in Montgomery and Schuylkill Counties. (PPC East. Reg., Apr. Rpt.).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - Second survey of Stilson Canyon completed in April, and inspection of Bidwell Park in Chico, Butte County; all negative. (PPC West. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Trapped 63 on 42 properties in Cameron, Willacy, Hidalgo, Starr, Zapata, and Dimmit Counties during March and early April. Zapata County is new county record. Larvae in grapefruit in Hidalgo County April 16, 17, and 23. No larvae in oranges. (PPC South. Reg.). ARIZONA - Inspections of 117 traps at Yuma, Yuma County, negative in April. (PPC West. Reg.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - In Kern County 2,940 sex-lure traps installed in 3 inspection zones by April 11. In southeastern desert 90 traps operative. Two adults taken in Bard Valley by April 29. None in Palo Verde Valley, Imperial, and Salton Sea areas, Imperial County. In

Coachella Valley, Riverside County, 1,079 traps in operation. First wild moths taken April 18; total of 6 by end of April. (PPC West. Reg.). FLORIDA - Sterile moths released twice weekly; 365,000 released during April in southern area. (PPC South. Reg.).

PISTACHIO SEED CHALCID (Megastigmus pistaciae) - CALIFORNIA - None on sticky boards in 11 north-central counties. (PPC West. Reg., Apr. Rpt.).

WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) - FLORIDA - Limited adult survey in Apopka area of Orange and Marion Counties in April. Adults emerging in heavily infested grove; 10 adults found April 22; 30 adults noted week later. (PPC South. Reg.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Larvae moderate on okra roots in Ben Hill County. (Collier, May 17). VIRGINIA - Several larvae found in infested area of Scott County; 8 larvae recovered in Mecklenburg County. (PPC East. Reg., Apr. Rpt.).

#### INSECT DETECTION

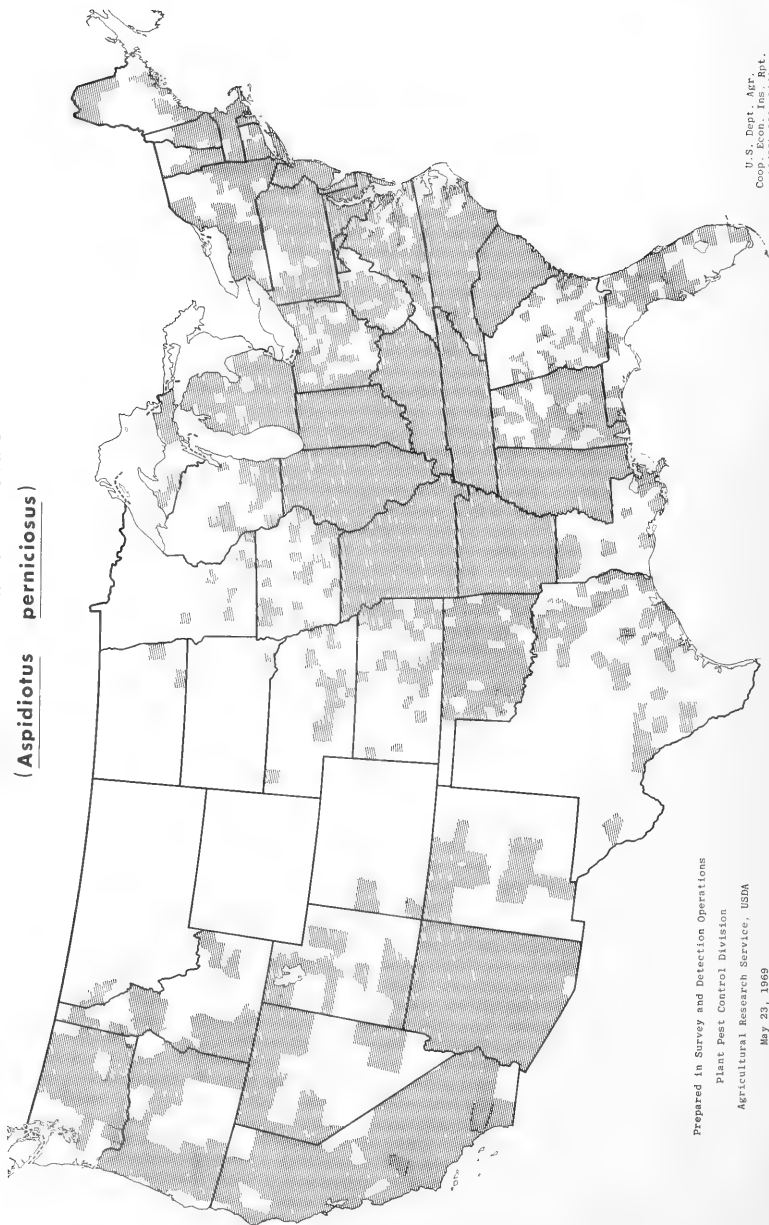
New State Records - COTTON LEAF PERFORATOR (Bucculatrix thurberiella) Indian River County, Florida (p. 379). A DERMESTID BEETLE (Trogoderma inclusum) Oahu Island, Hawaii (p. 381). BROWN RECLUSE SPIDER (Loxosceles reclusa) Huron County, Ohio (p. 387).

New County and Island Records - ARMY CUTWORM (Chorizagrotis auxiliaris) Niobrara County, Wyoming (p. 374). SPOTTED ALFALFA APHID (Therioaphis maculata) Weston County, Wyoming (p. 375). ALFALFA WEEVIL (Hypera postica) Bay and Newaygo Counties, Michigan (p. 376); Dubuque, Jackson, and Washington Counties, Iowa; Caldwell County, Missouri; Seward County, Kansas; Collin, Cooke, Dallas, Ellis, Fort Bend, Kaufman, and Rockwall Counties, Texas (p. 377). CLOVER SEED WEEVIL (Miccotrogus picrostris) Caldwell County and CLOVER HEAD WEEVIL (Hypera meles) Pettis and Saline Counties, Missouri (p. 377). YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma) Greene County, Alabama (p. 380). CELERY APHID (Brachycolus heraclei) Kauai Island, Hawaii (p. 381). FACE FLY (Musca autumnalis) Shasta County, California (p. 386). CEREAL LEAF BEETLE (Oulema melanopus) Jackson and Mason Counties, West Virginia; Cambria, Centre, Huntingdon, Jefferson, and Somerset Counties, Pennsylvania (p. 388). MEXICAN FRUIT FLY (Anastrepha ludens) Zapata County, Texas (p. 388).

#### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 5/20-21, BL - Armyworm (Pseudaletia unipuncta) 3, black cutworm (Agrotis ipsilon) 3, cabbage looper (Trichoplusia ni) 1, corn earworm (Heliothis zea) 1, fall armyworm (Spodoptera frugiperda) 1, granulate cutworm (Feltia subterranea) 17, variegated cutworm (Peridroma saucia) 3, yellow-striped armyworm (Prodenia ornithogalli) 3. KANSAS - Manhattan, 5/18-19, BL - Armyworm 16, wheat head armyworm (Faronta diffusa) 13. Tribune, 5/18, BL - Army cutworm (Chorizagrotis auxiliaris) 1, armyworm 1, wheat head armyworm 4. Wolcott, 5/18-20, BL - Armyworm 7, European corn borer (Ostrinia nubilalis) 2, wheat head armyworm 3. MISSISSIPPI - Stoneville, 5/17-23, 2BL, 61-94° F., precip. 0.86 - Armyworm 2, black cutworm 6, corn earworm 44, granulate cutworm 1, tobacco budworm 2, variegated cutworm 22, yellow-striped armyworm 1. MISSOURI - Fair Grove, 5/15-21 - Armyworm 14, black cutworm 3, European corn borer 7, variegated cutworm 2. OHIO - Wooster, 5/17-22 - Armyworm 46, European corn borer 4, wheat head armyworm 2. TEXAS - Waco, 5/17-23, 65-84° F., precip. 0.43 - Armyworm 10, beet armyworm (S. exigua) 14, black cutworm 2, corn earworm 7, granulate cutworm 15, tobacco budworm (Heliothis virescens) 1, variegated cutworm 21, yellow-striped armyworm 23. WISCONSIN - Madison, 5/18-21, BL - Armyworm 3. WYOMING - Torrington, 5/18-20, BL - Army cutworm 12, wheat head armyworm 3.

**Distribution of San Jose Scale**  
**(*Aspidiotus perniciosus*)**



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Plant Pest Control Division  
Agricultural Research Service, USDA  
May 23, 1969

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ECONOMIC INSECT  
REPORT



*Issued by*

PLANT PEST CONTROL DIVISION  
AGRICULTURAL RESEARCH SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

- GREENBUG damage severe in some sorghum fields in Kansas. (p. 393).
- EUROPEAN CORN BORER damage expected on older corn in Illinois. (p. 394).
- SORGHUM MIDGE may buildup in southern Texas on grain sorghum. (p. 394).
- CUTWORMS damaging corn in Iowa and Nebraska, heavy in Georgia. (p. 394).
- ALFALFA WEEVIL damage to alfalfa occurring in New York, Nevada, Utah, Maryland, Missouri, New Mexico, and Ohio. (pp. 395-396).
- A MEALYBUG and GRASS THRIPS required controls on timothy in Nevada. (p. 395).
- THRIPS damaging cotton in Alabama; heavy in Texas, Tennessee, and Georgia. (p. 398).
- EUROPEAN APPLE SAWFLY larvae active and causing damage in Connecticut. (p. 400).
- CODLING MOTH flights heavy in Utah. (p. 400).
- A BITING MIDGE heavy and troublesome in California. (p. 403).
- BLACK FLIES annoying in North Dakota, Iowa, and Rhode Island. (p. 403).

Detection

A DELPHACID PLANTHOPPER reported for the first time in United States. (p. 395).

Other new State records include a LACE BUG from Maryland (p. 401), a DERMESTID BEETLE from Indiana (p. 404), CEREAL LEAF BEETLE from New York (p. 405), SCARABS from Missouri, Ohio, and Tennessee (p. 408).

For new county records see page 407.

Special Reports

- Using Japanese Beetle Traps to Detect Other Coleoptera. (p. 408).
- 1968 Cereal Leaf Beetle Infestations and Oats Crop Loss Survey. (pp. 409-417).

Reports in this issue are for week ending May 30 unless otherwise indicated.

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### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (*Pseudaletia unipuncta*) - MARYLAND - Infestations well below normal past 2 years. (U. Md., Ent. Dept.). NEBRASKA - Second and third instars ranged 2-3 per 60 sweeps on bromegrass pastures near Lincoln, Lancaster County. (Keith). DELAWARE - Larvae in isolated barley fields throughout State. (Boys). ILLINOIS - Populations unusually low. (Ill. Ins. Rpt.).

ASTER LEAFHOPPER (*Macrostelus fascifrons*) - NORTH DAKOTA - Adults up to 20 per 100 sweeps on Cass, Dickey, and Richland County rye. (Brandvik). WISCONSIN - Populations erratic. Averaged 1 per 100 sweeps in oats in La Crosse, Trempealeau, Vernon, and Waushara Counties. In Fond du Lac and Sheboygan Counties averaged 2 per 100 sweeps; one field in Grant County averaged 32 per 100 sweeps on May 23 compared to 8 per 100 sweeps on May 19. (Wis. Ins. Sur.). MINNESOTA - Varied greatly in small grain and alfalfa; ranged from trace to 40 per 100 sweeps in southeast and central districts. (Minn. Pest Rpt.).

BEEF LEAFHOPPER (*Circulifer tenellus*) - UTAH - Remains light, averaged 2 in 50 sweeps on mustard and Russian-thistle and 1 on *Atriplex* in Bluff and Blanding area of San Juan County and Moab area of Grand County. (Knowlton, May 28).

CORN EARWORM (*Heliothis zea*) - GEORGIA - Heavy in Terrell County corn (Locke); moderate on corn in Worth County (Williams). Damaging snapdragon blooms in Tift County. (Womack). ALABAMA - Larvae damaging rose buds in several locations. Half-grown larvae feeding on 10 percent of leaf buds of dahlias in Lee County. (Leeper et al.). ARKANSAS - Very little activity in southwestern area. In small patch of sweet corn on experiment station at Hope, Hempstead County. Eggs 18 on 25 corn silks and one larva on 25 plants. Only 2 larvae in several hundred sweeps of alfalfa and white clover in Hempstead and Lafayette Counties. (Boyer).

CORN LEAF APHID (*Rhopalosiphum maidis*) - TEXAS - Infesting Johnson grass in Wilbarger County (Boring et al.); light on grain sorghum in Wilbarger and McLennan Counties (Boring, Green). KANSAS - Ranged 5-30 per plant in whorl in all corn and sorghum fields examined in Sedgwick, Sumner, Butler, Cowley, Chautauqua, Wilson, and Montgomery Counties. (Simpson). NEVADA - Generally light, some heavy and scattered on barley at Fallon, Churchill County. (Heringer).

GREENBUG (*Schizaphis graminum*) - MINNESOTA - About same as last period (5-15 per 100 sweeps) and presents no immediate problem to small grain in southeast and central districts. (Minn. Pest Rpt.). NORTH DAKOTA - Winged forms on Cass County rye for first time this season; 1 per 100 sweeps. (Brandvik). NEBRASKA - Remains light in wheat in east and southeast districts. Ranged 0-8 per 20 sweeps in 9 fields in Gage, Jefferson, Saline, Lancaster, and Cass Counties. None detected in 4 fields of grain sorghum in Lancaster and Cass Counties. (Keith). KANSAS - In all planted and volunteer sorghum examined in Sedgwick, Sumner, Butler, Cowley, Elk, Chautauqua, Montgomery, and Wilson Counties. Ranged from 1 to colonies of 10-40 per leaf. Many in whorls of plants. Infestation 100 percent in many fields. Many fields (most plants 2-4 inches high) moderate to severe damage, particularly in Chautauqua and Montgomery Counties. Many fields replanted. Treatment being applied to most fields. Some indication of reinfestation occurring in fields treated 7-10 days ago. Parasites and predators scarce. Greenbug reported in sorghum in Chase, Republic, Haskell, Labette, Neosho, and Crawford Counties. (Simpson). TEXAS - Light on grain sorghum and Johnson grass in Wilbarger County; light to medium on grain sorghum in McLennan County. (Boring, Green). Also on Johnson grass in Sherman, Moore, Potter, Swisher, Hale, Deaf Smith, and Castro Counties. (Boring et al.). NEW MEXICO - None on seedling and volunteer sorghum surveyed in Lea, Roosevelt, and Curry Counties May 13-14. Area had 3-7 inches of rain and some hail previous weeks. Few found in small grains in Roosevelt and Curry Counties. (Mathews et al., May 25).

POTATO LEAFHOPPER (Empoasca fabae) - INDIANA - First adults of season observed on central area alfalfa May 20. (Huber). OHIO - Adults 3 per stem on research potato fields at Marietta, Washington County. (Richter).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adults 0-12 (some reports as high as 20-60) per 100 sweeps of potatoes at La Salle and Gilcrest, Weld County. Controls recommended. (Johnson, Urano).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Mostly light in alfalfa in Quay, Roosevelt, Curry, and Chaves Counties. (Mathews, Nielsen). Very light in all alfalfa in Virden Valley, Hidalgo County, week ending May 23. (Nielsen). Ranged 10-30 per 25 sweeps of alfalfa near Roswell, Chaves County. (Mathews).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MINNESOTA - Pupation ranged 20-24 percent in southeast district. (Minn. Pest Rpt.). ILLINOIS - Emergence in southern sections well advanced; egg laying underway with some hatch. In central section pupation 75 percent and moths emerging. Pupating in northern section; no emergence. Severe damage in more mature corn expected in northern one-half to two-thirds of State from first-generation borers. (Ill. Ins. Rpt.). MARYLAND - First larvae of season at Hurlock area. Light on 100 acres of corn; all first instar. (U. Md., Ent. Dept.). DELAWARE - First instars present in early sweet corn in Sussex County. Adults common in blacklight traps. (Burbutis).

CUTWORMS - WISCONSIN - Agrotis ipsilon (black cutworm) moderate on corn in Waushara County. (Wis. Ins. Sur.). IOWA - A. ipsilon damaged 80 acres of corn in Guthrie County. (Iowa Ins. Sur.). GEORGIA - Feltia subterranea (granulate cutworm) heavy on seedling corn in Bartow County. (Holland). NEBRASKA - Euxoa sp. destroyed 40 acres of corn near Stapleton, Logan County. Fourth instar to full grown. (Hawley, May 25).

A WHITE GRUB (Phyllophaga rugosa) - ILLINOIS - In third year of cycle and injuring occasional fields of corn and soybeans in central section. (Ill. Ins. Rpt.).

YELLOW SUGARCANE APHID (Sipha flava) - TEXAS - Ranged up to 80 per plant on Johnson grass in Wilbarger County; heavy in McLennan County. (Boring et al.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Medium on volunteer grain sorghum near Eagle Pass, Maverick County. Grain sorghum in Maverick County ready to boot indicating possibility of buildup in southern areas. (Matthies).

A SLUG (Limax sp.) - OHIO - Damage heavy, about 75 percent, in cornfield in east-central Wayne County; corn about 3 inches tall. (Glass).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Averaged 6 per 100 sweeps in oats in Trempealeau, La Crosse, Vernon, Grant, and Dane Counties; none found in Fond du Lac or Sheboygan Counties. (Wis. Ins. Sur.). MINNESOTA - No change from previous report; presents no immediate problem to small grain in southeast and central districts. (Minn. Pest Rpt.). NORTH DAKOTA - Alatae and apterae 10-20 (averaged 17) per 100 sweeps in headed rye in Cass, Richland, and Sargent Counties. Slight increase from 2 weeks ago. (Brandvik). NEBRASKA - Ranged 15-42 (averaged 26) per 20 sweeps in 9 wheatfields in Gage, Saline, Jefferson, Lancaster, and Cass Counties. (Keith).

MEADOW SPITTLEBUG (Philaenus spumarius) - VIRGINIA - Nymphs up to 5 per 100 feet of barley in Lee County, medium in Stafford County (Fulk, Poyner, May 26); light on barley and narrowleaf vetch in Nottoway County, light in Lunenburg County, light on wheat in Dinwiddie County (Perry, May 22); adults in Washington, Charlotte, and Montgomery Counties (W.A. Allen, Rose, May 28).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Overwintering adults migrated into headed rye; ranged up to 1,500 (averaged 800) per 100 sweeps in Cass, Richland, and Sargent Counties. (Brandvik).

A THRIPS (Rhipidothrips graciosus) - CALIFORNIA - Heavy on oat plantings in Knights Landing, Yolo County. (Cal. Coop. Rpt.).

#### **TURF, PASTURES, RANGELAND**

A DELPHACID PLANTHOPPER (Delphacodes nigrifacies Muir) - FLORIDA - Adults on Bahia grass, Paspalum notatum, at Belle Glade, Palm Beach County. Collected by W.G. Genung June 27, 1966. Determined by J.P. Kramer. This is a new United States record. (Fla. Coop. Sur.). This neotropical species is recorded from Costa Rica, Guyana, and Martinique. (PPC).

BRONZED CUTWORM (Nephelodes emmedonius) - IOWA - Larvae damaged bluegrass pasture in Decatur County. Ranged 4-5 brown spots per square foot of sod. Also reported at Ottumwa, Wapello County. (Iowa Ins. Sur.).

A WHITE GRUB (Phyllophaga anxia) - NEBRASKA - Larvae ranged 40-109 (averaged 75) per square yard in wet meadow pastures in Cherry County. (Berberet, Landers).

A MEALYBUG (Heterococcus pulverarius) - NEVADA - This species and Anaphothrips obscurus (grass thrips) required controls on 150+ acres of timothy in Smith Valley, Lyon County. Mealybug heavier in some fields, thrips in others. (Batchelder).

#### **FORAGE LEGUMES**

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - Adults 13.6 and larvae 38.8 per 100 sweeps in 5 Hampshire County alfalfa fields May 21. (Miller). NEW YORK - Tip damage in Broome County increased from 1 to 20 percent May 16-23 on river flat alfalfa; ranged 1-5 percent at higher elevations. Larval feeding injury and many egg masses in some fields in Livingston County. Activity similar to 1968; if trend continues peak activity expected June 6-10. (N.Y. Wkly. Rpt., May 26). NEW JERSEY - Larvae ranged 1,300-3,300 per 100 sweeps (average 2,600) in 3 alfalfa fields, with 55-95 percent tip injury in southern areas May 27. (Ins.-Dis. Newsltr.). MARYLAND - Several fields showing heavy stubble injury on second growth; pupation underway throughout State. (U. Md., Ent. Dept.). OHIO - Feeding damage in untreated fields nearly 100 percent in southeastern area and Wayne and Medina Counties; usually less than 50 percent in treated fields. Adults 10-12 per 25 sweeps in southeastern area; larvae of this and H. punctata (clover leaf weevil) 3-6 per tip. (Glass, Thoburn). MICHIGAN - Sample counts per 200 sweeps by county as follows: Berrien 31, Kalamazoo 28, Calhoun 44, Muskegon 17, Kent 12, Ionia 31, Livingston 48; (Newman, May 26). INDIANA - Immediate control measures or first cutting warranted throughout northern half of State. In general, terminal feeding visible on 50-100 percent of alfalfa in eastern half of northern areas, 15-40 percent in western half. Alfalfa 17-23 inches high and just beginning to bud. Larvae per stem ranged 1-8 in northeast and east-central districts; 0-4 in west-central and northwest districts; 0-6 in central area week ending May 23. (Huber). ILLINOIS - Decreasing in southern sections. Treatment still needed in many fields of second-crop alfalfa in area. Leveling off in central section; need for treatment will continue for another 2 weeks in some fields. (Ill. Ins. Rpt.). MISSOURI - Damage remains evident on untreated alfalfa in central and east-central areas; pupation passed 50 percent. Collected in Johnson and Lafayette Counties for new county records. (Munson). MISSISSIPPI - Larvae decreased. Larval average per 20 stems by county: Marshall 2.5, Pontotoc 1.5, Oktibbeha 0. (Dinkins). ARKANSAS - Reported for first time in Yell County; probably present since 1967. Activity practically over for year in southwest area. Only adults and one larva found in several hundred sweeps of Lafayette County alfalfa. (Boyer). NEW MEXICO - Damage very noticeable in alfalfa in Corrales area, Sandoval County. Averaged 1-3 adults and 50-100+ larvae per 25 sweeps. (Heninger, May 23). Damage very noticeable in alfalfa at Albuquerque,

Bernalillo County; adults 0-2 per 25 sweeps and larvae 150+ per 25 sweeps. (Heninger). COLORADO - Increased rapidly on alfalfa in northeastern area and on Western Slope. Larvae 200-650 (average 400) per 100 sweeps. Adults 40-100 per 100 sweeps. (Johnson, Rothman). UTAH - Alfalfa weevil generally light in Blanding and Monticello area alfalfa, severely damaging one large field at Bluff, San Juan County; larvae ranged 1,000-3,000+ per 10 sweeps, adults averaged 3 per 10 sweeps. Fields damaged and gray at Green River, Emery County. (Knowlton, May 22). Development slow in Cache County. At Huntington, Emery County, averaged 4 adults and 5 larvae per 100 sweeps. Fields graying from weevil damage at Moab, Grand County. (Davis, Knowlton). Damage occurring at Kanab, Kane County. (Lindsay). NEVADA - Larvae and damage continue to increase in west-central counties where spraying underway; heavily damaged fields appear gray-white. Larvae per sweep by county: Churchill 80-200, Lyon 40-150, Pershing 75-225, and southern Washoe 60-200. (Adams et al.).

CLOVER HEAD WEEVIL (Hypera meles) - MISSOURI - Adults collected from alsike clover in Johnson County for new county record. (Munson).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - NEBRASKA - Adults averaged 10 per 60 sweeps in 2 Saunders and Sary County red clover fields. (Keith).

ILLINOIS - Damage reported from one field of red clover in central section. (Ill. Ins. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - NEBRASKA - Larvae averaged 5 per 60 sweeps in 2 red clover fields in Saunders and Sary Counties. (Keith). WISCONSIN - Larvae in alfalfa averaged 5 per 100 sweeps. (Wis. Ins. Sur.).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - MISSOURI - Adults collected from alsike and white clovers in Cooper, Johnson, Saline, and Pettis Counties. These are new county records. (Munson).

WEEVILS (Sitona spp.) - MASSACHUSETTS - S. hispidulus (clover root curculio) averaged 7.4 per 100 sweeps in 5 Hampshire County alfalfa fields May 21. (Miller). WISCONSIN - S. scissifrons apparently increasing in alfalfa in State. Generally ranged 3-100 per 100 sweeps depending upon stand and time of day. (Wis. Ins. Sur.). NORTH DAKOTA - S. cylindricollis (sweetclover weevil) adults up to 250 (averaged 90) per 100 sweeps in 8 to 18-inch sweetclover in Sargent and Dickey Counties. In heavily infested fields all plants less than 1 percent defoliated. (Brandvik).

PEA APHID (Acyrtosiphon pisum) - ALABAMA - Remains severe on untreated Caley peas and vetch on rangeland in Marengo County. (Miller). MASSACHUSETTS - Averaged 20.8 per 100 sweeps in 5 Hampshire County alfalfa fields May 21. (Miller). WISCONSIN - Averaged 10 per sweep in La Crosse, Trempealeau, and Vernon Counties, 3 per sweep in Fond du Lac County; ranged 1-25 per sweep in Grant, Crawford, and Dane Counties. Variation marked in former counties where tenfold increase occurred in some fields and 30 percent reduction in others. Much variation attributed to parasites. Winged forms remain low; ranged 1-5 percent. (Wis. Ins. Sur.). MINNESOTA - Ranged 150-500 per 100 sweeps in southeast and central districts. None moved to peas. Lacewings present in alfalfa but nabids still most numerous predator. (Minn. Pest Rpt.). NEBRASKA - Ranged 55-230 (averaged about 75) per 20 sweeps in 4 alfalfa fields in Thurston, Jefferson, Saline, and Lancaster Counties. Averaged 350 per 60 sweeps in 2 red clover fields in Saunders and Sary Counties. (Keith). COLORADO - Ranged 50-2,000 per 100 sweeps of alfalfa throughout northeastern area and on Western Slope. (Johnson). UTAH - Ranged 5-25 per 10 sweeps in alfalfa at Blanding and Bluff, San Juan County. (Knowlton, May 22). NEVADA - Ranged 10-30 per sweep in Smith Valley, Lyon County. (Batchelder). OREGON - Averaged 8 per 100 sweeps in uncut alfalfa in Benton County through first 2 weeks in May. Lady beetle adults in same field averaged 19 per 100 sweeps. (Dickason).



MEADOW SPITTLEBUG (*Philaenus spumarius*) - NEW YORK - Numerous on flatland and becoming serious on upland trefoil in Broome County. (N.Y. Wkly. Rpt., May 26). OHIO - Adults should appear in clover in southern area next 7-10 days. Young adults 10 per sweep in Athens County clover field. (Richter). WISCONSIN - Spittle masses noticeable but not numerous in alfalfa in western Fond du Lac County; very scarce in eastern part of county and in Sheboygan and Ozaukee Counties. Much more common in Crawford, Vernon, Grant, Dane, and Trempealeau Counties; stem counts of 5 per 10 stems not uncommon. (Wis. Ins. Sur.). OREGON - Very abundant in Willamette Valley. Nymphs on wide variety of crops. (Fisher).

EUROPEAN CLOVER LEAF TIER (*Mirificarma formosella*) - CALIFORNIA - Catches in traps placed in clover at Lincoln, Placer County: Pink bollworm sex lure 40 males, 3 females; blacklight 29 males, 26 females; ammonium carbonate 45 males, 12 females; unbaited sticky trap 15 males, 2 females. (Cal. Coop. Rpt.).

PLANT BUGS - NEW MEXICO - *Lygus* spp. adults and nymphs averaged 20-70 per 25 sweeps in alfalfa in Arch area, Roosevelt County. (Nielsen). In Corrales area, Sandoval County, adults 3-5, nymphs 10-25 per 25 sweeps. (Heninger, May 23). Currently 5-25 per 25 sweeps in alfalfa near Albuquerque, Bernalillo County, and Jarrales, Valencia County. (Heninger). Averaged 15-25 per 25 sweeps in alfalfa in Roswell, Chaves County. (Mathews). UTAH - *Lygus* spp. adults 2-8 per 10 sweeps on alfalfa at Bluff and Blanding, San Juan County; nymphs numerous. Some *Adelphocoris superbus* (superb plant bug) nymphs present. (Knowlton, May 22). *Lygus* spp. averaged 10 adults and 12 nymphs in 10 sweeps in alfalfa at Green River, Emery County. (Knowlton, May 28). NEBRASKA - *A. lineolatus* (alfalfa plant bug) nymphs ranged 1-47 per 20 sweeps in 4 alfalfa fields in Thurston, Jefferson, Saline, and Lancaster Counties. (Keith). MINNESOTA - Mixed populations of *A. lineolatus* and *A. rapidus* (rapid plant bug) hatching in high numbers in southeast and central districts. Counts of 200-600 per 100 sweeps common. (Minn. Pest Rpt.). OHIO - Adults of *Leptopterna dolabrata* (meadow plant bug) and *Capsus ater* (a plant bug) building up in clover and clover-alfalfa fields. *L. dolabrata* averaging 1 per sweep and *C. ater* 1 per 5 sweeps in Jackson County. *L. dolabrata* about 10 per 25 sweeps in southeastern area. (Richter). MASSACHUSETTS - *Lygus lineolaris* (tarnished plant bug) averaged 13.6 per 100 sweeps in 5 Hampshire County alfalfa fields May 21. (Miller).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - NEW MEXICO - Counts per 25 sweeps in alfalfa ranged 8-22 adults in Arch area, Roosevelt County, and 2-12 in Virden Valley. Counts highest in recently cut fields. (Nielsen, May 23).

#### SOYBEANS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MISSISSIPPI - Heavy on Lee soybeans in Oktibbeha County. About 8 per row foot in one-acre field. (Kincade).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - GEORGIA - In 15 traps 75 overwintered adults caught; ranged 0-5 in 300 row feet in Randolph County. (Womack). Overwintered adults taken in 3 traps in Spalding County. (Beckham). ALABAMA - High numbers of weevils emerging from hibernation and feeding on buds of 2 to 9-leaf cotton in south and central areas. Total live weevil counts by county as follows: Autauga 5,550 (Scott), Henry 1,870 (Hartzog), Monroe 100 (Gamble), Covington 2,800 (Pike), Limestone 0 (Burton). In 1 of 5 traps on 1 farm 7 recovered in Limestone and Madison Counties dipause control experimental area. No weevils in other 31 traps in area. (Gilliland et al.). TENNESSEE - First overwintered weevils found on terminal buds of cotton in western area. (Locke). MISSISSIPPI - In 28 sex lure traps 25 weevils collected; total to date 216 in delta counties. (Pfrimmer et al.). Live weevils in 2 of 12 fields checked in Yazoo County. (Dinkins). LOUISIANA - In Madison Parish locations near hibernation sites 23 weevils collected from 17 traps; total to date 449. On isolated island in Mississippi River 58 weevils recovered from 145 winged traps; total to date 1,764. From 10 winged traps near hibernation sites checked daily recovered 32 weevils; total to date 87. Total for all winged traps 2,321 weevils. (Cleveland et al.). TEXAS - Heavy numbers

building up near hibernation areas in Nueces, Jim Wells, San Patricio, Bée, and Live Oak Counties. (Deer, Turney). In McLennan and Falls Counties averaged 70 per acre (1,000 maximum) in 15 of 35 untreated fields. Averaged 38 per acre (125 maximum) in 5 of 16 treated fields. On flight screens 1 weevil collected; total to date 67. At McLennan County hibernation sites 16 weevils in 21 wing traps; total to date 1,022. (Cowan et al.).

**BOLLWORMS (*Heliothis* spp.)** - TEXAS - Eggs and/or larvae collected on native hosts in McLennan and Falls Counties; 26 larvae previously collected from native hosts identified as *H. zea*. One larva identified as *H. virescens*. Total from all hosts to date 210 *H. zea* and 3 *H. virescens*. One *H. zea* collected on cotton. (Cowan et al.). *H. zea* and *H. virescens* feeding on terminals and young squares in most areas of Rio Grande Valley, no large larvae detected. (Deer). MISSISSIPPI - In 70 sex lure traps collected 244 moths; total to date 1,250 in delta counties. (Pfrimmer et al.).

**COTTON APHID (*Aphis gossypii*)** - ALABAMA - Damaging unprotected young presquare cotton in Geneva, Colbert, and Bibb Counties. (Reynolds et al.). TEXAS - In McLennan and Falls Counties light in 6 of 25 treated fields; light in 19, medium in 3 of 25 untreated fields. (Cowan et al.). Light in Hill County and light to heavy in Falls and McLennan Counties. (Turney).

**THRIPS** - TEXAS - Increased in Blacklands. Light to medium in Hill County. Light to heavy in Falls and McLennan Counties. (Turney, Deer). Light in 5 of 25 treated McLennan and Falls Counties fields; in 25 untreated fields light in 13, medium in 4, and heavy in 2. (Cowan et al.). MISSISSIPPI - Infestations reduced in Yazoo County. Most fields passed damage stage. (Dinkins). TENNESSEE - Heavier in all cotton growing areas than week ending May 23. Controls in order in most areas. (Locke). GEORGIA - Moderate to heavy on young cotton over southern area. (Womack). ALABAMA - *Frankliniella fusca* (tobacco thrips) and other thrips present in most all cotton not protected throughout State; severe damage widespread in Geneva County. (Reynolds et al.).

**SPIDER MITES (*Tetranychus* spp.)** - MISSISSIPPI - Heavy in scattered areas; some defoliation reported in delta counties. (Pfrimmer et al.).

#### **SUGARBEETS**

**SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*)** - COLORADO - Adult numbers peaked in Weld County area week of May 19-23. (Hamp).

**SPINACH LEAF MINER (*Pegomya hyoscyami*)** - COLORADO - Eggs and larvae numerous in Weld County fields. Larvae appearing in Morgan, Logan, and Sedgwick Counties. (Johnson).

#### **POTATOES, TOMATOES, PEPPERS**

**COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*)** - RHODE ISLAND - Adults active in small numbers in Washington County on May 26. (Kerr). VIRGINIA - Damage heavier than usual in Pittsylvania County. (Dominick). TENNESSEE - Heavy across State; controls applied. (Quillin). COLORADO - Adults and eggs, no larvae, in potato fields at La Salle and Gilcrest, Weld County. Adults ranged 2-14 (average 2-3) per 50 row feet. (Johnson).

**POTATO FLEA BEETLE (*Epitrix cucumeris*)** - OHIO - Adults heavy on potatoes at Marietta, Washington County; older leaves showing 50 percent damage throughout field. (Richter). RHODE ISLAND - Adults active in small numbers in Washington County. (Kerr).

**BLACK CUTWORM (*Agrotis ipsilon*)** - WISCONSIN - Damaging marginal 2-3 rows of commercial potatoes in Spring Green, Sauk County. (Wis. Ins. Sur.).

## BEANS AND PEAS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Ranged 2-3 per 10 feet of row in 80 acres of snap beans near Vienna, Dorchester County. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - First adults of season on string beans in Sussex County. (Burbutis).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Generally increased in all areas; 25 per 10 sweeps. (Burbutis).

## COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Moderate to heavy on collards and cabbage in Tift County. (Womack).

IMPORTED CABBAGEWORM (Pieris rapae) - GEORGIA - Moderate to heavy on collards and cabbage in Tift County. (Womack).

## CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - MARYLAND - Adults feeding on cucumbers and causing light damage to 70-acre planting near Rhodesdale, Dorchester County. (U. Md., Ent. Dept.).

## GENERAL VEGETABLES

ASPARAGUS BEETLES (Crioceris spp.) - WASHINGTON - C. asparagi (asparagus beetle) and C. duodecimpunctata (spotted asparagus beetle) adults active at Pullman, Whitman County. (Johansen). OHIO - All stages of C. asparagi reported in Scioto County May 20, in Jackson County May 27, and in Cuyahoga County May 22. (Richter). VIRGINIA - C. asparagi adults light on asparagus in Prince Edward County. (Perry, May 22).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Recovered 1,115 specimens on 4 sticky boards at Cedarville, Cumberland County, May 20-27. (Ins.-Dis. Newsltr.). COLORADO - Eggs and larvae in onion field at Fort Lupton, Weld County. (Johnson).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Adults remain active in newly set fields in Wicomico County. Ranged 1-6 per 10 plants. (U. Md., Ent. Dept.).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspheyresia pomonella) - WASHINGTON - First larval entry in Yakima County pears at Parker Heights May 21, 4 days earlier than 1968, and at Selah May 23. In pears at Naches May 26, on crab apple at Yakima May 24, and on Delicious apples May 25. (Gregorich et al.). UTAH - Flight heavy March 23-25 at Logan, Cache County. (Davis). Started about 7 days earlier in Box Elder and Utah Counties. (Barlow et al.). COLORADO - Adults in Mesa County traps May 12-13. As high as 150 per sex trap in 3 days at Clifton, Mesa County; most traps caught 5-30 moths. In traps in Delta, Montrose, and Garfield Counties; most caught 1-10 moths in 5 days. (Bulla). WISCONSIN - First of season May 27 in blacklight trap at Madison, Dane County. (Wis. Ins. Sur.). NEW JERSEY - Found 28 May 27 at Glassboro, Gloucester County. (Ins.-Dis. Newsltr.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NEW JERSEY - Caught 4 in trap May 20-27 at Glassboro, Gloucester County. (Ins.-Dis. Newsltr.). WASHINGTON - First full-grown larva May 22 at Parker, Yakima County. (Johnson).

A CARPOSINID MOTH (Bondia commonana) - CALIFORNIA - Larvae medium in prune limbs at Chico, Butte County. (Cal. Coop. Rpt.).

PLUM CURCULIO (Conotrachelus nenuphar) - CONNECTICUT - On apples at New Haven, New Haven County, and East Lyme, New London County. (Kollas, May 27). WISCONSIN - Active for several weeks but first specimen of season in blacklight trap May 27 at Madison, Dane County. (Wis. Ins. Sur.).

SHOT-HOLE BORER (Scolytus rugulosus) - WASHINGTON - First adults on cherry May 21 at Naches, Yakima County. (Johnson).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Larvae very active in several locations; injured apple fruits. Damage severe in unsprayed orchard at Storrs, Tolland County; damaged up to 20 percent of fruit. (Kollas, May 27).

APHIDS - CALIFORNIA - Dysaphis plantaginea (rosy apple aphid) nymphs and adults medium on apple trees generally at Roseville and Lincoln, Placer County. (Cal. Coop. Rpt.). WASHINGTON - Rhopalosiphum fitchii (apple grain aphid) flights heavy in all north-central apple areas. (Rushmore). COLORADO - Winged D. plantaginea in colonies on apple May 20. Colonies 10-20 per unsprayed tree; low where dormant and delayed dormant sprays used. (Bulla). MARYLAND - Myzus persicae (green peach aphid) curling some terminal leaves in several peach orchards in Montgomery and Washington County areas. (U. Md., Ent. Dept.).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - MICHIGAN - Nymphs active in Van Buren and Berrien Counties. Controls recommended. (Thompson, May 12).

A CHERRY FRUIT FLY (Rhagoletis indifferens) - OREGON - Adults emerged May 25 in Marion County. (Rasmussen). WASHINGTON - First adult caught in ammonium carbonate trap on Cherry Hill 3 days later than last year at Granger, Yakima County. (Johnson).

SPIDER MITES - CALIFORNIA - Bryobia rubrioculus medium on apple trees at Healdsburg, Sonoma County. (Cal. Coop. Rpt.). MARYLAND - Panonychus ulmi (European red mite) increasing to moderate levels at Hancock, Washington County. Several growers will need to spray. (U. Md., Ent. Dept.). CONNECTICUT - P. ulmi scarce on apples in most areas. (Kollas, May 27).

FILBERT APHID (Myzocallis coryli) - OREGON - Increasing in Willamette Valley orchards. Numbers generally less this season. (Every).

## CITRUS

ARMORED SCALES - FLORIDA - Unaspis citri adults scattered on 375 of 1,500 mixed citrus trees in nursery May 15 and 212.5 of 850 grapefruit trees in another nursery May 16 at Windermere, Orange County. Nursery with infested orange trees quarantined May 22 at Lake Wilson, Osceola County. (Ware). CALIFORNIA - Aonidiella aurantii (California red scale) heavy generally on dooryard citrus at Lincoln, Placer County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Medium on orange trees at Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

## SMALL FRUITS

GARDEN SYMPHYLAN (Scutigerella immaculata) - WASHINGTON - Infested ripe strawberries; potential contaminant of processed berries at Vancouver, Clark County. (Shanks).

## ORNAMENTALS

A LACE BUG (Stephanitis takeyai Drake and Maa) - MARYLAND - This lace bug is here reported for the first time in the State. Several small colonies of last instar nymphs were observed about mid-October 1968 on the lower leaves of a variety of deciduous azalea, Rhododendron molle, near Chevy Chase, Montgomery County. On October 29 of the same year, 26 adults were collected. Thirteen of these were identified by E.J. Hambleton as S. takeyai and the remaining 8 as S. pyrioides Scott (azalea lace bug). A third species known to occur in the area, S. rhododendri Horvath (rhododendron lace bug), was not observed in 1968. Feeding injury by lace bugs was noticeable last year on Pieris japonica, but it was too late in the season for further insect activity. On May 18, 1969, the same evergreen shrubs were examined and found infested with S. takeyai. More than 30 adults and numerous nymphs were taken, particularly on foliage of the lower half of the shrubs. Much foliage had already been seriously damaged. The appearance of first-brood lace bugs in numbers at this time may well indicate the potential of S. takeyai as an important pest of andromeda and azalea in this area. S. takeyai is a native of Japan and also occurs in India. In the United States the species was first reported from the New England area where it is now established in Connecticut, New Jersey, and Rhode Island. (Hambleton).

A PLANT BUG (Calocoris norvegicus) - CALIFORNIA - Recorded in Contra Costa, San Joaquin, Butte, and Humboldt Counties; insignificant until May 1969. Found in Placer County on grape and in Sacramento County on pear and roses. Single records of pear and grape may be insignificant but 5 records on roses from Sacramento area seem to substantiate valid host record. Economic potential not known. (Cal. Coop. Rpt.).

AN ARMORED SCALE (Pseudaonidia clavigera) - FLORIDA - Adults light on 160 of 200 camellia plants May 20 in nursery at Tampa, Hillsborough County; adults infested plants of bottlebrush, Callistemon sp., May 20 in nursery at Tampa (Simmons) for a new Division of Plant Industry host record (Fla. Coop. Sur.).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Medium on camellia plants at Lincoln, Placer County, and Sacramento, Sacramento County. Appears more prevalent on camellias this season. (Cal. Coop. Rpt.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OHIO - Larvae heavy on Taxus near Westlake, Cuyahoga County; one pupa. Loss 50 percent in liner bed of 2,000 plants. (Walker). Half of weevils on Taxus in Lake County and three-fourths in Wayne County in prepupal and pupal stages. (Campbell).

SPRUCE SPIDER MITE (Oligonychus ununguis) - NEVADA - Heavy numbers and damage on ornamental juniper at Reno and Sparks area, Washoe County. (Nev. Coop. Rpt.).

AN ERIOPHYID MITE (Aculus ligustri) - CALIFORNIA - Heavy on privet hedges at San Jose, Santa Clara County. (Cal. Coop. Rpt.).

#### FOREST AND SHADE TREES

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Most second instars emerged from dormancy and feeding in staminate flowers of jack pine in central and east-central areas. (Minn. Pest Rpt.).

RED TURPENTINE BEETLE (Dendroctonus valens) - WASHINGTON - In flight at Lake Wenatchee, Leavenworth, Chelan County. (Rushmore).

CONIFER SAWFLIES (Neodiprion spp.) - WEST VIRGINIA - N. pratti pratti heavy on pitch pine over 2-square mile area in Lincoln County May 23. Heavy on pitch and Virginia pines in Cabwalingo State Forest, Wayne County, May 27. Infested Virginia pine in Kanawha State Forest, Kanawha County, May 27. These are new county records. (W. Va. Ins. Sur.). MINNESOTA - N. pratti banksianae (jack-pine sawfly) first and second instars in central area. (Minn. Pest Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Medium on pines at Healdsburg, Sonoma County. Has increased and become problem in several widely separated areas past year. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - MINNESOTA - Larvae caused heavy defoliation in some sections of Minneapolis and Saint Paul area on American and Chinese elms; noted on ash. Defoliation occurred in northern suburbs of Arden Hills, New Brighton, Mounds View, and Blaine. (Minn. Pest Rpt.).

ELM LEAF BEETLE (Pyrralta luteola) - NEVADA - Larval damage becoming evident on elms in west-central counties. (Nev. Coop. Rpt.). UTAH - Egg laying began May 5 at Kanab, Kane County; 50 trees sprayed. Damaged elm foliage at Bluff, San Juan County, and Green River, Emery County; largest larvae third grown. (Knowlton, May 22). NEW MEXICO - Adults heavy May 23 on Siberian elms at Jarrales, Valencia County; egg laying beginning. Skeletonizing foliage of Siberian elms at Los Lunas, Valencia County, and Corrales, Sandoval County. (Heninger). Damaging Siberian elms at Ft. Sumner, De Baca County. (Mathews). IOWA - Larvae active on Siberian elms at Ottumwa, Wapello County. (Iowa Ins. Sur.).

A LEAF-MINING WEEVIL (Odontopus calceatus) - OHIO - Adults on yellow-poplars in Gallia, Guernsey, and Harrison Counties. (Richter).

PERIODICAL CICADA (Magicicada septendecim) - VIRGINIA - Medium and spotted in Henry County (Saucier, Jones, May 22); heavy locally at Staunton, Augusta County (Davis, May 23); medium, spotted in Washington County (Saunders). WEST VIRGINIA - First specimen May 19. Heavy in Fayette and Raleigh Counties May 25 and in Greenbrier County. (W. Va. Ins. Sur.).

APHIDS - CALIFORNIA - Pterocomma smithiae heavy on quaking aspen nursery stock at Bishop, Inyo County. Aphis craccivora (cowpea aphid) heavy on honeylocust trees at Marysville, Yuba County, and at Sacramento, Sacramento County; light to medium on wistaria at Redding, Shasta County. (Cal. Coop. Rpt.). NEVADA - A. craccivora continues heavy on honeylocusts, especially flowers and new growth, in Churchill County; moderate at Fernley, Lyon County. (Heringer). ALABAMA - Prociphilus tessellatus (woolly alder aphid) heavy on isolated maples on lawns and streets in Morgan, Choctaw, and Lee Counties. (Rutledge, Mathews, et al.). OHIO - Longistigma caryae (giant bark aphid) heavy on Franklin County linden. (Davidson).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Heavy on willows at Healdsburg, Sonoma County. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

**SCREW-WORM (*Cochliomyia hominivorax*)** - Total of 13 cases reported in U.S. May 25-31 as follows: TEXAS - Bee 1, Frio 2, Hidalgo 2, Jim Hogg 1, Irion 1, Karnes 1, Uvalde 1, Webb 2; ARIZONA - Cochise 1; CALIFORNIA - Imperial 1. Total of 207 cases reported in portion of Barrier Zone in Republic of Mexico May 18-24 as follows: Sonora 110, Chihuahua 61, Coahuila 12, Nuevo Leon 6, Tamaulipas 18. Total of 3 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 71,448,000; New Mexico 1,800,000; Arizona 6,220,000; California 550,000; Mexico 85,690,000. (Anim. Health Div.).

**FACE FLY (*Musca autumnalis*)** - OHIO - Adults low on Holsteins at Wooster, Wayne County. (Lang). ILLINOIS - Counts per head by section: South-central 2, central 8.6, and north-central 2.7. (Ill. Ins. Rpt.). WASHINGTON - Ranged 4-5 per head on cattle May 23 at Pullman, Whitman County. (Telford).

**HORN FLY (*Haematobia irritans*)** - GEORGIA - Averaged 500-2,000 per head on untreated beef and dairy cattle over State. (Nolan). ALABAMA - Heavy on unprotected Mobile County cattle. (Vickery). OHIO - Low on Holsteins at Wooster, Wayne County. (Lang). ILLINOIS - Counts per head by section: Southern 36, south-central 69, central 27, and north-central 25. (Ill. Ins. Rpt.). UTAH - Becoming numerous in some San Juan, Grand, and Emery County beef herds. (Knowlton, May 28). WASHINGTON - Generally low, less than 10 per head on cows but 50 or more on bulls May 23 at Pullman, Whitman County. (Telford).

**STABLE FLY (*Stomoxys calcitrans*)** - ILLINOIS - Counts per head by section: South-central 1.9, central 7.0, and north-central 9.0. (Ill. Ins. Rpt.). GEORGIA - Annoying untreated beef and dairy cattle over State. (Nolan).

**A BITING MIDGE (*Leptoconops torrens*)** - CALIFORNIA - Unusually heavy numbers a nuisance at Sacramento, Sacramento County, and Davis, Yolo County. Severe in some outlying areas; field workers leaving work areas. Repellents not effective. (Cal. Coop. Rpt.).

**BLACK FLIES (*Simulium* spp.)** - NORTH DAKOTA - *S. venustum* adult numbers and annoyance continue along Sheyenne River in Cass County. Several thousand per animal still evident on horses. Animals showing effects of this annoyance which started month ago. (Brandvik). IOWA - *Simulium* sp. severely annoying at Clinton, Clinton County. (Iowa Ins. Sur.). RHODE ISLAND - *Simulium* spp. biting heavily near streams statewide. (Field, May 21).

**MOSQUITOES** - CALIFORNIA - *Culex tarsalis* and other mosquitoes more annoying than usual. (Cal. Coop. Rpt.). NEW MEXICO - Probably *Aedes vexans* very abundant in alfalfa fields and along river in eastern Valencia County. (Heninger). GEORGIA - Salt-marsh mosquitoes annoying residents along eastern seaboard. (Snoddy, Nolan). RHODE ISLAND - *Aedes* sp. adults biting in Washington County. (Field, May 26).

**CATTLE LICE** - UTAH - Heaviest in years in Rich County beef herds. (Olson, Knowlton, May 28). Moderate on many beef herds in Kane and Garfield County area. (Lindsay, Knowlton, May 28).

**HARD-BACKED TICKS** - WEST VIRGINIA - *Ixodes cookei* collected from raccoons in Doddridge County April 13 and May 1 and from gray fox in Berkeley County April 21. *Dermacentor variabilis* (American dog tick) collected from raccoon in Doddridge County May 1 and in Wood County April 14 by J.F. Smith. Determined by R.R. Garrish. (W. Va. Ins. Sur.). RHODE ISLAND - *D. variabilis* complaints widespread. (Field, May 26).

EAR TICK (Otobius megnini) - UTAH - Troublesome on cattle in some Kane and Garfield County herds. (Lindsay, Knowlton, May 28).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - GEORGIA - Taken from home in Coweta County (Inglett) for a new county record (PPC). NEBRASKA - Three specimens in old building on college campus at Lincoln, Lancaster County for a new county record. (Roselle, May 26).

#### HOUSEHOLDS AND STRUCTURES

A DERMESTID BEETLE (Anthrenus coloratus) - INDIANA - Collected and determined by L. Chandler at West Lafayette, Tippecanoe County, May 22, 1969. This is a new State record. (Huber). Reported from Virginia, District of Columbia, Maryland, Illinois, and California. See CEIR 19(5):61-62. (PPC).

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - CALIFORNIA - Tunnels through champagne corks of over 300 quart bottles of wine stored upside down on basement soil of residence at Sacramento, Sacramento County. Drained 50 bottles before damage noted. Loss in excess of \$300. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - ARKANSAS - Mostly Coleomegilla maculata and Hippodamia convergens (convergent lady beetle) up to 200-300 in 100 sweeps of alfalfa, white clover, Johnson grass, and pastures in southeastern area; highest in alfalfa. (Boyer). H. convergens heavy on aphids in southeastern area. (Wall). NEW MEXICO - H. convergens very abundant in Curry and Roosevelt County wheatfields infested with greenbug in March and early April. (Nielsen). COLORADO - Hippodamia spp. and other species numerous in alfalfa and other crops in northeastern and east-central areas. (Johnson). UTAH - Lady beetles averaged 3 adults and 2 larvae per 10 sweeps of alfalfa at Bluff, San Juan County. (Knowlton, May 22).

GREEN LACEWINGS (Chrysopa spp.) - COLORADO - Chrysopa spp. numerous in alfalfa and various other fields in northeastern and east-central areas. (Johnson). UTAH - Chrysopa sp. averaged 1 per 10 sweeps of alfalfa at Bluff, San Juan County. (Knowlton, May 22). ARKANSAS - Chrysopa sp. larvae 50-60 in 100 sweeps of alfalfa, white clover, Johnson grass, and pastures in southeastern area; adults few. (Boyer).

HETEROPTEROUS PREDATORS - ARKANSAS - Orius insidiosus adults and nymphs 150-200 in 100 sweeps and mostly adults of Geocoris punctipes 50-75 in 100 sweeps of alfalfa, white clover, Johnson grass, and pastures in southeastern area. (Boyer). UTAH - Geocoris spp. averaged 5 per 10 sweeps of alfalfa at Bluff, San Juan County. (Knowlton, May 22). COLORADO - Nabis spp. numerous in alfalfa and other crops in northeastern and east-central areas. (Johnson).

A BRACONID (Lysiphlebus testaceipes) - CALIFORNIA - Control of Schizaphis graminum (greenbug) excellent on small grains in Imperial and Los Angeles Counties. Sorghum undamaged by greenbug so far. (Cal. Coop. Rpt.).

AN ICHNEUMON WASP (Bathyplectes curculionis) - COLORADO - Numerous in alfalfa and other crops in northeastern and east-central areas. (Johnson).

ALKALI BEE (Nomia melanderi) - WASHINGTON - Up to 100 percent of overwintered prepupae were callow pupae by May 25 in beds at Touchet, Walla Walla County; parasitic Heterostylum robustum (a bee fly) larvae less than 50 percent pupated. (Johansen, Eves). N. melanderi pupating in native sites north of Sunnyside and west Wapato alfalfa seed areas; H. robustum in early pupal stages in Yakima County. (Menke).

HONEY BEE (Apis mellifera) - MICHIGAN - Minimal activity causing serious concern for successful fruit pollination. (Thompson, May 12).



FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Adults light on wheat on farm May 22, 1969, at Amity, Allegany County, for a new State record. Adult on wheat on farm at Canisteo, Steuben County, May 27 for a new county record. Both collected by D.C. Hoffman. Adults on oats at French Creek Township, Chautauqua County, for a new county record. Collected by J.S. Chock May 23. PENNSYLVANIA - Adults collected on oats at following locations for new county records. At Woodbury, Bedford County, by L.R. Pealer May 23. At Beech Creek Township, Clinton County, and at Bell Township, Clearfield County, by J.T. Lilley May 26. At Susquehanna, Lycoming County, J.T. Ayres May 27. WEST VIRGINIA - Numbers light; adults collected for following new county records. On oats at Wana, Monongalia County, by J.L. Brooks May 21. On oats on farm at Nile Wells, Tyler County, May 21 and on rye at Moundsville, Marshall County, May 23 by A.E. Tustin. Adults and larvae on oats on farm in Wetzel County May 22 by Goddard and Grimm. Adults and larvae on oats on farm at St. Marys, Pleasants County, and larvae on wheat on farm at Cairo, Ritchie County, May 22 and at Elizabeth, Wirt County, May 23 by McClung and Blackshire. Dead adults light on oats on farms at Glenwood, Cabell County, at Buffalo, Putnam County, and at Reedy, Roane County, by Sisson and Brinker May 28. KENTUCKY - Larvae light; collected at following locations for new county records. On wheat at Louisville, Jefferson County, May 23 and on oats on farms at Nicholasville, Jessamine County, May 27, at Versailles, Woodford County, May 27, and at Danville, Boyle County, May 29 by W.A. Smith. On wheat on farm at Bethel, Bath County, May 26 and on oats on farms at Winchester, Clark County, May 26 and at Clay City, Powell County, May 27 by D.L. Reckner. On wheat on farm at Mount Sterling, Montgomery County, May 26 and on oats on farms at Richmond, Madison County, May 26 and at Rothwell, Menifee County, May 27 by J.L. Wheeler. On oats south of Paintsville, Johnson County, May 27 by P.E. Shipman and J.R. Elling. In wheatfield in Shelby County May 27 by T.S. Smith. All above records determined by R.E. White. (PPC).

OHIO - Egg laying continuing. Earliest larvae nearly completed feeding. Beetles or feeding signs light in most southeastern area oatfields; adults usually less than 10 per 100 sweeps and larvae less than 3 per foot. Some high counts: South-eastern Tuscarawas County adults 20 per 100 sweeps, eggs and larvae 3 per linear foot on 10-inch oats, east-central Coshocton County adults 120 per 100 sweeps, eggs 40 and larvae 10 per linear foot on 14-inch oats (Richter); Licking County adults 0-96 per 100 sweeps (average about 30) and eggs 0-53 per 3 linear feet, averaged about 30 eggs in heavily infested fields (Amrine). INDIANA - Eggs averaged 50-60 per linear foot on oats at New Carlisle, St. Joseph County, and 20-25 per linear foot in U.S. Highway 6 area of La Porte and St. Joseph Counties. First instars 5-6 per linear foot on oats at New Carlisle and 2-3 per linear foot in U.S. Highway 6 area. Second instars few. Oviposition on oats should peak shortly after June 1 with peak larval activity June 12-16. Controls should be initiated in earliest hatch fields. (Shade).

GRASS BUGS - UTAH - Labops hesperius and Irbisia spp. serious on 800 acres of crested wheatgrass range in Kane County; control excellent. Much control this year in Sink Valley. (Lindsay, Knowlton, May 28). WASHINGTON - Irbisia pacifica feeding damage heavy along edge of Gaines wheatfield adjacent to fence row at Centerville, Klickitat County. (Willson, Harwood).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - In second instar in Providence County. (Reilly, May 22). VERMONT - First hatch May 9 at Shoreham, Addison County. (Nielsen, MacCollom).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ARKANSAS - Cysts from farm at Pleasant Plains, White County, for a new county record. Collected by B.F. Goolsby May 28. Confirmed by A.M. Golden. (PPC).

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) - CALIFORNIA - First moth of season at Clovis, Fresno County, May 13. All other surveys in eradication areas negative to date. (Cal. Coop. Rpt.).

GRASSHOPPERS - CALIFORNIA - Epidemic outbreaks in about 5,000 acres of range and forest land in Mount Shasta area, Siskiyou County. Second and third instars over 40 per square yard. Severely damaged pine seedlings. Aerial treatments applied May 28. (Cal. Coop. Rpt.). UTAH - Ranged 1-4 per 10 sweeps on alfalfa and range at Bluff, Blanding, and Monticello in San Juan County, and 3-5 on Poverty Flats to the north. Much more numerous on meadows at Moab, Grand County. (Knowlton, May 22). Nymphs numerous in Cedar Valley, Utah County. Ranged 2-6 in 10 sweeps at Moab, Grand County, on range; more numerous on alfalfa. Ranged 1-3 per sweep of alfalfa at Huntington, Emery County. (Knowlton, Judd, May 28). COLORADO - First and second instars appearing in crop margins at Wiggins, Morgan County. (Johnson). First and second instars of *Melanoplus bivittatus*, *M. femurrubrum* and others light in Mesa County crop margins. (Sisson). NEW MEXICO - Mostly second and third instars averaged 4-15 per 25 sweeps of Roosevelt County alfalfa (Nielsen, May 23); 3-12 per 25 sweeps of alfalfa at Albuquerque, Bernalillo County, and Jarrales, Valencia County (Heinger). MINNESOTA - Egg development in central district: *M. bivittatus* and *M. sanguinipes* eggs segmented; few fully developed. *M. femurrubrum* eggs nearly all coagulated; some eggs in protected, sunny areas in eyespot. All checks made in heavier soils. Egg development at least 2 weeks behind last year, even in sandy areas. (Minn. Pest Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - ALABAMA - Larvae medium; feeding on roots of tomatoes and peanuts in separate fields near Slocomb, Geneva County. (Reynolds).

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#### HAWAII INSECT REPORT

Fruits and Nuts - COCONUT SCALE (*Aspidiotus destructor*) increasing on many coconut trees at Koko Head, Oahu. Trees with light infestations in early March now heavily infested; light to medium on trees previously uninfested. Predators light in area. (Funasaki). FLORIDA RED SCALE (*Chrysomphalus aonidium*) generally light, 0-40 per leaflet, on about 100 coconut trees at Kahu'ui, Maui. Moderate, up to 150+ per leaflet, on few trees. (Ah Sam, Miyahira).

Ornamentals - Adults of a NITIDULID BEETLE (*Conotelus mexicanus*) medium in gardenia, tuberose, and pikake flowers at Waianae, Oahu. Ranged 5-12 in gardenia blossoms, 0-8 in tuberose, and 0-5 in pikake. (Kawamura). Adults and nymphs of a THRIPS (*Frankliniella* sp.) heavy in Kiawe and koa-haole flowers in scattered areas on Oahu. Light to heavy in several commercial flower fields at Waianae, Koko Head, and Waimanalo. (Funasaki).

Forest and Shade Trees - KIAWE FLOWER LOOPER (*Cosymbia serrulata*) adults heavy in light traps during May at Waipahu and Ewa, Oahu. Averaged 169 per trap in 4 light traps at Waipahu; 106 per trap in 3 traps at Ewa; 12 per trap at other 21 trap locations. (Au). HIBISCUS CATERPILLAR (*Anomis flava*) larvae heavy, one per leaf, on hau (*Hibiscus tiliaceus*) in Nuuanu Valley, Honolulu, Oahu. Most larvae parasitized by an ICHNEUMON WASP (*Hyposoter exiguae*). (Davis).

Stored Products - Routine inspection of trogotraps in 7 stored-food warehouses at Honolulu, Oahu, revealed heavy infestations of SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) and DARKING BEETLES (*Tribolium* spp.); light numbers numbers of CIGARETTE BEETLE (*Lasioderma serricorne*) and a DERMESTID BEETLE (*Trogoderma anthrenoides*). (Olson, Wong).

Beneficial Insects - MELASTOMA BORER (*Selca brunella*) heavy in 200 acres of Indian rhododendron, a rangeland weed, at Hanahanapuni, Kauai. Defoliation 100 percent in many areas; infested about 80 percent of terminals. (Sugawa).

## INSECT DETECTION

New United States Record - A DELPHACID PLANTHOPPER (Delphacodes nigrifacies Muir) - FLORIDA - Adults on Bahia grass, at Belle Glade, Palm Beach County. Collected by W.G. Genung June 27, 1966. Determined by J.P. Kramer. (p. 395).

New State Records - A LACE BUG (Stephanitis takeyai) Montgomery County, Maryland (p. 401). A DERMESTID BEETLE (Anthrenus coloratus) Tippecanoe County, Indiana (p. 404). CEREAL LEAF BEETLE (Oulema melanopus) Allegany County, New York. (p. 405). Six SCARABS as follows: Dyscinetus morator in Missouri; Copris anaglypticus and Maladera brunnea in Ohio; NORTHERN MASKED CHAFER (Cyclocephala borealis), SOUTHERN MASKED CHAFER (C. immaculata), and Euphoria herbacea in Tennessee. (p. 408).

New County Records - ALFALFA WEEVIL (Hypera postica) Johnson and Lafayette Counties, Missouri; Yell County, Arkansas (p. 395). CLOVER HEAD WEEVIL (Hypera meles) Johnson County, Missouri (p. 396). CLOVER SEED WEEVIL (Miccotrogus picrostris) Cooper, Johnson, Pettis, and Saline Counties, Missouri (p. 396). A CONIFER SAWFLY (Neodiprion pratti pratti) Kanawha, Lincoln, and Wayne Counties, West Virginia (p. 402). BROWN RECLUSE SPIDER (Loxosceles reclusa) Coweta County, Georgia, and Lancaster County, Nebraska (p. 404). CEREAL LEAF BEETLE (Oulema melanopus) Chautauqua and Steuben Counties, New York; Bedford, Clearfield, Clinton, and Lycoming Counties, Pennsylvania; Cabell, Marshall, Monongalia, Pleasants, Putnam, Ritchie, Roane, Tyler, Wetzel, and Wirt Counties, West Virginia; Bath, Boyle, Clark, Jefferson, Jessamine, Johnson, Madison, Menifee, Montgomery, Powell, Shelby, and Woodford Counties, Kentucky (p. 405). SOYBEAN CYST NEMATODE (Heterodera glycines) White County, Arkansas (p. 405).

## LIGHT TRAP COLLECTIONS

LOUISIANA - Tallulah, 5/24-30, BL, 66-91° F., precip. 0.12 - Armyworm (Pseudaletia unipuncta) 3, cabbage looper (Trichoplusia ni) 2, corn earworm (Heliothis zea) 3. MISSISSIPPI - Stoneville, 2BL, 63-92° F., precip. 1.02 - Armyworm 13, black cutworm (Agrotis ipsilon) 17, corn earworm 16, granulate cutworm (Feltia subterranea) 3, salt-marsh caterpillar (Estigmene acrea) 1, variegated cutworm (Peridroma saucia) 6, yellow-striped armyworm (Prodenia ornithogalli) 10. MISSOURI - Fair Grove, 5/22-28 - Armyworm 19, black cutworm 3, European corn borer (Ostrinia nubilalis) 8. OHIO - Marietta, 5/24-29, BL - Armyworm 3, black cutworm 1. WOOSTER, 5/24-29, BL - Armyworm 43, black cutworm 7, corn earworm 2, variegated cutworm 1. TEXAS - Waco, 5/24-29 - Armyworm 19, beet armyworm 23, black cutworm 7, cabbage looper 5, corn earworm 11, granulate cutworm 4, variegated cutworm 22, yellow-striped armyworm 24.

## CORRECTIONS

CEIR 19(20):349 - SAWFLIES - WISCONSIN - Profenus canadensi ... should be Profenus canadensis ...

CEIR 19(22):382 - CODLING MOTH (Laspeyresia pomonella) - OHIO - First hatch ... (and) ... Hatch peaked ... should be First adult emergence ... (and) Emergence of pupal stage peaked ... (Richter).

### Using Japanese Beetle Traps to Detect Other Coleoptera

During the summer of 1968 the Japanese beetle trapping survey was used as a detection tool for other Coleoptera which may have been introduced into the United States or could have spread to new areas. One week's collection from key areas such as airports and seaports which receive international traffic or materials, either directly or indirectly, were screened. All insects other than beetles were discarded. Some collections from European chafer traps (light and chemical) were also submitted. Specimens were determined by V.H. Owens of the Taxonomy Section, Plant Pest Control Division, ARS, USDA, at Gulfport, Mississippi.

Several hundred specimens were examined representing 23 families, 68 genera, and at least 96 species. Representatives of 37 of the genera could not be determined to species.

The determinations were compared to the information in the Scientific Records System maintained by Survey and Detection Operations in Hyattsville, Maryland. There were no records of 26 species for six of the States where collections were made. Inquiries sent to these States resulted in the addition of valuable distribution data to the Scientific Records System. Also, six new State records were established, all in the Family Scarabaeidae. These are:

Missouri: Dyscinetus morator

Ohio: Copris anaglypticus  
Maladera brunnea

Tennessee: Cyclocephala borealis (northern masked chafer)  
Cyclocephala immaculata (southern masked chafer)  
Euphoria herbacea

Scarabs collected in Japanese beetle traps at 14 sites in Michigan were determined by entomologists of the Entomology Department, Michigan State University. Except for Pelidnota punctata which was collected at all sites, Phyllophaga spp. were most common. None of the species collected in Michigan is classified as damaging; however, Macroductylus subspinosus (rose chafer) is a serious pest in rose gardens and on wild grapes.

1968 CEREAL LEAF BEETLE INFESTATION AND OATS CROP LOSS SURVEY 1/

M. Curtis Wilson 2/, Robert E. Treece 3/,

and

Richard E. Shade 2/

A survey technique first used in 1967 to estimate cereal leaf beetle larval populations and loss to the oats crop by these insects was used again in 1968. It is based entirely on foliage consumption by the cereal leaf beetle larva. Results of the first survey were reported by Wilson and Treece (1967). Research on which this survey was based is reported in three papers, 2 of which are in press, Shade et al. (1969), Wilson et al. (1969), and one in preparation, Treece et al. (1969).

The 1968 survey was expanded to include 162 counties as follows: Michigan 45, Indiana 45, Ohio 48, Pennsylvania 7, Illinois 11, Wisconsin 4, and Kentucky 2. Populations were sufficiently high to ascertain them in 125 or about 75 percent of these counties, using the Treece, Wilson, and Shade technique.

The data from this survey are reported in 4 tables. Table 1 shows infestation and oats loss in Michigan and Indiana. It compares only the most heavily infested counties which were surveyed both years in the two States. Oats loss in Ohio in 1968 is also shown. Table 2 shows the 1968 State average cereal leaf beetle infestations based on the total number of counties surveyed. Infestations by county, comparing 1968 data with 1967, are tabulated in table 3 and losses for the 2 years are compared in table 4.

It should be noted that the 1967 estimates of loss have been recalculated by adjusting them to a new index of 3.17 bushel loss per larva per stem infestation. The new index for loss was adopted following completion of further research in 1968. This raises the 1967 total cereal leaf beetle loss estimate from \$54,750 to \$77,558.

The cereal leaf beetle is not only spreading rapidly, but is now building up in numbers at a tremendous rate. Data show that the stage is set for a massive increase of cereal leaf beetle populations in the Midwest. This increase probably will occur within the next 2 to 5 years. The study shows not only a general buildup, but also the emergence of new distant centers as far east as central Ohio where relatively high infestations are becoming common.

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1/ The following agencies cooperated to complete this survey: Indiana State Entomologist's Office, Purdue University; Ohio Department of Agriculture, Ohio Agricultural Research and Development Center; Pennsylvania Department of Agriculture, Pennsylvania State University; and U.S. Department of Agriculture, Plant Pest Control Division.

Estimates of oats acreage from which losses were calculated were obtained from from the USDA Statistical Reporting Services of Indiana, Michigan, and Ohio. The value of oats was estimated at 63¢ per bushel by R.L. Strazheim, USDA Statistical Reporting Service, Lafayette, Indiana.

2/ Department of Entomology, Purdue University, Lafayette, Indiana.

3/ Department of Entomology, Ohio Agricultural Research and Development Center, Wooster, Ohio.

It can be seen that larval populations in 1968 were 205 percent of 1967 in Indiana and 192 percent of 1967 in Michigan. The increase in infestation raised the total loss in 1968 4-fold over 1967.

These estimates do not include the cost of spraying to control the cereal leaf beetle by the grower. The 1968 loss was due to two things: The increase in cereal leaf beetle infestations, and a 49 percent increase in oats acreage. Oats acreage which has been disappearing at a rapid rate the past five years suddenly spiraled upward in 1968 due to changes in grower crop allotments.

#### Literature Cited

- (1) Shade, R.E., Hansen, H.L., and Wilson, M.C. 1969. A partial life table for the cereal leaf beetle in Indiana. Ent. Soc. Amer. Ann. (in press).
- (2) Treece, R.E., Wilson, M.C., and Shade, R.E. 1969. Dispersion and population buildup of the cereal leaf beetle in the Mid-West. J. Econ. Ent. (in preparation).
- (3) Wilson, M.C., and Treece, R.E. 1968. 1967 cereal leaf beetle infestation and oats crop loss survey. U.S. Dept. Agr. Coop. Econ. Insect Rpt. 18(17):343-348.
- (4) Wilson, M.C., Treece, R.E., Shade, R.E., Stivers, R.K., and Day, K.E. Impact of cereal leaf beetle larvae on oats yield. J. Econ. Ent. (in press).

Table 1

Summary of Statistics on Cereal Leaf Beetle Infestations  
and Loss to Oats in 1967 and 1968 1/

	<u>Indiana</u>	<u>Michigan</u>	<u>Ohio</u>	<u>Total</u>
<u>Percent Stems Infested</u>				
1967	32.9	50.4		
1968 <u>2/</u>	38.2	48.7		
1968 percent of 1967	116.0	97.0		
<u>Number of Larvae Per 100 Stems</u>				
1967	15.9	13.7		
1968 <u>2/</u>	32.6	26.3		
1968 percent of 1967	205.0	192.0		
<u>Oats Loss (Bushels)</u>				
1967 <u>3/</u>	47,061	70,072	0	117,133
1968	217,699	211,022	32,676	461,397
<u>Dollar Loss</u>				
1967 (\$0.65 per Bu.)	\$ 30,588	\$ 45,548	\$ 0	\$ 76,136
1968 (\$0.63 per Bu.)	137,167	132,944	20,586	290,717

1/ Infestation data based only on counties surveyed both years in Indiana and Michigan. The survey in Ohio in 1967 involved too few counties for a good comparison.

2/ Only counties surveyed both years are included in this comparison.

3/ Estimates of loss are based on a damage index of 3.17 bushel loss per acre per larva per stem infestation. Following 1968 research this index was raised from 2.24 used in 1967. 1967 estimates have been adjusted to the new loss index.

Table 2

1968 State Average Cereal Leaf Beetle Infestations

State	Number of Counties Surveyed	Percent Oats Stems Infested	Larvae Per 100 Stems
Illinois	11	0.09	0.006
Indiana	45	24.51	18.750
Kentucky <u>1/</u>	2	0	0
Michigan	45	28.20	13.530
Ohio	48	15.09	3.237
Pennsylvania	7	8.57	0.010
Wisconsin <u>2/</u>	4	0	0

1/ Only trace counts of the cereal leaf beetle have been found in Kentucky. Infestations are too small to be detected using the feeding survey technique.

2/ The cereal leaf beetle has not been found using either this survey or detection survey techniques.

Table 3

Estimated Infestation of Oats by the Cereal Leaf Beetle  
Based on Larval Feeding Surveys, June 1967 and 1968

ILLINOIS

County	Percent Stems Infested		Larvae per 100 Stems	
	Average 1967	Average 1968	Average 1967	Average 1968
Clark	-	0	-	0
Cook	-	0.3	-	0.02
De Kalb	-	0	-	0
Iroquois	0.5	0.3	0.01	0.02
Kankakee	0	0.3	0	0.02
Lake	-	0	-	0
La Salle	-	0	-	0
Livingston	-	0	-	0
McHenry	-	0	-	0
Vermilion	-	0	-	0
Grundy	-	0	-	0

INDIANA

Adams	5.7	19.5	0.87	15.00
Allen	16.0	55.5	2.04	58.00
Bartholomew	-	11.0	-	0.20
Benton	0.3	14.0	0.01	1.30
Boone	-	1.0	-	1.13



(Indiana cont.)

Table 3 (cont.)

County	Percent Stems Infested		Larvae per 100 Stems	
	Average 1967	Average 1968	Average 1967	Average 1968
Brown	-	22.5	-	1.25
Carroll	0.5	1.0	0.01	0.05
Dearborn	-	0	-	0
De Kalb	85.3	37.5	36.05	22.50
Elkhart	71.5	78.5	30.35	94.75
Fountain	-	0	-	0
Franklin	-	3.7	-	0.33
Fulton	56.0	27.0	6.78	4.02
Grant	12.0	2.0	1.15	0.20
Hamilton	-	2.5	-	0.65
Hancock	-	39.5	-	1.00
Hendricks	-	0	-	0
Henry	16.8	20.5	2.58	2.50
Howard	-	2.5	-	2.70
Huntington	-	19.0	-	10.50
Jasper	13.3	8.8	1.67	1.72
Jay	-	10.5	-	1.60
Jennings	-	2.7	-	0.08
Kosciusko	28.6	63.0	10.48	50.00
Lagrange	89.0	78.0	36.73	71.00
Lake	0.5	1.5	0.05	0.52
La Porte	79.6	82.2	84.60	59.66
Lawrence	-	0	-	0
Madison	-	2.5	-	1.00
Marshall	33.3	63.0	7.65	56.00
Montgomery	-	0	-	0
Newton	0.7	-	0.01	-
Noble	-	74.5	-	68.75
Owen	-	10.5	-	0.45
Parke	-	0	-	0
Porter	13.0	13.0	2.07	5.30
Pulaski	11.3	17.5	0.53	3.27
Putnam	-	0.5	-	0.01
Ripley	-	0.7	-	0.02
St. Joseph	87.8	84.0	104.90	142.90
Starke	37.7	34.5	5.52	21.50
Tippecanoe	-	1.0	-	0.44
Union	1.0	-	0.25	-
Wabash	28.6	53.0 <u>1/</u>	2.98	46.81 <u>1/</u>
Wayne	3.0	8.5	0.63	1.20
Whitley	34.8	78.0	11.05	58.50
Stauben	-	58.0 <u>1/</u>	-	37.60 <u>1/</u>

1/ Estimates based on surrounding county data

Tabel 3 (cont.)

County	Percent Stems Infested		Larvae per 100 Stems	
	Average 1967	Average 1968	Average 1967	Average 1968
KENTUCKY				
Grant	-	0	-	0
Oldham	-	0	-	0
MICHIGAN				
Arenac	-	1.0	-	0.25
Alcona	-	0.3	-	0.04
Allegan	73.0	6.3	24.14	19.33
Antrim	-	0	-	0
Barry	85.3	72.1	16.80	34.09
Bay	-	3.5	-	0.32
Berrien	79.2	57.1	88.60	56.73
Branch	19.8	55.5	3.63	15.50
Calhoun	72.9	92.0	49.34	82.00
Cass	68.2	70.5	22.68	36.87
Clare	-	0	-	0
Eaton	36.8	81.5	4.03	95.50
Genesee	30.2	37.5	5.71	9.00
Gladwin	-	0.5	-	0.20
Gratiot	9.5	31.0	0.36	8.50
Hillsdale	84.7	18.0	12.68	7.00
Huron	-	3.5	-	0.47
Ingham	54.3	59.2	8.85	49.90
Ionia	98.0	47.5	18.73	13.50
Isabella	-	22.5	-	3.00
Jackson	-	45.5	-	6.50
Kalamazoo	82.3	76.5	17.65	40.00
Kalkaska	-	0	-	0
Kent	39.0	68.0	4.80	23.50
Lapeer	5.0	8.0	0.18	0.60
Lenawee	56.3	39.5	4.68	4.50
Livingston	-	19.5	-	2.50
Macomb	-	1.0	-	0.10
Mecosta	4.8	0	0.16	0
Midland	1.3	-	0.07	-
Missaukee	-	0	-	0
Monroe	-	15.5	-	1.50
Montcalm	9.3	40.0	0.49	10.62
Muskegon	31.0	-	3.70	-
Newaygo	11.5	26.5	1.03	4.00
Oakland	-	16.5	-	12.50
Oceana	4.5	-	0.50	-
Ogemaw	-	8.5	-	0.50
Osceola	-	0	-	0
Otsego	-	0	-	0
Ottawa	50.5	77.0	5.45	24.25

(Michigan cont.)

Table 3 (cont.)

County	Percent Stems Infested		Larvae per 100 Stems	
	Average 1967	Average 1968	Average 1967	Average 1968
St. Joseph	74.0	55.0	12.43	18.80
Saginaw	-	25.0	-	5.00
Shiawassee	-	70.00	-	22.00
Sanilac	-	2.33	-	0.70
St. Clair	-	0	-	0
Grand Traverse	-	0	-	0
Van Buren	64.5	53.5	12.73	23.51
Washtenaw	-	18.0	-	2.65
Wexford	-	0	-	0

PENNSYLVANIA

Beaver	-	26.0	-	0.03
Butler	-	22.0	-	0.01
Clarion	-	0	-	0
Crawford	-	0	-	0
Mercer	-	12.0	-	0.003
Warren	-	0	-	0
Washington	-	0	-	0

WISCONSIN

Jefferson	-	0	-	0
Kenosha	-	0	-	0
Rock	-	0	-	0
Walworth	-	0	-	0

OHIO

County	Percent Stems Infested 1968	Larvae Per 100 Stems 1968	County	Percent Stems Infested 1968	Larvae Per 100 Stems 1968
Auglaize	27.5	9.30	Madison	5.0	0.20
Ashtabula	30.5	1.30	Mahoning	3.5	0.10
Brown	2.5	0.10	Medina	32.0	1.85
Butler	22.0	1.03	Miami	16.5	2.50
Carroll	30.5	1.75	Montgomery	28.0	3.50
Champaign	7.0	1.50	Morrow	7.0	1.05
Clinton	14.0	2.10	Noble	0	0
Darke	26.5	5.00	Ottawa	4.0	0.50
Delaware	-	-	Paulding	11.5	2.40
Fairfield	12.5	1.60	Pickaway	21.0	1.80
Greene	1.5	0.06	Preble	10.5	0.75
Guernsey	2.5	0.40	Richland	18.5	7.50
Hamilton	5.0	0.30	Ross	41.5	8.50
Hancock	24.0	4.00	Sandusky	17.0	1.20
Hardin	10.5	2.30	Seneca	2.5	0.60
Henry	8.0	1.70	Trumbull	3.0	0.06
Huron	9.5	0.55	Union	11.5	2.05
Knox	14.0	3.50	Van Wert	2.5	1.15
Licking	57.5	42.45	Washington	1.0	0.20
Logan	17.5	3.55	Warren	3.5	0.60

(Ohio cont.)

Table 3 (cont.)

County	Percent Stems Infested 1968	Larvae Per 100 Stems 1968	County	Percent Stems Infested 1968	Larvae Per 100 Stems 1968
Wayne	8.5	0.73	Gallia	1.0	0.02
Williams	44.0	9.00	Highland	5.5	0.45
Wood	5.0	1.05	Meigs	1.0	0.10
Wyandot	28.5	9.40	Lawrence	0.0	0.0

Table 4

Comparison of Estimated 1967 and 1968 Losses to Oats Due to Infestation by the Cereal Leaf Beetle

INDIANA

County	Bu. Loss				Dollar Loss	
	Per Acre		Total			
	1967	1968	1967	1968	1967	1968
Adams	-	0.48	-	5,927	-	3,734
Allen	-	1.84	-	35,472	-	22,347
De Kalb	1.14	0.71	6,799	7,336	4,419	4,622
Delaware	0.36	-	1,636	-	1,063	-
Elkhart	0.96	3.00	6,203	26,082	4,032	16,432
Fulton	0.21	-	522	-	339	-
Huntington	-	0.33	-	2,786	-	1,755
Kosciusko	0.33	1.59	1,757	15,226	1,142	9,592
Lagrange	1.16	2.25	9,966	31,428	6,478	19,800
La Porte	2.68	1.89	8,753	6,906	5,689	4,351
Marshall	0.24	1.78	920	10,765	598	6,782
Noble	-	2.18	-	26,369	-	16,629
Porter	-	0.17	-	1,049	-	661
St. Joseph	3.32	4.53	10,372	17,123	6,742	10,787
Starke	0.17	0.68	133	514	86	324
Steuben	-	1.19	-	8,397	-	5,290
Wabash	-	0.64	-	3,904	-	2,460
Whitley	-	1.85	-	18,415	-	11,601

MICHIGAN

Allegan	0.77	0.61	7,484	6,710	4,865	4,227
Barry	0.53	1.08	5,151	12,960	3,348	8,165
Berrien	2.80	1.80	9,072	8,100	5,897	5,103
Branch	-	0.49	-	4,165	-	2,624
Calhoun	1.56	2.60	19,586	42,900	12,731	27,027
Cass	0.72	1.17	4,082	9,652	2,653	6,081
Eaton	-	3.02	-	37,750	-	23,783
Genesee	-	0.29	-	2,900	-	1,827
Gratiot	-	0.27	-	2,187	-	1,378
Hillsdale	0.40	0.22	4,698	3,300	3,054	2,079
Ingham	0.28	1.58	2,495	14,220	1,622	8,959
Ionia	0.59	0.43	7,169	7,095	4,660	4,470
Kalamazoo	0.56	1.26	5,443	16,380	3,538	10,319
Kent	-	0.74	-	8,140	-	5,128
Montcalm	-	0.34	-	2,788	-	1,756

(Michigan cont.)

Table 4 (cont.)

County	Bu. Loss				Dollar Loss	
	Per Acre		Total		1967	1968
	1967	1968	1967	1968		
Oakland	-	0.40	-	1,600	-	1,008
Ottawa	0.17	0.77	1,377	6,545	895	4,123
St. Joseph	0.39	0.60	1,895	4,500	1,232	2,835
Saginaw	-	0.16	-	2,080	-	1,310
Shiawassee	-	0.70	-	13,300	-	8,379
Van Buren	0.40	0.75	1,620	3,750	1,053	2,363

OHIO

Auglaize	-	0.29	-	4,785	-	3,015
Darke	-	0.16	-	2,784	-	1,754
Licking	-	1.35	-	14,580	-	9,185
Richland	-	0.24	-	2,688	-	1,693
Ross	-	0.27	-	1,458	-	919
Williams	-	0.29	-	3,741	-	2,357
Wyandot	-	0.30	-	2,640	-	1,663

WEATHER BUREAU'S 30-DAY OUTLOOK

JUNE 1969

The Weather Bureau's 30-day outlook for June 1969 is for temperatures to average below seasonal normals from the southern and central Plains to the northern Mississippi Valley and upper Great Lakes as well as in the Northeast. Above normal temperatures are expected over the Mid-Atlantic States and west of the Continental Divide. Near normal temperatures are in prospect in unspecified areas. Precipitation is expected to exceed normal from the Gulf States through the southern and central Plains and central Mississippi Valley to the lower Great Lakes. Subnormal rainfall is indicated over the Mid-Atlantic States, the northern Rockies, and the far Southwest. Otherwise, near normal totals are in prospect.

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

WEATHER OF THE WEEK ENDING JUNE 2

HIGHLIGHTS: Some severe weather occurred in all of the States this week with the exception of the southwestern area. The changeable temperature averaged well above normal in most areas leaving many States with a net moisture shortage.

PRECIPITATION: Variable weather patterns exhibited great contrast across the Nation this week. The most consistent weather was in the Deep South where thunderstorms and heavy rainshowers persisted all week. Tornadoes were reported at numerous places along the gulf coast from Galveston, Texas, through Florida on Monday and Tuesday. Two people were killed by a tornado at Galveston on Tuesday. The southern activity abated somewhat after midweek and by the weekend was confined to the Southeast where severe thunderstorms with hail persisted throughout the period. Violent weather also struck the upper Midwest at the beginning of the week where thunderstorms developed Monday producing one inch hail at Gibbon, Minnesota. This line moved off to the northeast. Tuesday presented relatively little precipitation except that in the South and showery conditions in the Pacific Northwest. Wednesday, a cold front touched off intense thunderstorms as it invaded the central Plains. Tornadoes struck in Kansas and hail was again reported at several places in Minnesota. By Thursday the storm producing cold front extended from northwestern New York, through central Illinois to west Texas. Heavy rain, thunderstorms, and high winds battered areas along and ahead of the cold air in its advance eastward until it began to weaken Friday. By late Friday another cold front had moved from the Pacific Northwest to the central Dakotas to northern California. Similar patterns of precipitation and severe weather accompanied this front to the end of the week when it was affecting the area from New York to Lake Superior and southwestward through Illinois, Arkansas and to northwest Texas.

TEMPERATURE: Even in a season of contrasting temperature, this has been a week of very unusual contrasts. Record low temperatures and record high temperatures were recorded in this unusual week. The beginning of the week brought winter chill from the western Lakes area to New England. Record low temperatures were reported from at least 25 major reporting stations in these areas. On Tuesday a very warm tongue of air extended from New Mexico to eastern Montana bringing temperatures to the high 90's as far north as the southern Canadian provinces. This warm pattern moved eastward and Wednesday 105° was reported at Pierre, South Dakota. On Tuesday a record 100° was read at Marquette in the upper Michigan Peninsula. General warming extended from a line from New Mexico to Lake Superior and eastward. Temperatures above 95° were recorded in the East Central States on Friday. Cooler air moved from the Pacific Northwest to eastern Montana and Wyoming by Saturday, but 100° readings were still reported in South Dakota. By the end of the week, the entire northern portion of the States had cooled leaving only the mid-South with 90+ temperature readings. (Summary supplied by Environmental Data Service, ESSA.)



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June 13, 1969

*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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

**Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM damaging small grain in Oklahoma and Kansas. GREENBUG damaging grain sorghum in Oklahoma and occurring in every sorghum field in 3 areas of Kansas. Appearing on sorghum in east-central New Mexico. CORN EARWORM damage appearing on corn in South Carolina, damaging sweet corn in Florida, and heavy in Georgia. (p. 421).

BUDWORMS moderate to heavy over tobacco belt in Georgia. (p. 421). TOBACCO FLEA BEETLE adults heavy on tobacco in Maryland and damaging some tobacco in Virginia. (p. 427).

EUROPEAN CORN BORER egg masses on corn in Illinois, Missouri, and Maryland. CUTWORMS damaging corn in Wisconsin and South Dakota. (p. 422). CLAY-COLORED BILLBUG caused heavy injury to field corn in Maryland. SORGHUM MIDGE outbreak possible in Coastal Bend area of Texas. BROWN WHEAT MITE damaged wheat in North Dakota and Wyoming. Heavy in some fields in South Dakota. (p. 423).

ALFALFA WEEVIL tip damage 30 percent in river flat areas in New York; heavy injury to second growth alfalfa in Maryland; larval damage about 100 percent in northern Ohio; larvae damaged untreated alfalfa in Colorado; continues to build up in South Dakota; and some damage in Wyoming. (p. 424).

SPRUCE BUDWORM heavy in Minnesota and damaging new growth of blue spruce in Michigan. ELM LEAF BEETLE damaging elms in Arizona and New Mexico. Injury increasing in Utah, heavy on elms in Oklahoma and Colorado. FOREST TENT CATERPILLAR defoliation occurring in Ohio, Minnesota, and Illinois. A CONIFER SAWFLY damaged pines in West Virginia. (pp. 433-434).

HORN FLY adults heavy in several States. (p. 435).

GRASS BUGS severely damaged range grasses and borders of wheat in Idaho, Utah, and Wyoming. (p. 438).

Detection

New State records include a TORTRICID MOTH in Indiana (p. 425), and CEREAL LEAF BEETLE in Maryland (p. 437).

For new county and parish records see page 440.

Special Reports

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1968. (pp. 441-442).

Reports in this issue are for week ending June 6 unless otherwise indicated.

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"Survey Methods for Some Economic Insects" is now available on request. The present publication replaces "Survey Methods" issued in 1953 and revised in 1955 and 1958. The new publication includes additional survey methods and refinements in techniques.

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Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1968.....441

### SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - UTAH - Damage to alfalfa and small grains generally lower than past 4 years in Loa area of Wayne County. (Chapman, Knowlton, June 4).

ARMYWORM (*Pseudaletia unipuncta*) - OKLAHOMA - Feeding on wheat heads in Grady County; up to 15-20 per square yard. Damaging small grains in Cotton County and Garfield County week ending May 31. Damage currently heavy to small grains in Caddo, Major, and Canadian Counties and scattered areas of Kingfisher County. Light to moderate in Garfield, Grant, Kay, Noble, Alfalfa, and Cleveland Counties. (Okla. Coop. Sur.). KANSAS - Damaged wheat in Sumner and Cowley Counties. (Simpson). VIRGINIA - First detected in sod-planted corn on May 26. About 100 acres on 5 farms treated in Washington County. (Derting).

ASTER LEAFHOPPER (*Macrosteles fascifrons*) - WISCONSIN - Range per 100 sweeps of oats: 1-8 in southwestern and central counties, 6-8 in southeastern counties. (Wis. Ins. Sur.). MINNESOTA - Averaged 20 per 100 sweeps of alfalfa and small grain in southeast district and trace in west-central district. (Minn. Pest Rpt.).

BUDWORMS (*Heliothis* spp.) - GEORGIA - Moderate to heavy over tobacco belt. (Girardeau). ALABAMA - Larvae light in corn whorls in several large fields in Fayette County. Larvae light on waist-high corn in southern area. (Pitts et al.).

CORN EARWORM (*Heliothis zea*) - SOUTH CAROLINA - Damage appearing on corn shoots at Florence, Florence County. (Durant, May 28). GEORGIA - Heavy on sweet corn in southern areas. (Todd, Canerday). FLORIDA - This species and *Spodoptera frugiperda* (fall armyworm) caused 91 percent damage to sweet corn ears in untreated plots at Belle Glade, Palm Beach County. *H. zea* dominant. Determined by M.J. Janes. (Janes). OKLAHOMA - Half to full-grown larvae averaged 5 per 100 sweeps in alfalfa in Bryan County. (Okla. Coop. Sur.). ARIZONA - Reported on terminals of sorghum and sweet corn and on ears of sweet corn at Yuma, Yuma County. (Ariz. Coop. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - TEXAS - Found in all sorghum checked in Foard, Knox, Haskell, Stonewall, and Wilbarger Counties. Very light on grain sorghum in Deaf Smith, Castro and Parmer Counties. (Boring, Daniels). OKLAHOMA - Averaged 500 per plant in sorghum in Washita County and ranged 50-400 per plant in Jackson County. Ranged 10-250 per plant in corn and sorghum in Garvin, Jefferson, Love, Marshall, and Bryan Counties. Highest counts in sorghum in southern Bryan County. (Okla. Coop. Sur.). ARIZONA - Light on corn at Safford, Graham County. (Ariz. Coop. Sur., May 29). UTAH - Moderate to heavy on spring barley in several Millard County fields. (Knowlton, June 4).

GREENBUG (*Schizaphis graminum*) - ARKANSAS - Averaged about 1 per 10 sorghum plants in Washington County. (Boyer). MISSOURI - Aphids high in southwest area, ranged 5-50+ per seedling sorghum plant. Mixed populations of *S. graminum* and *Rhopalosiphum maidis* (corn leaf aphid) present in some fields. *S. graminum* heavy in 2 oatfields at Mexico, Audrain County, 1 treated, other plowed up. (Munson). KANSAS - In every sorghum field examined in east-central, northeastern, and north-central areas. Percent plants infested by area: North-central 80-100, northeastern 20-100, east-central 20-60. Aphids per infested plant by area: North-central 5-15 alatae, 10-75 nymphs; northern 1-12 alatae, 3-75 nymphs (heaviest in Marshall and Riley Counties), nearly all plants infested; east-central 1-6 alatae, some apterae, 3-20 nymphs. Migrations heavy in north-central and northeastern areas last few days. Only winged adults and small nymphs found. Infested nearly every field as soon as emerged in many areas. Reinfestations occurring after treatments applied. Found mostly in whorls and on undersides of leaves. Control in whorls not successful in some cases. Lady beetles increasing in Reno and Stafford Counties; may be effective in some fields in few days. Very few lady beetles and no parasites in northeast, east-central, and north-central districts. (Simpson). OKLAHOMA - Damaging young sorghum in Craig and Tulsa Counties. (Okla. Coop. Sur., May 31). Currently heavy on grain sorghum in Ottawa,

Tulsa, Mayes, and Craig Counties. Controls being applied. Greenbug 0-10 per volunteer plant in Major County and moderate in Alfalfa, Kay, and Grant Counties. Light in corn and sorghum in 5 south-central counties. Light in Jackson County. (Okla. Coop. Sur.). TEXAS - Light and scattered on grain sorghum in Knox, Stone-wall, Haskell, and Wilbarger Counties. Ranged 9-10 in single colony. No noticeable damage evident. (Boring). In Deaf Smith, Castro, Parmer, Carson, and Gray Counties, not detected on grain sorghum 3-6 inches tall. In Carson and Gray Counties very light on western wheatgrass; about 0.05 per square foot. (Daniels). NEW MEXICO - Beginning to appear on young grain sorghum in Curry and Quay Counties. (Campbell, Durkin). ARIZONA - Average counts per linear foot on sorghum as follows: 5 at Duncan, Greenlee County; 0-5 at Bonita, Graham County; 35 in Stewart District, Cochise County; 35-70 at Elfrida and Sunizona, Cochise County; 5-30 on Johnson grass at Kansas Settlement, Cochise County, all for week ending May 30. Currently averaged 20 per linear foot of sorghum at Marana, Pima County. Light at Safford, Graham County, and Yuma, Yuma County. (Ariz. Coop. Sur.). COLORADO - This and *Macrosiphum avenae* (English grain aphid) very light (0-70 per 100 sweeps) on wheat and other small grains in northeastern area. (Johnson).

POTATO LEAFHOPPER (*Empoasca fabae*) - MINNESOTA - First of season on alfalfa, 10-20 per 100 sweeps, in southeastern area. In all fields checked from southern border to Minneapolis and St. Paul area. (Minn. Pest Rpt.). ILLINOIS - Low on alfalfa in northern half of State. (Ill. Ins. Rpt.).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Adults 0-2 per 100 sweeps of potatoes at La Salle, Weld County. Controls applied in most fields. (Johnson).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Ranged 10-15 per 25 sweeps in most Quay County alfalfa. (Mathews). Mostly alates averaged 40-100+ in 3 fields in southern Dona Ana County. (Campbell). SOUTH DAKOTA - Present, 100 per 100 net sweeps in field of alfalfa west of Spearfish, Lawrence County. (Jones).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MINNESOTA - Survival averaged 80 percent in west-central district, about normal for State. Survival higher in other districts. Pupation continues; ranges from 60 percent in southeast district to 7 percent in the west-central district. (Minn. Pest Rpt.). WISCONSIN - Flight begun. (Wis. Ins. Sur.). ILLINOIS - Emergence nearly complete in southern sections. Dead pupae averaged 15 percent due to sun scald. Pupation completed, emergence well underway in central area. Pupation 90 percent completed, but no emergence yet in northern sections. Eggs being laid on 30-inch corn in southern area, egg masses averaging 60 per 100 plants. (Petty). MISSOURI - Leaf feeding on 23-30 percent of plants in field where corn over 30 inches tall. Fresh egg masses ranged 2-25 per 100 plants in southwest area. (Munson). MARYLAND - First instars feeding in early corn on Eastern Shore. Infested 40-50 percent of plants in one 40-acre field. Pupation on Eastern Shore complete; 40-60 percent of adults emerged. (U. Md., Ent. Dept.).

CUTWORMS (*Agrotis* spp.) - WISCONSIN - *A. ipsilon* (black cutworm) damaging corn in Green Lake, Adams, Richland, and Waushara Counties. (Wis. Ins. Sur.). SOUTH DAKOTA - *Agrotis* spp. caused extensive damage to corn seedlings. Field of corn destroyed in Lyman. Destroyed 61 acres in Douglas County, 60 acres in Lincoln County. In Hutchinson County over 300 acres of corn treated. (Aamot et al.).

FALL ARMYWORM (*Spodoptera frugiperda*) - ALABAMA - First generation light; small larvae in whorls of waist-high corn in several fields at Theodore, Mobile County. (Bolton et al.).

GRASS WEBWORMS (*Crambus* spp.) - VIRGINIA - Severe damage to 20-acre cornfield in Spotsylvania County. (Kash). MARYLAND - Light injury to several acres of young field corn near Welcome, Charles County. (U. Md., Ent. Dept.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Adults light on young corn statewide. (U. Md., Ent. Dept.). VIRGINIA - Caused extensive damage to field corn in several communities in Washington County in mid-May. (Derting).

CLAY-COLORED BILLBUG (Sphenophorus aequalis) - MARYLAND - Caused heavy injury to several fields of field corn in Wicomico and Queen Annes Counties. (U. Md., Ent. Dept.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Light to medium in Edna and Vanderbilt area of Jackson County. About 90 percent of fields expected to head next 10 days. Outbreaks possible in Coastal Bend area. (Wilson).

YELLOW SUGARCANE APHID (Sipha flava) - OKLAHOMA - Ranged 15-35 per leaf on occasional leaves of corn and sorghum checked in Garvin, Jefferson, Love, Marshall, and Bryan Counties; very light in most fields. Present on Johnson grass in most fields and found on crabgrass in one field in Love County. (Okla. Coop. Sur.). TEXAS - Found on Johnson grass in Foard, Knox, Haskell, Stonewall, and Wilbarger Counties. About 23 found on one grain sorghum plant in Stonewall County. Only field found infested. (Boring).

#### SMALL GRAINS

WHEAT HEAD ARMYWORM (Faronta diffusa) - WISCONSIN - Adults numerous in blacklight trap at Hancock. (Wis. Ins. Sur.). KANSAS - Economic on small grains, 5-10 per square foot, in McPherson and Harper Counties. (Simpson).

CUTWORMS (Agrotis spp.) - WYOMING - Agrotis orthogonia (pale western cutworm) decreasing in Lingle area, Goshen County. Averaged 3-5 per linear row foot in some fields. (Burkhardt, May 19). SOUTH DAKOTA - Agrotis spp. heavily damaged 65 acres of sudex in Douglas County. (Campbell et al.).

BROWN WHEAT MITE (Petrobia latens) - NORTH DAKOTA - Infested winter wheat in drier southwestern areas. Up to 9 per leaf caused yellowing in Golden Valley, Bowman, and Hettinger Counties. Populations and damage severe enough to recommend controls. (Kaatz). SOUTH DAKOTA - Found in most wheat sampled in Meade and Butte Counties. Heavy in some fields. Controls applied week ending May 29. Currently populations damaging in Harding County and near Wall, Pennington County. (Kantack et al.). WYOMING - Damaging in Iowa Center and Lingle areas in Goshen County. (Skelton, May 30).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Variable, up to 80 per 100 sweeps. Less than 6 per 100 sweeps typical on oats in southeastern counties. (Wis. Ins. Sur.).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Adults entered leaf sheaths of headed rye in Cass County; 1-5 (average 2) per leaf sheath on 60 percent of plants. Adults and immatures in sheaths. Thrips on wheat, oats, barley, and rye in Adams, Bowman, Stark, and Golden Valley Counties. Up to 150 per 100 sweeps. (Brandvik, Kaatz).

#### TURF, PASTURES, RANGELAND

BLUEGRASS BILLBUG (Sphenophorus parvulus) - UTAH - Heavy in 3 new lawns in Salt Lake and Holladay area of Salt Lake County. (Burningham, Knowlton, June 4).

MEADOW PLANT BUG (Leptopterna dolabrata) - MISSOURI - Ranged up to 25 per 10 sweeps in orchard grass, fescue, and bluegrass in southwest area. Adults collected from Barry, Dade, Dallas, Greene, Jasper, Lawrence, Polk, and Stone Counties. (Munson).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW HAMPSHIRE - Less than 1 percent of tips show larval feeding at Milford, Hillsborough County, and Durham, Rockingham County, May 28. (Sutherland). VERMONT - Adults common and eggs hatching in Chittenden County. (Neilson, MacCollom, June 3). NEW YORK - Tip damage 30 percent in river flats. Little injury on upland alfalfa to date. Adults light but larval numbers tripled since May 23 in Broome County. (N.Y. Wkly. Rpt., May 30). MARYLAND - Many new adults emerging in central areas. Some heavy injury to second-growth alfalfa occurred on Eastern Shore and in central areas. Injury light to moderate in most fields with first cutting. (U. Md., Ent. Dept.). OHIO - Larval damage in untreated alfalfa about 100 percent through northern area. Larvae 3-25 (average 15) per sweep. Prepupal cocoons in northern area, especially in eastern half of Putnam County, 6-10 per 10 stems. Very young first-generation adults in Wood County. (Flessel). Alfalfa blooming and farmers making first cutting. (Richter). INDIANA - Preliminary data from larval parasite sampling throughout State (mostly *Bathyplectes curculionis*) show relatively heavy populations present in southwest and west-central districts. In southeast and east-central areas, parasite recoveries common. In 1968 few parasites recovered from these two areas, indicating considerable spread and buildup across State. (Huber, May 30). ILLINOIS - Larvae per 100 sweeps by area: East 3,483, northeast 1,516, and northwest 660. Continues to decline in southern half of State; pupation, emergence of new adults, and parasitism increase. (Ill. Ins. Rpt.). - MICHIGAN - Larvae increasing in surveys May 31 in Livingston and Oakland Counties. Larval counts range 11-16 per sweep. In many fields in southern tier of counties moderate to serious damage expected in unsprayed fields. (Newman). WISCONSIN - Adults collected on alfalfa on farms for new county records: May 23 north of Boscobel, Crawford County, and at Viroqua, Vernon County; May 26 at Fond du Lac, Fond du Lac County, and at Beechwood, Sheboygan County; and May 27 at Saukville, Ozaukee County. Collected by M.S. Conrad. Determined by R.E. Warner. (PPC).

MISSISSIPPI - Larvae of *H. postica* decreased in Oktibbeha, Marshall, and Pontotoc Counties. Highest in Pontotoc, 3.7 per 20 stems. (Pitre). ARKANSAS - New adults damaged new growth alfalfa following first cutting in Boone County. (Roberts). Larvae 75-80 in 100 sweeps of alfalfa in Washington County. No adults collected. Highest numbers ever collected in area. (Boyer). OKLAHOMA - Averages per 100 sweeps of alfalfa by county and location as follows: Adair - Baron, 252; Sequoyah - Moffett, 28; Delaware 17; Ottawa - Junction of State Highways 10 and 10C, 10; Mayes - 3 miles northwest of Locust Grove, 14. Adair, Ottawa, and Mayes Counties are new county records. Adults averaged 2 per 100 sweeps on June 4 at Romia, Bryan County, and two miles south and two miles west of Gay, Choctaw County. These are new county records. Collected May 13 and 14. Determined by D. Anderson. (Okla. Coop. Sur.). NEW MEXICO - Damage moderate, larvae ranged 12-25 per 25 sweeps in alfalfa at Los Lunas, Valencia County. (Heninger). COLORADO - Larvae 500-1,000 per 100 sweeps in uncut, unsprayed alfalfa in Weld, Larimer, and Boulder Counties. Damage very heavy. Adults 50-100 per 100 sweeps (Johnson). SOUTH DAKOTA - Continued to build up rapidly in alfalfa in northern Black Hills. Counts of 2,000+ larvae per 100 sweeps in 5-year-old field near St. Onge, Lawrence County. Mostly first and second instars. Fields east of Spearfish, Lawrence County, 228 adults per 100 sweeps. Weevils appeared more general than expected. Extensive damage expected to appear in alfalfa in 7 to 10 days. (Jones, Walstrom). WYOMING - Larvae increased week ending May 30 in southeastern area. Average per 100 sweeps by county: Platte adults 51 (larvae 225); Goshen adults 22 (larvae 140); Laramie adults 6 (larvae 39). Weevil development ahead of 1968 in southeastern area. Currently, larvae ranged 25-72 per sweep in 3 alfalfa fields in Washakie County. (Burkhardt). Adults ranged 4-300, larvae 0-8,000 per 100 sweeps in south-central and Big Horn Basin areas. Average per 100 sweeps by county: Carbon 1 larva (4 adults); Fremont 511 larvae (127 adults); Hot Springs 762 larvae (82 adults); Washakie 1,160 larvae (72 adults); Big Horn 2,612 larvae (119 adults); Park 276 larvae (68 adults). Damage evident in Washakie and Big Horn Counties. (Parshall). UTAH - High in many Piute County alfalfa fields. Much spraying. (Chapman, Knowlton, June 4). OREGON - Larvae building up in Crook County alfalfa. (Every).



CLOVER HEAD WEEVIL (*Hypera meles*) - MISSOURI - Larvae and adults on hop and white clovers in Dade, Jasper, Polk, and Stone Counties. These are new county records. (Munson).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MISSISSIPPI - Moderate on cowpeas in Oktibbeha County. About 2 to 3 per linear row foot. (Dinkins).

PEA APHID (*Acyrtosiphon pisum*) - WISCONSIN - Generally very light in alfalfa in southern and central counties. Parasitism high. (Wis. Ins. Sur.). OKLAHOMA - Averaged 100 per sweep in alfalfa in Washita County. Heavy in Mayes County. Ranged 75-100 per 10 sweeps in Garvin and Bryan Counties. Light in Garfield County. (Okla. Coop. Sur.). COLORADO - Light (500-1,000 per 100 sweeps) in most alfalfa in Weld, Larimer, and Boulder Counties. (Johnson). WYOMING - Ranged 30-1,000 per 100 sweeps on alfalfa in southeastern area week ending May 30. Currently ranged 50-20,000 per 100 sweeps in south-central and Big Horn Basin areas. Average per 100 sweeps by county: Carbon 90, Fremont 147, Hot Springs 1,225, Washakie 9,200, Big Horn 500, Park 470. High throughout Washakie County. No damage apparent. (Parshall). UTAH - Light to moderate, 7-50 per 10 sweeps of alfalfa in Sanpete and Millard Counties. (Knowlton, June 4).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Averaged 12-15 adults and 10-12 nymphs per 25 sweeps in alfalfa at Tucumcari, Quay County (Mathews) and 2-10 per 25 sweeps in alfalfa in Los Lunas, Valencia County (Heninger). ARIZONA - Ranged 120 per 100 sweeps at Yuma, Yuma County. One seed field treated. (Ariz. Coop. Sur.). UTAH - Adults 3-15 in 10 sweeps of alfalfa, nymphs more numerous, in Millard and Sanpete Counties. (Knowlton, June 4). WYOMING - Average per 100 sweeps of alfalfa by county May 30: Goshen 38, Platte 97, Laramie 18. Nymphs and adults per 100 sweeps by county: Carbon 15, Fremont 220, Hot Springs 462, Washakie 204, Big Horn 277, Park 414. (Parshall). NEW JERSEY - Heavy in Gloucester County alfalfa commencing to go to seed. (Ins.-Dis. Newsltr.). MICHIGAN - *L. lineolaris* (tarnished plant bug) rapidly building up in all alfalfa surveyed. Ranged from low of 28 to high of 63 in 25 sweeps. (Newman, May 29).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - WYOMING - Adults and nymphs averaged 205 per 100 sweeps in 6 alfalfa fields in Fremont, Hot Springs, and Big Horn Counties. Light in other fields. (Parshall).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - WISCONSIN - Averaged 2 per stem on forage crops in central sands area. (Wis. Ins. Sur.). OHIO - Predominant plant bug on forage crops in northern and southern areas. (Richter). MARYLAND - Adults ranged 60-100 per sweep in 50 acres of red clover near Church Hill, Queen Annes County. (U. Md., Ent. Dept.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - Averaged 2 per 100 sweeps in alfalfa at Safford, Graham County. (Ariz. Coop. Sur.). WYOMING - Larvae averaged 4 per 100 sweeps in 3 alfalfa fields in Fremont and Hot Springs Counties. (Parshall).

A TORTRICID MOTH (*Choristoneura parallela*) - INDIANA - Larvae swept from alfalfa May 20 in West Lafayette, Tippecanoe County. Afterwards numerous others observed throughout central areas. Determined by D.M. Weisman. This is a new State record. (Huber).

A LEAFCUTTING BEE (*Megachile rotundata*) - IDAHO - First emergence of season May 22 at Marsing, Owyhee County. (Wilson). First appeared May 31 near Parma, Canyon County. This earlier than usual. (Waters). WASHINGTON - First adult emergence in nesting board under natural conditions May 27 at Prosser, Benton County. (Gerber). NEVADA - Emerged from nonincubated nests at Lovelock, Pershing County, week ending May 30. (Lauderdale).

## COTTON

**BOLL WEEVIL (*Anthonomus grandis*)** - SOUTH CAROLINA - On 33 wing traps in 11 cotton fields in Florence County collected 7,417 during period April 7-June 3. From May 28-June 3 collected 2,353 weevils. (Taft et al.). GEORGIA - Caught 45 in 3 traps June 2-6 in Spalding County (Beckham); overwintered weevils 0-140 (average 50) per acre in 8 fields in Randolph County; none in 2 treated fields, 75 per acre in untreated field in Tift County; 4 and 8 percent punctured squares in 2 untreated fields in Turner County (Canderday, Womack). ALABAMA - Overwintered weevils continue to emerge in rather large numbers on 4 to 12-leaf cotton in southern counties. Cotton 5-15 days later than usual in southern and central area. Overwintered weevils 50 per acre on 2 farms in Shelby County and in lower fringe of northern area. (Gamble et al.). MISSISSIPPI - Overwintered weevils in 2 of 12 cotton fields checked in Yazoo County and one field in Lee County. (Dinkins). In 1 of 3 cotton fields checked weevils averaging 260 per acre in delta counties. In 28 wing traps collected 13 weevils; total to date 229. (Pfrimmer et al.). LOUISIANA - In Madison Parish 25 weevils recovered from 16 of 17 wing traps at 15 sites near spring ground trash collection sites; to date recovered 474 weevils. From 10 wing traps near hibernation sites and checked daily 25 weevils recovered; total to date 112. Total collected in all wing traps 2,368. (Cleveland et al.). TEXAS - Found in 13 of 28 untreated McLennan and Falls Counties cotton fields; averaged 82 per acre (maximum 500). Found in 5 of 55 treated fields; averaged 15 per acre (maximum 250). No weevils collected on flight screens. In McLennan County hibernation sites 3 overwintered weevils taken on 21 wing traps; total for season 1,025. (Cowan et al.). In southern areas weevil activity increased and strip spraying of fields begun in some areas. In San Patricio, Bee, and Live Oak Counties, large numbers moved into fields. Increased activity noted in De Witt County, medium in Milam County. (Deer, Moore). ARKANSAS - Wing traps operated in several locations. In most cases very few weevils taken in areas where diapause control applied. In Yell County, 22 weevils caught on 5 traps week of May 19 in area where diapause control not applied. In heavily wooded area of Columbia County where diapause control adequate, 671 weevils taken on 5 wing traps week of May 26. (Boyer, Barnes). TENNESSEE - Few weevils present over number found past period. Feeding signs present in regularly infested area. (Locke).

**BOLLWORMS (*Heliothis* spp.)** - SOUTH CAROLINA - First report for season. About second instars feeding on leaves of cotton in lower Florence County. Relatively heavy for time of year. (Nettles, May 28). Collected 3 moths in light trap at Florence, Florence County; total to date 212. (Taft et al.). ALABAMA - Small larvae light and few eggs in most fields examined in Henry and Houston Counties. Few larvae entered squares. (McQueen). TENNESSEE - First of season on seedling cotton in western area. (Locke). MISSISSIPPI - Larvae in 2 of 3 cotton fields checked in delta counties. Collected 205 *H. zea* in 60 sex lure traps; total to date 1,148. (Pfrimmer et al.). ARKANSAS - Light trap catches of *H. zea* continue very light; single specimens taken at Hope, Hemstead County, and at Kelso, Desha County, May 29 to June 4. (Boyer). LOUISIANA - In Madison Parish blacklight trap collected 15 *H. zea*, 3 *H. virescens*. In 2 cotton fields checked none found in one field, but 7 larvae and 5 eggs found in 100 terminals in other field. (Cleveland et al.). TEXAS - Average counts per 100 terminals in McLennan and Falls Counties; Eggs 1, larvae 0.3 in 55 treated fields; eggs 0.5, larvae 0.2 in 28 untreated fields. Eggs and/or larvae collected on Texas star, phlox, corn, sleepy catchfly, and horsemint this period. Fourty-four larvae previously collected from native hosts identified *H. zea*. One larva from phlox identified *H. virescens*. Total to date on all hosts 254 *H. zea* and 4 *H. virescens*. Five larvae previously collected on cotton identified *H. zea*. (Cowan et al.). *H. zea* and *H. virescens* light in most areas of Rio Grande Valley. Light in cotton in Williamson County. (Deer, Wakefield).

**TARNISHED PLANT BUG (*Lygus lineolaris*)** - MISSISSIPPI - Adults averaged 5 per 100 row feet (maximum 7.5) in 3 presquaring cotton fields in delta counties. (Pfrimmer et al.).

**COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*)** - TEXAS - Light, ranged 3-5 per 100 terminals in Williamson and Jackson Counties. Increased in eastern parts of Willacy and Cameron Counties and in De Witt County. Continues to build up on wild hosts in Blacklands counties; some nymphs noted in cotton. No damage expected until cotton starts squaring. Very light in Falls, McLennan, Navarro, Ellis, and Dallas Counties. (Wilson et al.). Averaged 1 per 100 terminals in 55 treated fields, 0.7 in 28 untreated fields in McLennan and Falls Counties. Averaged 14.2 per sweep in 9 fields of horsemint, 10.1 in 1 field of evening-primrose. (Cowan et al.).

**A FLEAHOPPER (*Spanogonicus albofasciatus*)** - ARIZONA - Averaged 4 per 100 sweeps in Graham and Greenlee Counties week ending May 29. Currently averaged 4 per 100 sweeps in Pima, Pinal, and Maricopa Counties. (Ariz. Coop. Sur.).

**COTTON APHID (*Aphis gossypii*)** - TENNESSEE - Apparently declining; probably associated with increase of lady beetles. (Locke). ARKANSAS - Heavier than past several years but noneconomic; possibly due to favorable weather. (Boyer, Barnes). TEXAS - Increased slightly in Blacklands area but still at low levels. Reported on cotton in Williamson County, no damage evident. (Turney, Wakefield). NEW MEXICO - Light spotted infestations in northern Dona Ana County fields. (Elson).

**THRIPS** - GEORGIA - Moderate on Spalding County cotton. (Beckham). TENNESSEE - Averaged 6 per plant in untreated cotton fields near or adjoining small grains. (Locke). MISSISSIPPI - *Frankliniella* spp. remain high in untreated fields in Lee County; averaged 25-30 per 20 plants. Numbers reduced below last week's level in untreated fields checked in Yazoo County. (Dinkins). Light to moderate in late fields in delta counties. (Pfrimmer et al.). ARIZONA - *F. occidentalis* (western flower thrips) light on cotton statewide. Cotton in excellent condition. (Ariz. Coop. Sur., May 29). ARKANSAS - Thrips light, crop passed susceptible stage. Except for extreme northeastern area, ample moisture kept roadside vegetation green reducing migration. (Boyer, Barnes). MISSOURI - On cotton in southeast area. Controls applied. (Jones). OKLAHOMA - Averaged 2 per plant on 2 to 3-leaf cotton in Garvin County and ranged 9-30 per 20 plants on 2 to 4-leaf cotton in Jackson County. (Okla. Coop. Sur.). TEXAS - Medium in Milam County on cotton. Light to medium in Williamson and Jackson Counties. Increased and caused some damage in untreated fields in Blacklands area. Light to medium in Hill, Ellis, Navarro, Dallas, Collin, McLennan, and Falls Counties. Noted in several fields that had systemic insecticide seed treatment. (Moore et al.). NEW MEXICO - Damage minor to foliage in several fields checked in northern Dona Ana County. (Elson).

**SPIDER MITES (*Tetranychus* spp.)** - MISSISSIPPI - Remain problem in scattered locations in delta counties. (Pfrimmer et al.). ARIZONA - One small field required treatment for *T. turkestanii* (strawberry spider mite) at Yuma, Yuma County. (Ariz. Coop. Sur.).

## TOBACCO

**TOBACCO FLEA BEETLE (*Epitrix hirtipennis*)** - MARYLAND - Adults heavy, ranged 3-6 per tobacco plant in Anne Arundel and Prince Georges Counties. Controls needed in several fields. (U. Md., Ent. Dept.). VIRGINIA - About 100 feeding punctures on some tobacco leaves in 10-acre field of untreated newly set tobacco in Pittsylvania County on May 28. (Dominick).

**POTATO STALK BORER (*Trichobaris trinotata*)** - GEORGIA - Eating "shot-holes" into tobacco leaves in corner of fields in Atkinson County. (Miles).

**CABBAGE LOOPER (*Trichoplusia ni*)** - GEORGIA - Heavy on bottom leaves of tobacco in Ware County. (Camerday).

**CUTWORMS** - SOUTH CAROLINA - One grower lost 60 percent of tobacco in Lee County. (Linder, May 28).

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Averaged 1 per plant in 2-acre field of newly set tobacco in Pittsylvania County on May 27. (Dominick).

SLUGS - WISCONSIN - Several tobacco seedbeds destroyed in Dane County. Control underway. (Wis. Ins. Sur.).

#### SUGARBEETS

BEET WEBWORM (Loxostege sticticalis) - WYOMING - Moths active in sugarbeet fields of Washakie County. (Burkhardt). COLORADO - Adults heavy past few weeks in north-eastern and east-central areas. Eggs in many areas. (Hoff et al.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - WYOMING - About 8 acres of sugarbeets treated and replanted in Wheatland area, Platte County. Area plowed from wasteland in spring. (Landen, May 30).

SALT-MARSH CATERPILLAR (Estigmene acrea) - WYOMING - Adults active and laying eggs on sugarbeets on experiment station at Torrington, Goshen County. (Parshall, May 30).

A CARRION BEETLE (Silpha bituberosa) - WYOMING - Larvae and adults causing damage in some fields in Powell area, Park County, and Worland area, Washakie County. Generally light, averaged 3 per 100 row feet. Heaviest 2 per linear foot. Controls applied in fields showing severe damage. (Burkhardt, May 30).

SPINACH LEAF MINER (Pegomya hyoscyami) - WYOMING - Adults active and laying eggs on sugarbeets on experiment station at Torrington, Goshen County. Few larvae in leaves. (Parshall, May 30). COLORADO - Larvae very light in northeastern area due to systemic controls and sugarbeets outgrowing damage. (Johnson).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - WYOMING - Adults active in sugarbeet fields of Park, Big Horn, Washakie, and Hot Springs Counties. (Parshall). COLORADO - Larval damage appearing in Weld, Larimer, and Boulder Counties. (Jenkins, Johnson).

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - WASHINGTON - Starting to damage sugarbeets, infestation earlier this year at Toppenish, Yakima County. (Landis).

#### MISCELLANEOUS FIELD CROPS

TWO-SPOTTED SPIDER MITE (Tetranychus urticae) - WASHINGTON - Adult females 25-50 per leaf, laying eggs, and webbing. Infesting 80 acres of hops. Heaviest infestation on hops this early for last 5 years at Satus, Yakima County. (Cone).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW HAMPSHIRE - First adult activity at Durham, Strafford County, May 30. (Sutherland). TENNESSEE - Generally heavy on potatoes in southwest areas. (Locke). OKLAHOMA - Adults and larvae causing heavy damage to home garden potatoes in Major County. (Okla. Coop. Sur., May 31). COLORADO - Larvae appearing and causing damage in unsprayed potato fields in Weld County. (Johnson). IDAHO - Averaged 5 adults and 9 egg clusters per 40 row feet on potatoes in 3 to 4-leaf stage at Aberdeen, Bingham County. (Carpenter).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Tomato fields treated at Yuma, Yuma County. (Ariz. Coop. Sur.). TEXAS - Light in several tomato fields in Harris County. (Portie, Green). SOUTH CAROLINA - Light on tomatoes in Richland County. (Thomas).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Adults of overwintered generation heavy on tomatoes in southern Mobile County. (Nelson et al.).

TOMATO RUSSET MITE (Aculops lycopersici) - CALIFORNIA - Heavy on tomato at Bard in Imperial County. (Cal. Coop. Rpt.).

#### BEANS AND PEAS

ALFALFA CATERPILLAR (Colias eurytheme) - IDAHO - Larvae damaging peas, controls applied at Lewiston, Nez Perce County. (Kambitsch).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - First larvae of season present on string beans in Sussex County. (Burbutis).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - IDAHO - Small larvae found in pea field at Lewiston, Nez Perce County. Severe defoliation occurred where concentrated May 29. (Kambitsch).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Eggs present on string beans in Sussex County. (Burbutis). MARYLAND - Egg laying and adult feeding heavy in many small garden plots in southern areas. Adults active statewide. (U. Md., Ent. Dept.). SOUTH CAROLINA - Eggs hatching and larvae numerous on snap beans throughout State. (Thomas, May 28). GEORGIA - Moderate to heavy in Tift County snap beans. (Todd). ALABAMA - Overwintered adults heavy on garden beans at Monroeville, Monroe County. Adults overwintered in large numbers throughout State, especially in south area. (Lemons et al.). IDAHO - One adult and several egg masses found on garden beans in Boise, Ada County. First activity of season. (Fisher).

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Common on Spalding County cabbage. (Dupree). TEXAS - Light to medium on cabbage in Klein community of Harris County. Under control and not causing excessive damage. (Portie, Green).

IMPORTED CABBAGEWORM (Pieris rapae) - TENNESSEE - Increasing on cabbage in western area; 5-6 larvae per untreated cabbage head. (Quillin). NEW HAMPSHIRE - First eggs at Stratham, Rockingham County, week ending May 27. (Sutherland).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - CALIFORNIA - Adults heavy on radish seed heads at Gualala, Mendocino County. (Cal. Coop. Rpt.).

#### CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - MISSISSIPPI - Heavy on cucumbers in experimental plots in Oktibbeha County; 10-15 per linear row foot. (Dinkins).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - WISCONSIN - Up to 30 per plant on cucumbers in La Crosse County. (Wis. Ins. Sur.).

#### GENERAL VEGETABLES

A WEEVIL (Pantomorus pallidus) - OKLAHOMA - Heavy on sweetpotatoes in Cleveland County. (Okla. Coop. Sur., May 31).

ONION MAGGOT (Hylemya antiqua) - WISCONSIN - Damaged onions in vegetable gardens in Price, Green Lake, and Adams Counties. (Wis. Ins. Sur.). COLORADO - Larvae infesting 1 onion plant per 50 row feet in field at Fort Lupton, Weld County. Damage appearing. (Johnson).

ONION THRIPS (Thrips tabaci) - COLORADO - Ranged 0-30 per onion plant in Weld, Boulder, and Larimer Counties. Damage appearing where counts 20-30 per plant. (Johnson).

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WEATHER OF WEEK ENDING JUNE 9

HIGHLIGHTS: Warming continued over the West. Central and East experienced changeable temperatures with many areas receiving light to heavy showers.

PRECIPITATION: Spotty local showers left an uneven precipitation pattern over most of the central and eastern portions of the Nation. Little rain of importance fell from California to the central and southern Rockies. Showers and thunderstorms occurred in the warm air ahead of and near an eastward moving cold front early in the week. Some of the thunderstorms were accompanied by hail, strong winds, and heavy downpours. Cold rain fell in the vicinity of the Great Lakes on Tuesday while turbulent weather occurred from southeastern Kansas to Texas. More rough weather struck the central Great Plains on Wednesday. A tornado damaged more than a dozen farmsteads near Belmont, Wisconsin; other tornadoes hit Iowa, Missouri, and Illinois. Hail ranging from golf ball to baseball size pelted spots in northern Missouri. Violent winds uprooted trees north of Claxton, Georgia, early Wednesday afternoon. Spotty thundershowers occurred in New England on Tuesday, Friday, and Monday. A storm unroofed homes and uprooted trees in Chatham, New Hampshire, on Friday. The worst hailstorm in many years struck Parkersburg, West Virginia, on Sunday. Some of the hailstones were as large as golf balls. Hailstones approached that size at Ashland, Oregon.

TEMPERATURE: Temperatures ranged widely last week. Cool air moved into the Great Plains early in the week and spread eastward. By midweek, minimums in the 30's were common near the northern Great Lakes and in northern New England. In contrast, summer heat baked the Far Southwest. Fresno, California, registered 109° Tuesday afternoon. The hot weather spread northward and eastward with 100° heat reaching the desert areas of Washington by midweek and parts of the central Great Plains by Thursday. Scottsbluff, Nebraska, warmed to 98° on Thursday afternoon from 31° Monday morning. Numerous stations from southwestern Iowa registered 100° or higher on Friday. The heat wave continued eastward over the weekend with afternoon temperatures reaching the 90's as far north as Kentucky and Virginia on Sunday afternoon. Meanwhile, cooler air moved into the North Central States dropping early morning temperatures to the 30's and 40's over parts of the northern Great Plains and Great Lakes region. Sault Ste. Marie, Michigan, registered 32° on Sunday morning. In general, temperatures averaged above normal over the West and below normal over the East and South. Temperatures averaged 6° to 9° below normal near the Great Lakes and from central Texas to Birmingham, Alabama, and 9° to 14° above normal from eastern Washington and western Montana to central Nevada. (Summary supplied by Environmental Data Service, ESSA.)

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - UTAH - Flights heavy in Box Elder County and moderately heavy in Utah County. (Knowlton, June 2). IDAHO - First injury of season on 1-inch apples May 29 at Fruitland, Payette County. (Homan). NEW YORK - First adult emergence May 26 at Geneva, Ontario County. (N.Y. Wkly. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - TEXAS - On plums in home orchard near Graham, Young County, for a new county record. Determined by D.M. Weisman. (Green). MICHIGAN - Active in neglected Allegan County peach block; much dieback of new growth. (Thompson, May 29). NEW JERSEY - Caught 32 in trap May 27 to June 3 at Glassboro, Gloucester County. (Ins.-Dis. Newsltr.).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Moderate at Brigham and Willard, Box Elder County. (Knowlton, June 2). ARIZONA - Infested apricot and plum fruit in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

TORTRICID MOTHS - MICHIGAN - Argyrotaenia velutinana (red-banded leaf roller) hatched; larvae feeding on leaves and newly forming fruit. Will continue through most of June if not controlled. (Thompson, May 29). WYOMING - Archips argyrospilus (fruit-tree leaf roller) larvae heavy on ornamental cistena cherry at Cheyenne, Laramie County. (Spackman, May 30).

AEGERIID MOTHS (Sanninoidea spp.) - NEW MEXICO - Young Sanninoidea sp. larvae girdling peach trees in home plantings and commercial orchards in Bernalillo and Sandoval Counties. (Heninger). WASHINGTON - First full-grown S. exitiosa (peach tree borer) larvae in cocoons on peach June 3 at Parker, Yakima County. (Johnson).

A TENT CATERPILLAR (Malacosoma californicum pluviale) - OREGON - Larvae locally abundant in home orchards in Washington County. Some apple and cherry trees completely defoliated. Larvae migrating and spinning cocoons May 31. (Goeden).

PLUM CURCULIO (Conotrachelus nenuphar) - WYOMING - Adults on apple trees at Cheyenne, Laramie County. (Patch, May 30). OKLAHOMA - Punctures heavy in native plums in Stephens County. (Okla. Coop. Sur., May 31). MICHIGAN - First egg laying stings found May 28 from Berrien to Kent Counties. (Thompson). NEW JERSEY - Found 19 in 10 minutes June 3 at Glassboro, Gloucester County. (Ins.-Dis. Newsltr.). CONNECTICUT - Injury easy to find on untreated fruit statewide. (Kollas, June 3).

APHIDS - CALIFORNIA - Rhopalosiphum padi nymphs and adults heavy on cherry and almond trees in Placer County, medium on rose bushes at Geyserville, Sonoma County. This aphid increasing host range; now found on fruits, nuts, and ornamentals more frequently. Dysaphis plantaginea (rosy apple aphid) medium in apple orchards at Sebastopol, Sonoma County. (Cal. Coop. Rpt.). NEVADA - Myzus cerasi (black cherry aphid) light on cherry at Elko, Elko County. (Zunino). Brachycaudus helichrysi and Phorodon humuli (hop aphid) light to heavy on plum at Elko, Elko County. (Peters, Zunino). NEW MEXICO - Myzus persicae (green peach aphid) moderately heavy, curled peach leaves in Sandoval and Bernalillo Counties. (Heninger).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - MICHIGAN - Nymphs active in southwestern area; first hatch underway in Kent County problem orchards. (Thompson, May 29).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - NEW YORK - First captured in seeded cages May 27 at Geneva, Ontario County. (N.Y. Wkly. Rpt.).

SPIDER MITES - CALIFORNIA - Bryobia rubrioculus adults heavy on apple trees at Skaggs Springs, Sonoma County. (Cal. Coop. Rpt.). UTAH - Panonychus ulmi (European red mite) injury at Provo and Orem, Utah County. Damage conspicuous in cherry orchard. Serious orchard mite damage at Hurricane, Washington County. Tetranychus mcdanieli injured fruit trees unusually early at Santaquin, Utah

County. (Davis et al., June 4). MICHIGAN - P. ulmi light to moderate where inadequate coverage resulted in early season oil programs. Second-generation egg deposits showing on undersides of leaves. (Thompson, May 29).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - WASHINGTON - Damage severe on Golden Delicious apple at Belvidere, Okanogan County. (Rushmore).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - New eggs ranged 1-8 per 100 nut clusters in Love and Jefferson Counties. Light, less than 1 percent, in Garvin and Carter Counties. Infestation 3-5 percent in Le Flore County; some red eggs in Payne and Tulsa Counties. (Okla. Coop. Sur., May 31).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy in almond orchards at Winters, Yolo County. (Cal. Coop. Rpt.).

PECAN PHYLLOXERA (Phylloxera devastatrix) - GEORGIA - Moderate on pecan foliage in Spalding County. (Tippins).

BLACK-MARGINED APHID (Monellia costalis) - NEW MEXICO - Up to 20 per leaf on pecan trees checked in Dona Ana County. (Elson).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Damaging nutlets and small twigs of pecans in Washington County. (Okla. Coop. Sur.).

#### CITRUS

Citrus Insect Situation in Florida - End of May - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 72 (norm 44) percent of groves; 56 (norm 27) percent economic. Decreased on leaves and fruit. Still above normal and in high range. Further decrease expected through June but will continue above normal and heavy infestations may be expected in about 20 percent of groves. Highest districts west and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 38 (norm 59) percent of groves; 19 (norm 38) percent economic. Increased slightly and expected to remain near present subnormal level. Highest districts central and north. CITRUS RED MITE (Panonychus citri) infested 46 (norm 57) percent of groves; 18 (norm 32) percent economic. Slight increase expected through June. Will remain subnormal, scattered and spotty. Highest districts west and north. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 17 percent of groves; 2 percent economic. Near normal, mostly in unsprayed groves. Decrease expected. GLOVER SCALE (Lepidosaphes gloverii) infested 80 (norm 84) percent of groves; 15 (norm 28) percent economic. Near high range but below normal. Slight increase expected. Highest districts south and west. PURPLE SCALE (L. beckii) infested 78 (norm 81) percent of groves; 8 (norm 12) percent economic. Little change expected from current low and subnormal level. Highest district north. CHAFF SCALE (Parlatoria pergandii) infested 54 (norm 69) percent of groves; 2 (norm 15) percent economic. Will remain subnormal and in low range. YELLOW SCALE (Aonidiella citrina) infested 70 (norm 66) percent of groves; 6 (norm 11) percent economic. Expected to remain near current moderate level which is slightly below normal. Highest districts north and south. An ARMORED SCALE (Unaspis citri) activity temporarily low. BLACK SCALE (Saissetia oleae) infested 44 (norm 48) percent of groves; 18 (norm 26) percent economic. Still below normal but will increase rapidly into high range. Highest districts east, central, and west. MEALYBUGS infested 32 percent of groves; 11 percent economic. Increase from normal level will continue through June. Few heavy infestations expected through July. WHITEFLIES slightly above normal May level and will remain high through July. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Nymphs and adults heavy at Saint Helena, Napa County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increasing; second treatments applied at Yuma, Yuma County. (Ariz. Coop. Sur.).



CITRICOLA SCALE (Coccus pseudomagnoliarum) - CALIFORNIA - Medium at Gridley, Butte County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Decreasing rapidly at Yuma, Yuma County, with higher daily temperatures. (Ariz. Coop. Sur.).

#### SMALL FRUITS

GRAPE FLEA BEETLE (Altica chalybea) - OHIO - Larvae well developed in central area. Complaints on wild and domestic grapes unusually numerous in Franklin, Licking (Lyon, Jones), and Perry Counties (Walker).

EASTERN RASPBERRY FRUITWORM (Byturus rubi) - NEW HAMPSHIRE - Adults feeding on blossom buds of raspberry May 26-27 at Durham, Strafford County, and Salem, Rockingham County. (Mason, Sutherland).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW HAMPSHIRE - Adults on raspberry May 26-27 at Durham, Strafford County, and Salem, Rockingham County. (Mason, Sutherland).

A TORTRICID MOTH (Archips georgiana) - NEW JERSEY - Outnumbers all cranberry pests; potentially very destructive. (Ins.-Dis. Newsltr.).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Small larvae readily found in unsprayed blueberry areas. Flights heavy; will continue about 2 more weeks. (Ins.-Dis. Newsltr.).

BLUEBERRY BUD MITE (Aceria vaccinii) - NEW JERSEY - Damage moderate on Weymouth blueberries at Hammonon, Atlantic County. (Ins.-Dis. Newsltr.).

#### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - ILLINOIS - Hatching in southern sections. (Sur. Bull.).

BROWN GARDEN SNAIL (Helix aspersa) - FLORIDA - Adults moderate May 28 on 80 of 800 goldusttrees at Jacksonville, Duval County. (King, Collins).

#### FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - MICHIGAN - Middle to late instars moderately heavy, damaging new growth of blue spruce in several Kalamazoo locations. As many as 10-12 larvae per spruce bough. Some pupation. (Thompson, May 29). MINNESOTA - In third instar in northern area. Still heavy in all areas where defoliation moderate to heavy in 1968. (Minn. Pest. Rpt.).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Larvae infested Douglas-fir Christmas tree plantings in Clackamas County. Unusual host for this species. (Every).

ADELGIDS - WEST VIRGINIA - Pineus sp. causing needle drop on Roane County white pine. (W. Va. Ins. Sur.). OHIO - P. strobi (pine bark aphid) eggs and nymphs heavy on block of 2,000 white pines in Licking County. (Walker). RHODE ISLAND - New Adelges abietis (eastern spruce gall aphid) and A. cooleyi (Cooley spruce gall aphid) galls evident on blue spruce in Wahington County. (Field).

SPRUCE BUD SCALE (Physokermes piceae) - IDAHO - General on blue spruce at Boise, Ada County; required control. Hatching expected soon. (Hilfiker, June 3).

A CONIFER SAWFLY (Neodiprion pratti pratti) - WEST VIRGINIA - Severely damaged pitch pine in several-square-mile area south of Webb, Wayne County. (W. Va. Ins. Sur.).

ALLEGHENY MOUND ANT (*Formica exsectoides*) - NEW HAMPSHIRE - Damaging Christmas tree plantation May 29 at Barrington, Strafford County. (Sutherland).

FOREST TENT CATERPILLAR (*Malacosoma disstria*) - OHIO - Larval damage widespread in Washington County; completely defoliated 2 small areas of sapling and pole-sized maples. (Soine). ILLINOIS - Defoliation moderate to heavy on 10,000 acres of pin oaks in Jackson County. (USFS). MINNESOTA - About 65 percent fourth instar, 25 percent late third, and rest second and fifth instars. Defoliation apparent from Ash Lake to International Falls to Loman and Littlefork in Koochiching County. *Sarcophaga aldrichi* (a flesh fly) common. (Minn. Pest Rpt.).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - OHIO - Cocoons in Athens County May 26; first adult in blacklight trap May 30 at Marietta, Washington County. (Richter). WISCONSIN - In fifth instar and about to pupate. Defoliation severe on chokecherry, wild black cherry, and untreated apple trees. Heaviest in southern Walworth County. (Wis. Ins. Sur.). MINNESOTA - Mostly in fourth instar with some fifth instars. (Minn. Pest Rpt.).

SPRING CANKERWORM (*Paleacrita vernata*) - SOUTH DAKOTA - Economic near Highmore, Hyde County, and Mission, Todd County; treated 22 acres of shelterbelts at Highmore. (Desmet, Paynter, May 29). Economic near Miller, Hand County, and near Chamberlain, Brule County. (Anderson et al.).

SATIN MOTH (*Stilpnotia salicis*) - IDAHO - Larvae defoliated willows; crawling on outer walls of buildings at New Meadows, Adams County, May 29. (Gibson). OREGON - Larvae defoliated some willows at Salem, Marion County. Adults emerged June 2. (Fisher, Goeden).

FALL WEBWORM (*Hyphantria cunea*) - ARKANSAS - First specimens of season collected from sweetgum in Union County May 29 by E.L. Young and A.A. Beavers. Determined by Warren. (Boyer).

ELM LEAF BEETLE (*Pyrrhalta luteola*) - ARIZONA - Damaging foliage of Chinese elms at Safford, Graham County. (Ariz. Coop. Sur., May 29). UTAH - Injury conspicuous and increasing in many areas. (Knowlton, June 4). COLORADO - Adults and larvae heavy on Chinese elms in Mesa County. (Sisson). NEW MEXICO - Larvae and adults heavy; damaged foliage of Siberian elms at Los Lunas, Valencia County. Eggs and larvae very abundant. (Heninger). OKLAHOMA - Heavy on Siberian elms in many sections. Young crawlers beginning heavy feeding. (Okla. Coop. Sur., May 31). KANSAS - Larvae feeding in Riley County. (Simpson). RHODE ISLAND - Eggs on Washington County elms. (Mathewson). NEW HAMPSHIRE - First eggs May 26 at Durham, Strafford County. (Sutherland).

PERIODICAL CICADA (*Magicicada septendecim*) - VIRGINIA - First detected in Washington County May 24. Concentrations will be very heavy. (Derting). Active in Pittsylvania County May 26. (Dominick). Light to heavy in Bland County. (Mallory).

APHIDS - WYOMING - *Colopha ulmicola* (elm cockscomb-gall aphid) heavy on elms at Cheyenne, Laramie County; controls applied. (Patch, May 30). WEST VIRGINIA - *Periphyllus lyropictus* (Norway-maple aphid) heavy statewide, causing leaf drop and heavy amounts of honeydew. (W. Va. Ins. Sur.).

AN OAK KERMES SCALE (*Kermes pubescens*) - OKLAHOMA - Twigs falling from Payne County pin oaks. Damaging blackjack oak in Lincoln County. (Okla. Coop. Sur., May 31). KANSAS - Heavy on Riley and Johnson County oaks. (Simpson).

EUROPEAN FRUIT LECANIUM (*Lecanium corni*) - OKLAHOMA - Heavy on American elm in Muskogee County; crawlers active, 15 percent parasitized. (Okla. Coop. Sur.).

OYSTERSHELL SCALE (*Lepidosaphes ulmi*) - WISCONSIN - About half hatched; some forming exuvial covering. Many still under mother scale in Dane County. (Wis. Ins. Sur.). ILLINOIS - Hatch underway in central and southern areas. (Sur. Bull.).

A MIDGE (*Dasineura gleditchiae*) - IDAHO - Spring generation of adults emerging from heavily infested honeylocust at Blackfoot, Bingham County; larvae and pupae numerous May 27. (Renberg).

#### MAN AND ANIMALS

SCREW-WORM (*Cochliomyia hominivorax*) - Total of 14 cases reported in U.S. June 1-7, as follows: TEXAS - Coke 1, Glasscock 1, Guadalupe 2, Hidalgo 1, Kimble 1, Medina 1, Sterling 1, Uvalde 1; NEW MEXICO - Eddy 1, Grant 1; ARIZONA - Gila 1, Santa Cruz 1; CALIFORNIA - Imperial 1. Total of 75 cases reported in portion of Barrier Zone in Republic of Mexico May 25-31 as follows: Sonora 43, Chihuahua 16, Coahuila 2, Nuevo Leon 6, Tamaulipas 8. Total of 5 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 71,888,000; New Mexico 3,280,000; Arizona 6,980,000; California 800,000; Mexico 83,880,000. (Anim. Health Div.).

CATTLE GRUBS (*Hypoderma* spp.) - WASHINGTON - *Hypoderma* sp. annoying cattle in field June 4 at Pullman, Whitman County. (Telford). COLORADO - *H. lineatum* (common cattle grub) adults and other flies annoying Weld County cattle. (Uran). WISCONSIN - *H. bovis* (northern cattle grub) adults running Barron County cattle. (Wis. Ins. Sur.).

HORSE BOT FLY (*Gasterophilus intestinalis*) - OKLAHOMA - One adult per horse in Payne County. (Okla. Coop. Sur., May 31).

FACE FLY (*Musca autumnalis*) - GEORGIA - Heavy on Polk County beef cattle. (Stowe, Nolan). VERMONT - Abundant in Chittenden County. (Nielson, MacCollom, June 3). ILLINOIS - Average per head by district: Southwest 8.9, southeast 6.8, and west-southwest 1.0. (Ill. Ins. Rpt.). IOWA - Ranged 5-35 (average 20) per face on herd of cows and calves in Jones County. (Iowa Ins. Inf.). WISCONSIN - Very light in most counties. (Wis. Ins. Sur.). OREGON - Problem in Josephine, Jackson, and Grant Counties. (Every). Averaged 10 per cow in Washington County. (Goeden).

HOUSE FLY (*Musca domestica*) - FLORIDA - Adults unusually heavy in and around livestock barns, pens, and in pastures at watering and feeding areas over wide area of Everglades. Sharply increased in dairy barns at Gainesville, Alachua County, last week of May and first week of June. (Butler). WISCONSIN - Low in barns in most counties. Some spraying done. (Wis. Ins. Sur.).

HORN FLY (*Haematobia irritans*) - TEXAS - Heavy and widespread on Jackson County cattle. (Wilson). OKLAHOMA - Averaged 1,000 per head on beef cattle May 31 in Noble County and 800 in Major County. Up to 1,000 per head on cattle in Major County and 300-500 per head in Payne County. Heavy in Craig and Garvin Counties, light in Cleveland County. (Okla. Coop. Sur.). NORTH DAKOTA - Ranged 5-600 per head on 19 herds in sandhills area of Richland and Ransom Counties. Herd averages ranged 5-200 (averaged 100) per head. Some bulls had 2,000 per head. (Brandvik, McBride). WISCONSIN - Evident in most counties but no problem. (Wis. Ins. Sur.). ILLINOIS - Average per head by district: Southeast 281.5, southwest 120.5, and west-southwest 35.6. (Ill. Ins. Rpt.). GEORGIA - Ranged 500-2,000 per head on untreated beef cattle over State; 0-5 per head on treated beef cattle in Polk County. (Nolan, Stowe). FLORIDA - Up to 500-600 adults per head on untreated cattle at Gainesville, Alachua County. Collected and determined by J.F. Butler. Counts on dairy cattle up to 300 per head in Marion County and up to 140 per head in Alachua County May 30. (Butler). VERMONT - Abundant in Chittenden County. (Nielson, MacCollom, June 3).

STABLE FLY (*Stomoxys calcitrans*) - FLORIDA - Adults up to 7 per head on beef cattle at Gainesville, Alachua County. (Butler). GEORGIA - Averaged 1-3 per head on treated beef cattle in Polk County. (Stowe, Nolan). ILLINOIS - Average per head by district: Southeast 7.6, southwest 3.5, and west-southwest 1.9. (Ill. Ins. Sur.). VERMONT - Abundant in Chittenden County. (Nielson, MacCollom, June 3).

MOSQUITOES - UTAH - Troublesome June 2 in many Box Elder County communities and on farm lands, and in Locomotive Springs area. Very numerous, breeding in several hundred acres of wet land at Moroni and Manti and other areas of Sanpete County, and at Delta and Abraham, Millard County. Troublesome throughout lower areas and canyons of Cache County. (Knowlton, June 4). NEW MEXICO - Very abundant around homes, buildings, and areas near river and irrigation ditches at Los Lunas, Valencia County. (Heninger). NORTH DAKOTA - Larvae 0-30 (averaged 4) per dip in untreated areas in Cass County. Fourth instar *Culiseta* spp. evident south of Fargo while second instar *Aedes* spp. found north of Fargo. Some first-brood *Culiseta* emerged. Spring floods left standing water. (Brandvik). MINNESOTA - Generally low at Minneapolis and St. Paul. Light traps revealed 20 species present; *Aedes abserratus*, *A. cinereus*, *A. vexans*, *Anopheles walkeri*, *Culex restuans*, *C. tarsalis*, *C. territans*, and *Culiseta inornata* dominated in 1,229 specimens taken. *A. sticticus*, *A. cinereus*, *A. stimulans*, and *A. vexans* dominant in biting collections. (Minn. Pest Rpt.). WISCONSIN - Mosquitoes most annoying insect pests of cattle. Moderately annoying to humans in most areas, but very annoying in local areas on warm evenings. Recent rains may contribute somewhat to problem if weather warms up. (Wis. Ins. Sur.). OHIO - Higher recently than past several years. *Aedes stimulans* and *A. canadensis* predominant at Toledo, Lucas County. Some *A. vexans* appearing and expected to increase with warmer weather. (Brockway). *A. stimulans* and *A. sticticus* heavy in Richland County. (Parsons). *A. sticticus* most annoying species at Wooster, Wayne County. (Rings). New county record for *A. sollicitans* reported in Lucas County. (Martine). *A. intrudens* high, resting on clover during cool weather June 2 in Logan and Shelby Counties. (Richter).

A BITING MIDGE (*Leptoconops kerteszi*) - UTAH - Extremely numerous on higher areas of Antelope Island in Great Salt Lake, Utah State Park. Almost absent on beach. Moderate numbers annoying in Snowville to Cedar Creek areas of Box Elder County. (Bohart, Knowlton, June 4).

TABANID FLIES - UTAH - Annoying horses June 2 at Fielding and Collinston, Box Elder County, and June 4 at Moroni, Sanpete County. (Knowlton). WISCONSIN - Deer flies active and biting humans on warmer days in Vilas and Rusk Counties. (Wis. Ins. Sur.).

BLACK FLIES - GEORGIA - Annoying horses and cattle in Spalding County. (Snoddy). WISCONSIN - Bothersome to laborers, fisherman, and picnickers in northern counties, particularly Iron, Vilas, and Menominee. (Wis. Ins. Sur.). MINNESOTA - Numerous at Minneapolis and St. Paul. (Minn. Pest Rpt.).

HARD-BACKED TICKS - CALIFORNIA - *Ixodes pacificus* biting man at Plantation, Sonoma County. Ticks in general very prevalent currently; several bites reported in northern counties. (Cal. Coop. Rpt.). WISCONSIN - *Dermacentor variabilis* (American dog tick) numerous in localized range areas. Generally not so serious as previous years. Relatively numerous in Iowa, Oconto, and Barron Counties. (Wis. Ins. Sur.). RHODE ISLAND - *D. variabilis* numerous throughout State. (Field).

BROWN RECLUSE SPIDER (*Loxosceles reclusa*) - INDIANA - One female collected May 26 from Loogootee, Martin County. Determined by T.A. Parker. This is a new county record. (Huber, May 30). ILLINOIS - Confirmed in Franklin County June 2. Collected by R. Swope from a house. This is a new county record. (Ill. Ins. Rpt.).

## BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults averaged 13 per 100 sweeps of alfalfa in south-eastern areas May 30. Adults and larvae averaged 36 per 100 sweeps of alfalfa in south-central and Big Horn Basin areas June 6. (Parshall). NEW MEXICO - Ranged 10-25 per 25 sweeps on Bernalillo County alfalfa. (Heninger). ARIZONA - Hippodamia convergens (convergent lady beetle) averaged 100 per 100 sweeps of alfalfa at Safford, Graham County. (Ariz. Coop. Sur., May 29).

DAMSEL BUGS - NEW MEXICO - Ranged 1-5 per 25 sweeps in Bernalillo County alfalfa. (Heninger). WYOMING - Nabis sp. adults averaged 9 per 100 sweeps on alfalfa in southeastern area May 30. Nabis spp. adults and nymphs averaged 22 per 100 sweeps of alfalfa in south-central and Big Horn Basin areas June 6. (Parshall).

FLOWER BUGS (Orius spp.) - ARIZONA - Averaged 250 per 100 sweeps of alfalfa at Duncan, Greenlee County. (Ariz. Coop. Sur., May 29).

GREEN LACEWINGS - NEW MEXICO - Up to 2 per 25 sweeps on Bernalillo County alfalfa. (Heninger). ARIZONA - Chrysopa spp. averaged 160 per 100 sweeps of cotton at Yuma, Yuma County. (Ariz. Coop. Sur.).

A VESPID WASP (Odynerus dilectus) - UTAH - Storing nests with Hypera postica (alfalfa weevil) larvae. More numerous than before on experimental farm at Greenville, Cache County. (Bohart, June 4).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Catches of adults in May increased sharply as expected. Primarily due to warmer weather and normal maturation of subtropical fruits to ripe and over-ripe stages. (Fla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Adults light on wheat at Brant, Erie County, for a new county record. Collected by W.M. Puchaez May 28. PENNSYLVANIA - Adults light on oats in Delaware Township, Northumberland County; collected by J.P. Lilley May 29. Adults and larvae in Penn Township, Snyder County, and in Limestone Township, Union County; collected by L.R. Pealer June 3. These are new county records. MARYLAND - Adults and larvae light on oats on farm at Pinto, Allegany County, for a new State record. Collected by E.J. Allen June 2, 1969. KENTUCKY - Larvae light on wheat in Franklin County May 28 and adults light on oats in Spencer County May 29; collected by J.H. Milner III. Larvae light on oats at East Point, Floyd County, June 2. These are new county records. All above records determined by R.E. White. (PPC). OHIO - About half of larvae in north-western area in third and fourth instars, damage averaged 10-20 percent. Severely infested some Knox County outfields, some as high as 10 larvae per stem; one 70-acre outfield sprayed. Other fields will be sprayed in Fairfield County (Lyon, Taylor) and near Danville, Knox County (Walker). MICHIGAN - Sampled 196 sites with 49,000 sweeps. No larvae May 20-28. Highest density of adults, 787 per 250 sweeps May 27 in wheatfield in Shiawassee County. (Hanna). Averaged 300 eggs per square foot of late oats May 28 at Galien, Berrien County. Anaphes flavipes (a mymarid wasp) released week ending May 23 in Cass, St. Joseph, Branch, and Newaygo Counties. (Maltby).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Adults emerged week of May 23 at Hermiston, Umatilla County. First of 4 sprays applied May 26. (Vandehey). WASHINGTON - Emerged and in flight May 31. Building up at Puyallup, Pierce County. (Saunders).

FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) - LOUISIANA - Swarmers collected at Sweet Lake, Cameron Parish, by J.D. Rozas May 27 and in residence at Gretna, Jefferson Parish, by Mayeux and Harris June 2. Determined by V.H. Owens. These are new parish records. (PPC).

GRASS BUGS - WASHINGTON - Irbisia pacifica adults averaged 1-2 per square foot and damaging roadside and some adjacent pasture grasses, principally intermediate wheatgrass, in Spokane County. (Nonini). ARIZONA - Labops spp. heavier and more extensive than in 1968 on Hualapai Indian Reservation south of Grand Canyon. (Ariz. Coop. Sur., May 29). UTAH - L. hesperius severely discolored crested wheatgrass on 200 acres of planted grasses in Diamond Fork Creek, off Spanish Fork Canyon. (Judd, June 2). I. pacifica, nearly all adults June 2, discolored giant ryegrass; other planted grasses less discolored in Beaver Dam area; light in Curlew Valley in Box Elder County. I. pacifica adults common June 4 but becoming less numerous on crested wheatgrass in Millard County fields and roadsides, and in Curlew Valley pastures and range of Box Elder County. Other grass bugs more numerous, 50-90 percent winged. Moderate discoloration on grasses in many localities. (Knowlton). WYOMING - L. hesperius damage severe to crested wheatgrass and bordering wheat at Albin, Laramie County. Ranged 20-40 per sweep in crested wheatgrass and 70-90 per linear foot in border rows of wheat. Controls applied. (Burkhardt). Damaged wheat bordering crested wheatgrass near Burns, Laramie County; controls applied. (Cook). Infesting crested wheatgrass in Iowa Center area, Goshen County. At least 320 acres burned for control. Up to 100 per clump of wheatgrass. (Peterson, May 30). IDAHO - L. hesperius adults about 1 per 2 sweeps on roadside grasses at Troy, Latah County. Mating May 26. (Portman). Nymphs and adults severely damaged 2,000 acres of intermediate wheatgrass May 22 at Midvale, Washington County. Black plant bug feeding caused yellowing of native giant wild-rye in East Slope, Elmore County. Intermediate wheatgrass light colored and dry May 29 at Dixie, Elmore County. (Edwards). L. hesperius adults severely damaged brome grass pastures in Swan Valley, Bonneville County; controls applied. (Moss).

GRASSHOPPERS - WASHINGTON - Melanoplus bivittatus second and third instars scattered in canyon pastures west of Waterville along U.S. Highway 2 in Douglas County May 23. (Nonini). NEVADA - Mostly M. sanguinipes on about 20,000 acres of alfalfa, grain, and fallow land in Diamond Valley, Eureka County; nymphs 20-40 per square yard in many areas. (Burnett, Peters). ARIZONA - M. cuneatus, M. sanguinipes, and Aulocara elliotti heavy May 29 on 10,000 acres at Ash Creek Flat on San Carlos Indian Reservation in Gila County. Treated 12,096 acres at Ash Creek Flat. (Ariz. Coop. Sur.). NEW MEXICO - Moving into alfalfa from surrounding rangeland in southern Eddy County; rangeland treated to protect crops. (Ballard). Ranged 15-28 per 25 sweeps in alfalfa checked at Tucumcari, Quay County. (Mathews). First and second instars averaged 1-3 per 25 sweeps in alfalfa at Los Lunas, Valencia County. (Heninger). COLORADO - M. bivittatus, M. femurrubrum, and others heavy and increasing on Mesa County crop margins. (Sisson). WYOMING - Grasshopper nymphs up to 50 (average 20) per square yard in Haystack Mountains, Goshen County. Hatch began May 21 in Fremont County. (Patch). OKLAHOMA - Hatch not completed by end of May. General hatch underway week of May 12 in Beaver, Cimarron, Texas, Ellis, Harper, Major, Woods, and Woodward Counties. Ranged 3-25 per square yard of range; higher counts in short grass. Ageneotettix deorum, A. elliotti, Amphitornus coloradus, Phliobostroma quadrimaculatum, and M. sanguinipes dominant. Ranged 4-18 per square yard of range in Comanche, Cotton, Greer, Harmon, Kiowa, Tillman, Beckham, and Jefferson Counties. A. deorum, P. quadrimaculatum, M. sanguinipes, M. packardii, and banded-winged species dominant. Ranged 10-15 per square yard on roadside and crop margins in parts of Carter, Love, and McClain Counties. (Okla. Coop. Sur.).

SOUTH DAKOTA - Very low on alfalfa sampled in Lawrence and Butte Counties. M. differentialis dominant (Thomas), in second and third instars (Jones, May 29). A. deorum and A. elliotti light on range in Fall River and Custer Counties last week of May. (Zimmerman). Hatch underway in far south-central and southwestern areas. Five per square yard June 3 near Wewela, Tripp County. M. bivittatus first to fourth instar, M. sanguinipes first to third instar, M. differentialis first to second instar, and M. femurrubrum first instar. (Burge). NORTH DAKOTA - Light hatch continues in southeastern area. Up to 18 nymphs per square yard in field margins and 9 per square yard in alfalfa in light soils in

Richland County. First instars 35 percent, second 24 percent, third 35 percent, and fourth instars 6 percent. M. packardii, M. bivittatus, and M. sanguinipes dominant. Few first instars of M. femurrubrum. (Brandvik). MINNESOTA - Light hatch in sandy soil areas in west-central district. M. bivittatus and M. sanguinipes eggs segmented. (Minn. Pest Rpt.).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Damage extensive to some lawns in Kent and Providence Counties. (Field).

MORMON CRICKET (Anabrus simplex) - NEVADA - Reported in Black and Eldorado Canyons, Humboldt Range, Pershing County. (Ferraro).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Larvae in few rosetted blooms at Yuma, Wellton, and Roll in Yuma County. (Ariz. Coop. Sur.). CALIFORNIA - As scheduled, first aerial release of 37,500 sterile moths May 20 in Kern County on 4 foci where live pink bollworms found in 1967. Aerially released 42,000 moths May 22. The 2,940 exposed hexalure traps yielded one sterile moth. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - MISSOURI - Average 1 larva per spade of dirt in treated area at Cardwell, Dunklin County; larvae feeding in uncultivated area. (Thompson).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Following current suppression sprays, mortality checks completed in 24 square miles. Survey negative on 608 trees on 152 properties on 106 blocks in San Diego, San Diego County. (Cal. Coop. Rpt.).

#### HAWAII INSECT REPORT

General Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy on cucumbers on Hawaii Island, especially at Kona where bulk of crop grown. Sprays being intensified. (Fukumura). IMPORTED CABBAGEWORM (Pieris rapae) and DIAMOND-BACK MOTH (Plutella xylostella) larvae and adults medium to heavy on broccoli at Waikapu, Maui, and on head cabbage and Chinese cabbage at Kamuela, Hawaii Island. (Nakao et al.). CORN EARWORM (Heliothis zea) larvae light on mature bell peppers in large field at Waianae, Oahu. (Funasaki).

Fruits - SOUTHERN GREEN STINK BUG (Nezara viridula) adults medium on citrus and Titchi fruits at Wahiawa, Oahu. Adults and nymphs medium on yard-long beans and eggplants at Koko Head; light in soybean fields at Waimanalo, Oahu. (Kajiwa, Funasaki).

Shade Trees - CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) generally trace to light in curled Chinese banyan leaves at Honolulu, Oahu; heavy in late April. Montandoniola moraguesi (an anthocorid bug) common, nymphs and adults 1-10 per leaf, on lightly infested trees in several areas. (Funasaki). MONKEYPOD MOTH (Polydesma umbricola) larvae and pupae medium on 20 monkeypod trees at Olowalu, Maui. Larvae of probably Eucelatoria armigera (a tachina fly) parasitized 75 percent of P. umbricola larvae. (Miyahira, Nakao).

Man and Animals - MOSQUITOES - Collected 349 Aedes vexans nocturnus and 2,086 Culex pipiens quinquefasciatus on Oahu in May. Aedes catches per trap ranged from zero in many areas to high of 282 at Waiahole. Culex per trap ranged from zero to high of 465 at Waipio. (Mosq. Cont. Br., State Dept. of Health).

Beneficial Insects - LANTANA HISPID (Uroplata girardi) larval mines and newly emerged adults medium on lantana foliage at Halepiula, North Kona, on Hawaii Island. Considered well established in area. Purposely released at Halepiula in 1967 to control lantana, a rangeland weed pest. (Yoshioka).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) activated by heavy showers last week of May at Kahaluu, North Kona, Hawaii Island. Over 150 live snails averaging 2 inches in length collected in and around dense weeds. Eradication continuing. On Kauai, no live snails found during May at Poipu and Wahiawa, where eradication in progress. (Yoshioka, Sugawa).

## INSECT DETECTION

New State Records - A TORTRICID MOTH (Choristoneura parallela) Tippecanoe County, Indiana (p. 425). CEREAL LEAF BEETLE (Oulema melanopus) Allegany County, Maryland. (p. 437).

New County and Parish Records - ALFALFA WEEVIL (Hypera postica) Crawford, Fond du Lac, Ozaukee, Sheboygan, and Vernon Counties, Wisconsin; Adair, Bryan, Choctaw, Mayes, and Ottawa Counties, Oklahoma (p. 424). CLOVER HEAD WEEVIL (Hypera meles) Dade, Jasper, Polk, and Stone Counties, Missouri (p. 425). ORIENTAL FRUIT MOTH (Grapholitha molesta) Young County, Texas (p. 431). SALT-MARSH MOSQUITO (Aedes sollicitans) Lucas County, Ohio (p. 436). BROWN RECLUSE SPIDER (Loxosceles reclusa) Martin County, Indiana; Franklin County, Illinois (p. 436). CEREAL LEAF BEETLE (Oulema melanopus) Erie County, New York; Northumberland, Snyder, Union Counties, Pennsylvania; Floyd, Franklin, Spencer Counties, Kentucky (p. 437). FORMOSAN SUBTERRANEAN TERMITE (Coptotermes formosanus) Cameron and Jefferson Parishes, Louisiana (p. 437).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 6/2-4, BL - Beet armyworm (Spodoptera exigua) 6, corn earworm (Heliothis zea) 2, fall armyworm (S. frugiperda) 1, granulate cutworm (Feltia subterranea) 49, salt-marsh caterpillar (Estigmene acrea) 3. Monticello, 5/29-6/4, 2BL - Armyworm (Pseudaletia unipuncta) 19, black cutworm (Agrotis ipsilon) 30, cabbage looper (Trichoplusia ni) 24, corn earworm 24, granulate cutworm 52, salt-marsh caterpillar 2, tobacco budworm (H. virescens) 5, tobacco hornworm (Manduca sexta) 5, tomato hornworm (M. quinquemaculata) 17, yellow-striped armyworm (Prodenia ornithogalli) 37. MISSOURI - Fair Grove, 5/29-6/4 - Armyworm 25, European corn borer (Ostrinia nubilalis) 8. OHIO - Wooster, 6/1-5, BL - Armyworm 18, black cutworm 1, European corn borer 3, variegated cutworm 1, wheat head armyworm (Faronta diffusa) 7. TEXAS - Waco, 5/31-6/6, 66-85° F., precip. 0.37 - Armyworm 33, beet armyworm 2, black cutworm 2, cabbage looper 7, corn earworm 10, granulate cutworm 13, variegated cutworm 16, yellow-striped armyworm 22. WISCONSIN - Madison, 5/28-6/4 - Codling moth (Laspeyresia pomonella) 28, European corn borer 3.

## CORRECTIONS

CEIR 19(21):365 - PINE SPITTLEBUG (Aphrophora pallela) should read (Aphrophora parallela)

CEIR 19(23):405 - CEREAL LEAF BEETLE (Oulema melanopus) - WEST VIRGINIA - Last sentence: "Dead adults light on oats on farms ... " should read "Adults light on oats on farms ... " Specimens were alive when collected. New records for PPC program pests must be established with live specimens. (PPC).



Estimates of Damage by the European Corn Borer  
To Grain Corn in the United States in 1968

Compiled in Survey and Detection Operations, PPC, ARS

The loss to grain corn attributed to the European corn borer (*Ostrinia nubilalis*) in 1968 is estimated to be approximately 154,554,000 bushels in 15 corn-producing States. In these States the loss was 3.83 percent of the production. This loss is approximately 3.53 percent of the total national crop estimated at 4,374,840,000 bushels. 1/ The value of the loss, based on the season average prices received by farmers for corn 2/, is \$161,287,000. These loss estimates are only for the States shown in Table 1, and are based on the counties or districts surveyed during the fall of 1968 within these States. 3/

Table 1 is a composite of State and Federal estimates. These estimates were prepared by using production data 1/, and prices received 2/, released by the Statistical Reporting Service. The basis for the loss estimates was determined by the survey of European corn borer populations during the fall of 1968. 3/ The index of 3 percent loss per borer per plant was used to compute the loss in bushels.

Estimated losses to grain corn for the past 17 years in States where the fall abundance survey was conducted are as follows:

1968	154,554,000 Bushels	\$161,287,000
1967	59,661,000 "	63,837,000
1966	121,236,000 "	155,876,000
1965	54,318,100 "	59,374,160
1964	87,116,000 "	97,478,000
1963	120,648,000 "	127,838,000
1962	88,245,000 "	93,695,000
1961	65,044,000 "	68,998,000
1960	102,991,000 "	96,085,000
1959	67,763,000 "	71,979,000
1958	100,699,000 "	98,434,000
1957	180,897,000 "	158,841,000
1956	97,971,000 "	119,535,000
1955	155,355,000 "	182,579,000
1954	191,614,000 "	261,415,000
1953	90,000,000 "	125,466,000
1952	53,270,000 "	77,205,000

1/ Crop Production, 1968 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 19, 1968.

2/ Crop Values, Season Average Prices Received by Farmers and Value of Production 1967 and 1968 - by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 19, 1968.

3/ Cooperative Economic Insect Report 19(4):47-53, 1969.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1968

State	Number	1,000 Bu.	Dollars	Estimated Data		
				Value per Bushel	Value of Production	Loss of Crop
Arkansas	3	1,976	1.19	2,351	9	11
Delaware	1	8,673	1.08	9,367	1,333	1,439
Illinois	7	901,570	1.06	955,664	52,600	55,756
Indiana	12	416,330	1.02	424,657	10,805	11,022
Iowa	12	901,728	1.03	928,780	40,039	50,510
Kansas	3	85,050	1.04	88,452	1,646	1,712
Maryland	3	31,944	1.06	33,861	3,530	3,741
Michigan	1	96,216	0.98	94,292	1,313	1,287
Minnesota	7	360,369	1.03	371,180	3,928	4,046
Missouri	7	245,514	1.05	257,790	10,825	11,366
Nebraska	5	302,877	1.10	333,165	5,906	6,496
North Dakota	1	6,468	1.03	6,662	198	204
Ohio	5	242,256	1.01	244,679	8,208	8,290
South Dakota	6	110,354	1.05	115,872	2,958	3,106
Wisconsin	9	163,122	1.02	166,384	2,256	2,301
Totals		3,874,447		4,033,156	154,554	161,287

1/ Cooperative Economic Insect Report 19(4):47-53, 1969



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# **AGRICULTURAL RESEARCH SERVICE**

## **PLANT PEST CONTROL DIVISION**

### **SURVEY AND DETECTION OPERATIONS**

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

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Survey and Detection Operations  
Plant Pest Control Division  
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United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMY CUTWORM damaging corn in Colorado and alfalfa in Idaho. (p. 445).

ARMYWORM damaging late wheat in Oklahoma; moderate to heavy on wheat in south-central and southeastern Kansas with some damage, and locally heavy in southeast Nebraska; adult counts lowest in several years in Michigan. (p. 445).

EUROPEAN CORN BORER hatching in southern Illinois; leaf feeding damage on corn in southern and central Missouri; increasing in field and sweet corn in Maryland. (p. 446).

GREENBUG increasing on sorghum in east and southeast districts of Nebraska; heavy in several northeast areas of Oklahoma. (pp. 445-446).

CUTWORMS damaging corn in some areas of Oklahoma and Nebraska. (p. 447).

ALFALFA WEEVIL damage 100 percent in some areas of New York; damage visible in untreated fields in Indiana; damaged alfalfa in New Mexico. (pp. 447-448).

FOREST TENT CATERPILLAR widespread on chokecherry and ornamentals in Montana; defoliation severe in some areas of Minnesota. (p. 454).

First JAPANESE BEETLE adults of season reported from Tennessee, Delaware, Maryland, and North Carolina. (p. 458).

Detection

A SCYTODID SPIDER reported for first time in California. (p. 456).

For new county, island, and parish records see page 460.

Reports in this issue are for week ending June 13 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JUNE 16

HIGHLIGHTS: Widespread turbulent weather occurred east of a quasi-stationary front that stretched from Lower Michigan while cool, clear weather lay west of the front.

PRECIPITATION: Some heavy showers fell in the Deep South early in the week. Columbia, South Carolina, received 2 inches Monday afternoon and early evening. Widespread severe weather occurred in the Great Plains throughout most of the week. Numerous thunderstorms and a few tornadoes struck Nebraska and Texas Tuesday and Tuesday night. Hail as large as golf balls fell at Cozad, Nebraska, in the afternoon and hail of similar size, accompanied by winds gusting to 70 m.p.h., in the Hale Center, Texas, vicinity accumulated to a foot deep in places. Strong winds accompanying a storm that brought 4.35 inches of rain toppled trees and power lines at Herington, Kansas, on Wednesday. Hail fell in several communities in Iowa and Missouri. Numerous severe thunderstorms boiled up Wednesday from Kansas and Oklahoma to southern Wisconsin and northern Illinois. Early Thursday, a tornado demolished a hangar and caused extensive damage to aircraft at Monroe, Wisconsin, while winds estimated to gust at 75 m.p.h. disrupted power in the Grayling, Michigan, area. The violent weather moved eastward after midweek. Twisters occurred in Michigan, heavy thunderstorms struck Kentucky and hail smashed windows in downtown Winters, Texas, late Thursday. Snow fell in the northern and central Rocky Mountains on Thursday and Friday with accumulations up to 6 inches. This was the latest in June that snow has been known to fall in the Black Hills. The record began there 82 years ago. The weekend brought moderate to heavy thunderstorms to the Atlantic Coastal States and some light rains west of the Rockies.

TEMPERATURE: Afternoon temperatures early in the week ranged from mostly moderate over the Northern and Central States to hot in the southern sections. Cool air plunged deep into the northern and central Rockies and Great Plains on several mornings. The chilly outbreak held afternoon temperatures in the 50's on Wednesday afternoon in parts of Nebraska and neighboring States after Tuesday's maximums had been in the 80's. The warm southerly flow of gulf air pushed the afternoon readings into the 90's over much of the Ohio River Valley on Thursday. During much of the week, hot humid air moved northward over the East while cool weather predominated in the West. The weekend brought cooler weather to the Northeast. New England registered afternoon temperatures in the 60's and 70's on Sunday where readings had been in the 80's and 90's 2 days earlier. (Summary supplied by Environmental Data Service, ESSA.) Weather continued on page 460.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - IDAHO - Damaged about 10 percent of 70-acre alfalfa field at Bonners Ferry, Boundary County. (Studer). COLORADO - Larvae of this and Agrotis orthogonia damaged young corn last week in May. C. auxiliaris damaged 1,200 acres at Holyoke, Phillips County, where counts averaged 1 per 2 feet of drill row. Controls applied and about 600 acres replanted. A. orthogonia damaged fields in Morgan, Sedgwick, and Logan Counties. (Pilcher, Hantsbarger).

ARMYWORM (Pseudaletia unipuncta) - OKLAHOMA - Moderate numbers continue to damage late fields of wheat in Kingfisher and Garfield Counties. (Okla. Coop. Sur.). KANSAS - Ranged 2-5 per square foot in most wheat in McPherson, Marion, Dickinson, Harvey, and Chase Counties. Up to 30 per square foot in lodged wheat. Most larvae nearly full grown. Light to moderate damage limited to defoliation and clipping of beards with only few heads cut off. Moderate to heavy on wheat in east-central and southeastern areas. Some controls applied in central and south-central areas. (Simpson). MISSOURI - Ranged 5-20+ per square foot on broomegrass, fescue, and orchard grass in northwestern area. Controls applied. (Munson). NEBRASKA - Heavy locally in most counties in east and southeast districts. Damaging in Richardson, Fillmore, Saunders, Burt, Otoe, and Cass Counties. Destroyed 60 percent of 60-acre broomegrass pasture near Unadilla, Otoe County; ranged 12-18 per square foot. Counts in 6 wheatfields in Otoe and Nemaha Counties ranged 0-8, averaged 4, per square foot. (Keith). MICHIGAN - Adult counts lowest in many years. (Newman, June 9). VIRGINIA - Severely damaged 10-20 acres of sod-planted corn following rye cover crop on Wythe County farm. (Gross).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MICHIGAN - Increased during period June 2-9; increase expected to continue. (Bath). WISCONSIN - Counts per 100 sweeps in oats averaged 12 in southeast, 8 in southwest, and 30 in central area. (Wis. Ins. Sur.). OHIO - Common in forage crops throughout State. Adults averaged 10 per 25 sweeps in eastern areas. (Rings).

CORN EARWORM (Heliothis zea) - ALABAMA - Older larvae light to medium in corn in Dale, Houston, Geneva, Henry, and other southern counties; entering soil to pupate. Large numbers of moths in flight in corn and other crops in Lee County. (Estes et al.).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Light to moderate, 6-18 per plant, in most sorghum and corn in south-central and southwestern areas. Nearly all plants infested. (Simpson). OKLAHOMA - Heavy on sorghum in Bryan and Caddo Counties. Ranged 5-300 per plant in Major County, 0-40 per plant in Woods County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - WISCONSIN - Few winged forms appearing in oats. In one field in Adams County about 2 percent of plants showed evidence of "red leaf." (Wis. Ins. Sur.). MINNESOTA - Up to 100 per 100 sweeps in occasional small grain fields in southwest and south-central areas. Generally low in all districts; ranged trace to 15 per 100 sweeps in southern to only trace in northern districts. (Minn. Pest Rpt.). NEBRASKA - Averaged 8-16 per plant on 75-80 percent of small grain plants in 9 fields in Jefferson County. Damage evident. (Andersen, June 2). Reported on sorghum in Fillmore, Lancaster, Clay, Nuckolls, and Adams Counties. (Keith, June 6). Increasing on sorghum in east and southeast districts. Some control applied in east and southeast districts. Some control applied in Jefferson and Thayer Counties. Seedling plants in Otoe, Saunders, Dodge, and Nemaha Counties lightly infested (5-15 percent) with 1-15 per plant. (Keith). Light on grain sorghum in south and central districts. (Andersen). MISSOURI - This and Rhopalosiphum maidis infesting small sorghum in southwestern and west-central areas. (Munson). KANSAS - S. graminum ranged 1-12 per infested sorghum plant in northwestern, north-central, and west-central areas. Infestation ranged from 4-10 percent in Gove and Rawlins Counties to 50-100 percent in Cheyenne, Phillips, Norton, Decatur, Graham, and Trego Counties. Mostly winged adults and

small nymphs. (Martinez). Ranged 1-5 per infested sorghum plant in Pawnee, Hodgeman, Ford, Gray, Finney, Kearney, Hamilton, Stanton, Morton, Stevens, Haskell, and Seward Counties. Infestation ranged 2-8 percent. Mostly winged adults or small nymphs. No damage. No parasites and few predators in sorghum in western area. Lady beetles heavy in wheat. (Simpson). OKLAHOMA - Remains heavy on sorghum in several northeast counties. Occasional fields replanted. Reinfestation after spraying noted in some areas. Generally ranged 1-10 per plant on 25-30 percent of plants (3-12 inches tall) in Major, Alfalfa, and Woods Counties; averaged 1 per plant (ranged 3-5 on Johnson grass) in Cimarron County. (Okla. Coop. Sur.). WYOMING - Ranged 3-20 per 100 sweeps in wheat of Laramie County. (Parshall). COLORADO - This and *Macrosiphum avenae* remain light on wheat in northeastern and east-central areas. Controls necessary in isolated spots. (Johnson, Pilcher). S. *graminum* appearing at Lamar, Prowers County; migrating in on strong winds. Damaged small sorghum. (Wingfield).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Adults averaged 1 per 25 sweeps in most alfalfa in southern part of State. (Wis. Ins. Sur.). MARYLAND - First adults light on potatoes in Wicomico County. (U. Md., Ent. Dept.). KANSAS - Ranged 1-2 per sorghum plant in Wallace, Sherman, and Logan Counties. (Simpson).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Light, up to 5 per 10 sweeps, on alfalfa in Harper County. (Okla. Coop. Sur.).

TOMATO HORNBWORM (*Manduca quinque maculata*) - VIRGINIA - Adults averaged 4-5 per night at blacklight trap in Nansemond County. (Smith).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - Egg masses 6 on 50 early sweet corn plants in field on Hudson River flats, 7 on 50 plants at higher elevation. No hatch. (N.Y. Wkly. Rpt., June 9). NEW JERSEY - Current evidence indicates egg laying period will be extended due to cool nights. (Ins.-Dis. Newsltr.). MARYLAND - Increasing in field and sweet corn; adults averaged 17 per night at Centreville, Queen Annes County, light trap. Trap catches in Dorchester and Worcester averaged 2 per night. (U. Md., Ent. Dept.). OHIO - Light trap records during period June 1-11 at Wooster indicate moth populations from first-generation larvae higher than for many years. Moth populations may increase next few days. (Rings). ILLINOIS - Emergence completed in southern sections, 75 percent complete in central sections, and 50-60 percent complete in northern sections. Hatching in southern half of State; first instars found. Egg masses averaged 55 per 100 plants with about 40 percent of masses hatched. Egg masses just being laid, with average of 4 per 100 plants, in northern half of State. (Ill. Ins. Rpt.). MICHIGAN - Emergence increasing rapidly in southern tier of counties. Blacklight trap collections unusually high and early. Heavy egg laying in progress since June 6. Larval emergence began June 12-15; expected to increase next 3 weeks. Maximum larval feeding expected from late June into July. (Newman, June 9). WISCONSIN - Dissections of cornstalks near Janesville, Rock County, June 5 showed 20 percent larvae, 80 percent pupae; dissections June 9 at Rewey, Iowa County, 75 percent empty pupal cases. Adults appearing in light traps, but no egg masses found. (Wis. Ins. Sur.). MINNESOTA - Average percent pupation by district: Southwest 45, west-central 10. No adult emergence to date. (Minn. Pest Rpt.). NORTH DAKOTA - Pupation 25 percent in southeast; compares to 6 percent at same time in 1968. No adults emerged. Earliest corn 4 inches tall in southern areas of district. (Kaatz). NEBRASKA - Overwintering populations above average and much higher than in 1968. Total forms (larvae and pupae) averaged 1,799 per acre in Hall County (13-year average is 1,500) and 2,407 per acre in Cuming County (13-year average is 1,643). (Hill, Short, June 6). MISSOURI - Leaf feeding damage on up to 68 percent of susceptible-size corn in southern and central areas. Egg masses still found in southwestern and central areas; none in southeast area. Larvae ranged first to fourth instars in extreme southern area. (Munson).

CUTWORMS (Agrotis spp.) - WYOMING - A. orthogonia infested 4 cornfields in Pine Bluffs area, Laramie County; controls applied. (Cook). Few fields in Goshen County sprayed. (Skelton). NEBRASKA - A. orthogonia destroyed 80 acres of corn on old wheat stubble ground near Wauneta, Hayes County. Several reports of activity in area. Larvae penultimate instar to full grown. (Helberg). A. ipsilon damaged corn in Dodge County. (Hughes). About 2-5 percent of corn plants in 4 Washington County fields infested. (Keith). OKLAHOMA - A. orthogonia continues to damage newly planted corn in isolated area of Texas County. (Okla. Coop. Sur.).

CORN ROOTWORMS (Diabrotica spp.) - MINNESOTA - One first instar larva found in small, protected cornfield in Wright County. General hatch expected in about 7-14 days in southern area. (Minn. Pest Rpt.). COLORADO - D. virgifera larvae infesting corn at Elba, Washington County. (Pilcher).

SUGARCANE BEETLE (Euethoea rugiceps) - ALABAMA - Adults destroyed corn on 4 acres and damaged second planting at Uria in Monroe County. (Lemons, Rutledge).

STALK BORER (Papaipema nebris) - ILLINOIS - Appearing in cornfields; expected to appear in many crops next 3 weeks. (Sur. Bull.).

#### SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Counts per 100 sweeps in oats ranged 12-30 in southeastern area, 60-100 in southwestern area, and up to 100 in central area. (Wis. Ins. Sur.). KANSAS - Light to moderate in most wheat in central, south-central, and southwestern areas. (Simpson). COLORADO - This and Schizaphis graminum remain light on wheat in northeastern and east-central areas. Controls necessary in isolated spots. (Johnson, Pilcher).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Light, 1-3 per 25 sweeps, in all wheat examined in south-central, central, and southwestern areas. (Simpson).

SAY STINK BUG (Pitiedia sayi) - NEVADA - Heavy on small grain in Newark Valley, White Pine County; required treatment. (Heringer).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Averaged less than 1 per stem in barley in Sargent, Ransom, Dickey, and Richland Counties. Entered leaf sheaths in early barley in early boot stage. (Kaatz).

#### TURF, PASTURES, RANGELAND

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - NEVADA - Generally light to medium, spotty and heavy on bitterbrush and light on desert peach in Jacks Valley, Douglas County; Carson City, Ormsby County; and in Galena and Thomas Creeks area, Washoe County. Entire plants of bitterbrush defoliated; little damage to desert peach to date. (Bechtel et al.).

CICADAS (Okanagana spp.) - NEVADA - Adults heavy in many areas in northern half of State. (Nev. Coop. Rpt.).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VERMONT - Peak hatch expected week of June 9. (MacCollom). MASSACHUSETTS - Average per 100 sweeps on alfalfa by county: Hampshire - adults 5.6 (larvae 105), Berkshire - adults 3.67 (larvae 611.67). Percent tip damage in 3 fields by county June 3-4: Berkshire 38-50, Hampshire 10-20. (Miller). NEW YORK - Damage 100 percent in some areas; 25-30 percent in Ontario, Seneca, Wayne, and Yates Counties. (N.Y. Wkly. Rpt., June 9). MARYLAND - Eighty-three to 92 percent of adults reared from larvae collected on April 17 near Beltsville release site for Bathyplectes curculionis parasitized by this ichneumon wasp. (U. Md., Ent. Dept.). VIRGINIA - Very light in Nottoway County. (W.A. Allen). INDIANA - Larval feeding damage visible on 30-100 percent of plants in northwest quarter of State. Foliage loss 15-50 percent; larvae

ranged 8-35 per sweep. Pupation beginning in area. In northeast quarter of State, damage visible on 60-100 percent of plants in untreated fields and foliage loss ranged 40-80 percent. Larvae ranged 20-78 per sweep. (Huber, June 6). WISCONSIN - Larvae averaged 92 per 100 sweeps on June 5; high counts 282 per 100 sweeps, low counts 7 per 100 sweeps in 19 alfalfa fields in Kenosha County daylight sampling. (Wis. Ins. Sur.). New county records include Waushara and Juneau Counties. (PPC). ILLINOIS - Declining in northern area as pupation nears completion. Peaked in southern half of State; larvae low, averaged 50-100 per 100 sweeps. New adults emerging. (Ill. Ins. Rpt.). ARKANSAS - Adults and larvae light in northwest areas. Counts per 100 sweeps in Boone and Madison Counties: Adults ranged 0-18 (average 9.7), larvae ranged 2-30 (averaged 13.7). (Boyer). OKLAHOMA - Adults averaged 3 per 100 sweeps ten miles north of Rosston and 1 per 100 sweeps at Buffalo in Harper County on June 11 for new county record. (Okla. Coop. Sur.). NEW MEXICO - Heavy numbers damaged alfalfa in Rio Arriba and Santa Fe Counties. (Sais, Nielsen). NEVADA - In Lincoln County, infestation general at Lake Valley; damage spotty at Rose Valley; damage medium to heavy in Panaca area and medium south of Caliente. To date only one field sprayed, this after first cutting. (Miller). IDAHO - Larvae ranged 5-15 (average 11) per sweep; new adults less than one per sweep in uncut blooming alfalfa field near Juliaetta, Latah County. (Gillespie, O'Keefe). WYOMING - Development slowed near Afton, Lincoln County. Adults averaged 1 per sweep, larvae 10. Alfalfa 8-10 inches tall. (Baribeau). Larvae ranged 35-160 per sweep in 2 Goshen County fields. (Spackman). Adults 6-50 per 100 sweeps in alfalfa of Platte and Laramie Counties. Larvae averaged 580 per 100 sweeps in Laramie County and 5,622 in Platte County. (Parshall). COLORADO - Larvae 100-1,500 per 100 sweeps in uncut alfalfa in Larimer, Boulder, Morgan, and Weld Counties. Building up, ranged 60-200 per 100 sweeps on second-growth alfalfa; damage ranged light to heavy throughout 4-county area. Adults ranged 0-150 per 100 sweeps. (Johnson). NEBRASKA - Larvae ranged 85-1,216 (average 452) per 100 sweeps at Gotenbug, Dawson County; lighter in rest of Dawson County. Averaged 108 per 100 sweeps in Phelps County field. In Kearney County, larvae averaged 5 per 200 sweeps for new county record. (Manglitz, June 4).

WEEVILS - CALIFORNIA - Hypera spp. heavy on alfalfa plantings at Raisin City, Fresno County. (Cal. Coop. Rpt.). OKLAHOMA - H. punctata adults ranged up to 5 per 100 sweeps in alfalfa in Harper County. Heavy in alfalfa in Beckham County. (Okla. Coop. Sur.). MISSOURI - H. meles adults collected from alfalfa and red clover in Franklin, Gasconade, Madison, and St. Francois Counties for new county records. (Munson). MASSACHUSETTS - Average counts of Sitona hispidulus per 100 sweeps on alfalfa in 3 fields per county: Hampshire 4.60, Berkshire 1.33 on June 3-4. (Miller). MINNESOTA - S. cylindricollis severely damaged new seedlings of sweetclover in some areas in northwest district. Damage 100 percent on 3 to 4-inch sweetclover. (Minn. Pest Rpt.).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - IDAHO - Adults 2-30 per sweep in white clover fields at Nezperce, Lewis County. (Dailey). Ranged 10-35 per sweep of white clover in 3,000 acres at Bonners Ferry, Boundary County. (Studer).

PEA APHID (Acyrtosiphon pisum) - MASSACHUSETTS - Average per 100 sweeps on alfalfa in 3 fields per county: Hampshire 72, Berkshire 18.30 June 3-4. (Miller). VIRGINIA - Averaged 400 per 100 sweeps in Nottoway County alfalfa. (W.A. Allen). OKLAHOMA - Moderate in alfalfa in Mayes County. Ranged 2-40 per 10 sweeps in Major, Alfalfa, Woods, Harper, and Beaver Counties. (Okla. Coop. Sur.). KANSAS - Light, 2-6 per 10 sweeps, in alfalfa checked in south-central and southwestern areas. (Simpson). COLORADO - Remains light on alfalfa in Boulder, Morgan, Larimer, and Weld Counties. (Johnson). WYOMING - Ranged 150-500 per 100 sweeps of alfalfa in Platte and Laramie Counties. (Parshall). NORTH DAKOTA - Built up in southeast counties. Ranged 100-3,000 (averaged 1,350) per 100 sweeps. First-crop alfalfa being cut for hay. (Kaatz).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Adults 180 and nymphs 60 per 100 sweeps of alfalfa at Casa Grande, Pinal County. Averaged 125 adults and 125 nymphs at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Average per 25 sweeps in alfalfa; 7-15 at Roswell, Chaves County (Mathews) and 14-50+ in Mesilla Valley, Dona Ana County (Elson, Seagraves). WYOMING - Nymphs and adults ranged 100-500 per 100 sweeps in alfalfa of Platte and Laramie Counties. (Parshall). MASSACHUSETTS - Average per 100 sweeps of alfalfa in 3 fields per county: Hampshire 10.30, Berkshire 11.67 on June 3-4. (Miller).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - NORTH DAKOTA - Ranged up to 700 (average 330) per 100 sweeps in alfalfa in southeast area. (Kaatz). WISCONSIN - Unusually heavy in most alfalfa checked. Ranged up to 30 per sweep. (Wis. Ins. Sur.). INDIANA - Late instar nymphs ranged 4-17 per sweep on alfalfa in northern half of State. First adults of season present in trace numbers. (Huber). MISSOURI - Collected from alfalfa in Madison County for a new county record. (Munson). KANSAS - Light, 4-12 per 10 sweeps, in alfalfa checked in south-central and southwestern areas. (Simpson).

RAPID PLANT BUG (*Adelphocoris rapidus*) - WISCONSIN - Abundant in alfalfa; ranged 1-5 per sweep in State. (Wis. Ins. Sur.). KANSAS - Light, 4-12 per 10 sweeps, in alfalfa in south-central and southwestern areas. (Simpson).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MASSACHUSETTS - Average nymphal counts per 100 sweeps of alfalfa in 3 fields per county June 3-4: Hampshire 25.30, Berkshire 3.67. (Miller). OHIO - Adults increasing in clover and mixed hay as nymphs mature. High numbers (10 or more per 5 sweeps) found in Delaware and Wayne Counties; moderate (1-9 per 5 sweeps) in most hayfields in northeastern area. (Rings). VIRGINIA - Adults averaged 15 per 100 sweeps of Nottoway County alfalfa. (W.A. Allen). MISSOURI - Adults collected from alfalfa and red clover in Franklin and Madison Counties for new county records. (Munson).

#### SOYBEANS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Adults heavy in southwestern Wicomico County. Sprays needed. (U. Md., Ent. Dept.). VIRGINIA - Damage very light in Dinwiddie County; up to 30 percent of leaves showing at least 1 hole in 30-acre field in Hanover County. (W.A. Allen). NEBRASKA - Adults feeding on about 5 percent of plants in 2 fields near Mead, Saunders County. (Keith).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Adults heavy in several fields in southwestern Wicomico County. Sprays required. (U. Md., Ent. Dept.). VIRGINIA - Overwintered adults trace; no economic damage in Nansemond, Isle of Wight, Sussex, and Southampton Counties. (W.A. Allen).

#### COTTON

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Total weevils caught period May 21-31 estimated at 2,500; weevils caught at all but 4 of 26 trapping areas, heaviest catches in Turkey area, Hall County. Wing traps operated in May in Rio Grande Valley yielded 931 weevils. Collections declined by May 22. (PPC South. Reg.). In McLennan and Falls Counties, 6 of 11 untreated cotton fields averaged 110 (maximum 500) weevils per acre. In 17 of 59 treated fields averaged 125 (maximum 275) per acre. No weevils on flight screens. (Cowan et al.). ARKANSAS - Weevil counts by county in wing traps to date: Yell 32 (5 traps), Lafayette 7 (10 traps), Faulkner zero (5 traps), Columbia 602 (5 traps). (Boyer, Barnes). LOUISIANA - In Madison Parish weevils ranged 65-1,106 (averaged 159) per acre in 20 of 64 cotton fields examined. Recovered 38 weevils from 17 wing traps at 15 locations near hibernation sites, where spring ground trash collected; total to date 512 weevils. Recovered 17 weevils from 145 wing traps on isolated island in Mississippi River; total to date 1,778. Recovered 5 weevils from 48 wing traps placed on isolated island and nearest cotton field in Madison Parish; total to date 26. Collected 11 weevils from 10 wing traps at 10 sites near hibernation

sites and checked daily; total to date 123. Total from all wing traps to date 2,439. (Cleveland et al.). MISSISSIPPI - In 2 of 19 cotton fields, weevils 130 per acre in one, 65 per acre in second. In 28 wing traps collected 9 weevils, total to date 238 in delta counties. (Pfrimmer et al.). ALABAMA - Overwintered weevils remain high in cotton in Dale, Covington, Geneva, Houston, Henry, and other southern counties. In numerous fields with 3-6 squares per stalk, 50 percent of squares punctured. Controls begun in many older fields. Populations high in central portion of State. (Teague). Live weevil counts per acre by county: Covington (4 sites) 50, 300, 300, and 500 on 4 to 10-leaf cotton; Shelby zero on 4 farms (Thompson); Pickens (2 farms) 275 and 500 on presquare cotton (Corder); Colbert 0-50 on 2 farms (Scouts); Madison zero (Eich). GEORGIA - Overwintered weevils up to 140 (averaged 37) per acre in 17 fields; 0-8 percent punctured squares in older cotton in southern area (Womack); 15 weevils caught in 3 wing traps in Spalding County June 9-13 (Beckham).

BOLLWORMS (*Heliothis* spp.) - TEXAS - In McLennan and Falls Counties, larvae averaged 0.5, eggs 0.8 per 100 terminals in 58 treated cotton fields; in 11 untreated fields averaged 0.5 egg and 0.3 larva per 100 terminals. Seventy-two larvae previously collected from native hosts identified *H. zea*; total to date on all hosts 326 *H. zea* and 4 *H. virescens*. Two larvae previously collected on cotton identified *H. zea*. (Cowan et al.). ARKANSAS - *H. zea* increased in light traps at Hope, Hempstead County, 8 moths June 5-11; 1 moth at Kelso, Desha County. (Boyer). LOUISIANA - Larvae in 22 of 49 cotton fields checked in Madison Parish ranged 1-5 (averaged 1.6) percent on terminals. Eggs found in 33 fields averaged 5.6 per 100 terminals, ranged 1-23 percent. Blacklight trap collected 51 *H. zea* and 3 *H. virescens* moths. (Cleveland et al.). MISSISSIPPI - Found 2 larvae in 1 cotton field, eggs in 3 fields. In 95 wing traps 281 *H. zea* collected; total to date 1,492 in delta counties. (Pfrimmer et al.). GEORGIA - Very light egg laying in southern area fields. (Womack).

COTTON FLEAHOPPER (*Pseudatomoscelis seriatius*) - TEXAS - Averaged 1.8 per 100 terminals in 58 treated cotton fields, 2.2 in 11 untreated fields in McLennan and Falls Counties; maximum number per 100 terminals 10.7. Highest counts per sweep in native host; averaged 21 in 13 fields of horsemint. (Cowan et al.). TEXAS - Light in High Plains in Crosby, Swisher, and Yoakum Counties. (Almand, Clymer). ALABAMA - Light numbers appearing on cotton in Madison County. (Eich).

LYGUS BUGS (*Lygus* spp.) - ALABAMA - *L. lineolaris* adults migrating into cotton in northern area, especially in Madison and Limestone Counties. Currently light, about 100 per acre in 6 to 10-leaf stage cotton. (Eich). MISSISSIPPI - *L. lineolaris* averaged 181 (maximum 585) per acre in 14 of 19 cotton fields; 6 weevils collected in 1 wing trap in delta counties; total to date 107. (Pfrimmer et al.). Light, noneconomic in several Monroe County fields. No squares yet. (Dinkins). ARIZONA - *Lygus* spp. per 100 sweeps averaged 40 at Casa Grande, Pinal County, and 10-30 in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

COTTON APHID (*Aphis gossypii*) - NEW MEXICO - Continues low in Mesilla Valley, Dona Ana County. (Elson, Seagraves). TEXAS - In McLennan and Falls Counties light in 42, heavy in 1 of 48 treated cotton fields; light in 7 of 10 untreated fields. (Cowan et al.). Generally light in High Plains in Dawson, Gaines, Lubbock, Terry, and Yoakum Counties with few of heavier infestations in Lubbock County receiving treatments. (Almand, Clymer).

THRIPS - GEORGIA - Damage heavy on seedling cotton in Spalding County. (Beckham). ALABAMA - Light to heavy on unprotected cotton (0-20 per stalk) on several farms in Madison, Cullman, Barbour, Geneva, and other counties. (Walton et al.). MISSISSIPPI - Young cotton showing effects of migration past 2 weeks, older plants passed damage stage in delta counties. (Pfrimmer et al.). Heavier than last period on 5 to 6-leaf cotton in Lee County. (Dinkins). TEXAS - In McLennan and Falls Counties light in 42, heavy in 1 of 48 treated cotton fields. Light in 6, medium in 1, heavy in 1 of 10 untreated fields. (Cowan et al.). Light in Gaines, Hale, Howard, Lamb, Terry, and Yoakum Counties. Medium in Swisher County. Some controls applied in Floyd County in High Plains area. (Almand, Clymer). NEW MEXICO -

Light to medium in Mesilla Valley, Dona Ana County. (Elson, Seagraves). Controls applied in isolated spots at Artesia, Eddy County. (Campbell). Very light at Roswell, Chaves County. (Mathews).

LEAF ROLLER MOTHS (*Playnota* spp.) - ALABAMA - Larvae in buds of plants widespread and heavy in some 6 to 10-leaf cotton in Madison and Limestone Counties. One grower with 400+ acres reports 30 percent of plants contain larvae which destroyed 2 or more small squares per stalk and damaged buds. Other growers report 100-200 larvae per acre. (McDonald et al.).

#### TOBACCO

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Ranged 3-5+ per plant in many tobacco fields in southern areas. (U. Md., Ent. Dept.). VIRGINIA - Generally light to medium damage on tobacco in Pittsylvania County. (Dominick).

WIREWORMS - VIRGINIA - Medium in one-acre field. Damage generally very light in Pittsylvania County. (Dominick). Heavier than usual in Washington County. One farmer considering plowing, treating, and replanting. (Derting).

#### SUGARBEETS

SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*) - COLORADO - Damage varies considerably in Weld, Boulder, and Larimer Counties; up to 50 percent of plants damaged in some fields. (Jenkins). NORTH DAKOTA - Larvae and pupae ranged 8-12 (averaged 10) per square foot in 1968 sugarbeet fields near St. Thomas in Walsh and Pembina Counties. Ninety percent of larvae pupated on June 10, 1969, compared to 60 percent by June 6, 1968. Fly emergence 10 percent. Peak fly emergence expected within 7 days. (Brandvik).

A RUST FLY (*Psila* sp.) - IDAHO - Larvae infested 160 acres of 240-acre field in Pleasant Valley, Power County. Scoured surface and cut off tips of young roots. Determined by G. Steyskal. (Schow).

A FLEA BEETLE (*Systema taeniata*) - COLORADO - Adult damage light to moderate in Weld, Boulder, and Larimer Counties. (Johnson).

#### MISCELLANEOUS FIELD CROPS

ALFALFA LOOPER (*Autographa californica*) - OREGON - Larvae causing problems in peppermint fields in Jefferson County. (Every). Adults abundant last 3 weeks in blacklight traps in Willamette Valley. (Goeden).

#### POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - NEW JERSEY - Noted in Burlington County pepper field and on tomato plants near Medford. (Ins.-Dis. Newsltr.). DELAWARE - Present on peppers in Sussex County. (Boys). FLORIDA - Adults on 90 percent of 300 bell pepper plants at Tampa, Hillsborough County, May 31. (Simmons). OREGON - First winged form collected June 10 in trap near potato fields in Ontario, Malheur County. (Every).

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - UTAH - More numerous and widespread in Davis County than in number of years. Commercial potato growers and homeowners applying controls on potatoes; homeowners also applying controls on tomatoes. (Knowlton, Stokes). Similar infestations reported from southern Weber County. (Knowlton, June 10). COLORADO - Larvae 0-1 per plant and damage very light in various potato fields in Weld County. (Johnson). NEW JERSEY - Eggs and larvae numerous in potato fields near Adelphia, Monmouth County. (Ins.-Dis. Newsltr.).

## BEANS AND PEAS

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - COLORADO - Adults appearing on beans in Weld, Larimer, Boulder, and Morgan Counties. No eggs; damage very light. (Johnson).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MISSISSIPPI - Heavy on 2 acres of field peas in Oktibbeha County; leaf damage severe. (Dinkins).

## GENERAL VEGETABLES

SPOTTED CUTWORM (*Amathes c-nigrum*) - OHIO - Light trap records indicate first-generation moths may be higher than since 1965. Records for first 10 days in June show populations 3 times higher than in 1968 and 1967. Fewer moths caught in same period in 1969 than in 1966. However, higher numbers indicated June 11-20; in other years numbers dropped in this period. About half of female moths gravid. (Rings).

## CORRECTIONS

CEIR 19(21):358 - PALE WESTERN CUTWORM (*Agrotis orthogonia*) - SOUTH DAKOTA - Delete note. Should read: "Less than one larva per 3 row feet in winter wheat surveyed May 5-9 west of Ideal, Tripp County. (Jones)."

CEIR 19(24):436 - MOSQUITOES - OHIO - ... New county record for *A. sollicitans* reported in Lucas County. (Martine). *A. intrudens* high, ... should read ... in Summit County. (Martine). *A. vexans* high, ... (Richter).

CEIR 19(24):440 - INSECT DETECTION - ... SALT-MARSH MOSQUITO (*Aedes sollicitans*) Lucas County, Ohio ... should read ... Summit County, Ohio ... (Richter).

CEIR 19(23):391, 407, 408 - Delete *Maladera brunnea* as new State record for Ohio. Typographical error made on determination slip; genus and species in doubt.

## DECIDUOUS FRUITS AND NUTS

SHOT-HOLE BORER (*Scolytus rugulosus*) - NEW MEXICO - Light to heavy on plum and peach trees at Belen, Valencia County. Very heavy on some chemically damaged trees. (Heninger).

PLUM CURCULIO (*Conotrachelus nenuphar*) - CONNECTICUT - Adults remain active on unsprayed trees at Storrs, Tolland County, and New Haven County. (Kollas, June 10).

CODLING MOTH (*Laspeyresia pomonella*) - NEW JERSEY - Caught 3 June 4-11 in baited jar in Gloucester County. (Ins.-Dis. Newsltr.). MICHIGAN - First adult emergence June 3. (Klackle). WASHINGTON - First full-grown larvae at Buena June 10. (Johnson). First entry at Selah May 27. Extensive entries in unsprayed apple orchard May 31 to June 3. First moth at Pomona May 19. First entry May 17, peaked May 31 to June 3. Five percent damage to unsprayed block in Yakima County. (Gregorick).

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) - ALABAMA - Severely damaged large treated peach orchard in Geneva County. Controls difficult in southern area. (Jones et al.).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - CALIFORNIA - Medium to heavy on apple trees at Susanville, Lassen County. (Cal. Coop. Rpt.). WASHINGTON - On unsprayed apple seedlings at Buena. First crawlers June 6; first attached white cap crawlers June 10; first white cap crawler on pear fruit June 10 at Parker Heights. Less than 1 percent damage in commercial orchard in Yakima County. (Johnson).

GREEN PEACH APHID (*Myzus persicae*) - NEW MEXICO - Light to heavy on peaches and plums at Belen, Valencia County, and Albuquerque, Bernalillo County. Much severe curling. (Heninger).



LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Adults of overwintered generation heavy on peaches in southern Mobile County. (Nelson et al, June 6).

PERIODICAL CICADA (Magicicada septendecim) - NORTH CAROLINA - Brood IX moderate to heavy May 26 to June 10 in Wilkes, Alleghany, and Surry Counties. Some damage to young fruit trees. (Wray).

PEAR PSYLLA (Psylla pyricola) - OREGON - Second-generation nymphs abundant at Medford, Jackson County. (Larson).

SPIDER MITES (Tetranychus spp.) - NEW MEXICO - T. mcdanieli beginning to build up in several orchards in Rio Arriba and Santa Fe Counties. (Sais, Nielsen). OREGON - T. urticae (two-spotted spider mite) becoming abundant on Anjou pears at Medford, Jackson County. (Larson). MICHIGAN - Panonychus ulmi (European red mite) feeding and buildup generally ceased with adverse weather conditions. Problem expected if weather suddenly turns hot and dry. (Thompson, June 9).

PEAR-SLUG (Caliroa cerasi) - OREGON - First-generation larvae appearing in Jackson County. (Larson). Present at Hermiston, Umatilla County. (Goeden).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - ALABAMA - Very heavy and widespread on young Stewart and desirable varieties of pecans at Tyler, Dallas County. (Hines, June 6).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - First new generation larvae for this season light in pecan nuts in large orchard in southern Houston County. (Leeper, White, June 6). OKLAHOMA - Averaged 6 red eggs and 19 white eggs per 100 clusters at Owasso and Sperry, Tulsa County, June 6. Light on pecans checked in Bryan County. (Okla. Coop. Sur.).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - First broods of season light to medium on pecans and persimmon trees in southern Mobile County. Webs in 4 pecan orchards and nearly all persimmon trees contained a brood. (Seibels et al., June 6).

APHIDS (Monellia spp.) - ALABAMA - Increasing on pecans in Autauga, Bullock, Wilcox, Bibb, Lee, Baldwin, Mobile, Pike, and Butler Counties. (Morgan et al.). NEW MEXICO - M. costalis ranged from 1 per leaf to 5 per leaflet on pecan trees in Mesilla Valley, Dona Ana County. (Elson, Seagraves).

PECAN PHYLLOXERA (Phylloxera devastatrix) - GEORGIA - Moderate on pecan foliage in Webster County. (Matthews).

#### CITRUS

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) - FLORIDA - Infestation worst known on citrus in Volusia County, especially on grapefruit in late May. (Townsend).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Heavy at Saint Helena, Napa County. (Cal. Coop. Rpt.).

## SMALL FRUITS

GRAPE FLEA BEETLE (Altica chalybea) - INDIANA - Heavy on grapes statewide; adult feeding major concern in May; larvae major concern now. (Huber et al., June 6).

MEADOW SPITTLEBUG (Philaenus spumarius) - VIRGINIA - Spittle masses 2-3 per blueberry bush in James City County. (Tate, Hoyos, June 5).

STRAWBERRY APHID (Chaetosiphon fragaefolii) - OREGON - Below normal on strawberries in Willamette Valley. (Every).

YELLOW-HEADED FIREWORM (Acleris minuta) - NEW JERSEY - Moths abundant on cranberry bogs. (Ins.-Dis. Newsltr.).

STRAWBERRY SPIDER MITE (Tetranychus turkestanii) - OREGON - Abundant; problems on strawberries in Willamette Valley. (Every).

## ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Heavy on evergreens in most of Oklahoma City area, Oklahoma County. (Okla. Coop. Sur.).

PALE JUNIPER WEBWORM (Aethes rutilana) - MONTANA - Infested several species of juniper at Deer Lodge, Powell County. (Pratt, June 10).

HOLLYHOCK WEEVIL (Apion longirostre) - NEVADA - Collected on hollyhock at Minden, Douglas County, for a new county record. (Bechtel, Heringer).

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - First adults of season at Amherst, Hampshire County. (Mankowsky).

## FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - PENNSYLVANIA - Heavily defoliated hemlocks on 100 acres of mixed forest June 3 in Carbon County. (Jeffery, Simons). MINNESOTA - Fourth instars in northern area. Spray project to begin about June 15 at Nett Lake River area on 10,000 acres of spruce-fir type. (Minn. Pest Rpt.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - UTAH - Damage moderate in northern Weber County. (Boyer, Knowlton, June 10). COLORADO - Damage heavy on ornamental spruce in nursery at Cedaredge, Delta County. (Sisson).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CALIFORNIA - Medium on blue spruce trees at Susanville, Lassen County. On increase with many widely separated infestations. (Cal. Coop. Rpt.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - PENNSYLVANIA - Caused some severe damage on Scotch pines in Christmas tree plantations. (Gesell).

PINE SPITTLEBUG (Aphrophora parallela) - WISCONSIN - Second instars heavy on 600-acre plantation of pole-size jack pine June 3 in Marinette County. (Wis. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MONTANA - Widespread on chokecherry in many areas, in many cities and towns on ornamentals, and at Bozeman, Gallatin County, and Havre, Hill County. (Pratt, June 10). MINNESOTA - Defoliation severe west of International Falls. Some migration occurring. (Minn. Pest Rpt.).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - ALABAMA - Heavy larval outbreak defoliated many maples in Morgan County. (Parker).

MIMOSA WEBWORM (Homadaula anisocentra) - KANSAS - Light on ornamental honeylocusts in Barton County. (Martinez). WEST VIRGINIA - Eight infestations of 1-5 webs per tree in Wetzel and Monongalia Counties. (W. Va. Ins. Sur.).

FALL WEBWORM (Hyphantria cunea) - MARYLAND - First larvae of season feeding on Prince Georges County elms. (U. Md., Ent. Dept.).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Damage heavy in areas of Lincoln County. (Miller). ARIZONA - Heavy on elms at Kingman, Valentine, and Peach Springs, Mohave County; at Seligman, Ashfork, and Prescott, Yavapai County; and at Joseph City and Holbrook, Navajo County. (Ariz. Coop. Sur.). NEW MEXICO - Damaged elm foliage at Hillsboro, Sierra County. (Elson, Seagraves). OKLAHOMA - First-generation larvae destroyed 10-15 percent of leaf surface on many trees in Payne County. Moderate in Mayes, Woods, and Washita Counties. (Okla. Coop. Sur.).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - WISCONSIN - Egg laying by overwintered adults reaching peak in Menominee County June 6. Few adults feeding on healthy elms; collections of beetles still abundant on tanglefoot traps placed weekly on healthy elms. Overwintered larvae scarce compared to overwintered adults. Larvae nearly full grown; no pupae. (Wis. Ins. Sur.).

OKA KERMES SCALES (Kermes spp.) - OKLAHOMA - Very heavy on oaks at Pawhuska, Osage County. Twig dieback on some trees. Moderate to heavy on blackjack oak in Tulsa County with crawlers active. (Okla. Coop. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MINNESOTA - Crawlers active on susceptible plants in nurseries in southern area. (Minn. Pest Rpt.).

BIRCH LEAF MINER (Fenusa pusilla) - MINNESOTA - Damage apparent in many areas. Still active in northern sections. (Minn. Pest Rpt.).

PERIODICAL CICADA (Magicalcica septendecim) - ILLINOIS - Reported in northeastern area. (Sur. Bull.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 23 cases reported in U.S. June 8-14 as follows: TEXAS - Bee 1, Duval 1, Guadalupe 1, Jim Hogg 1, Kinney 1, La Salle 1, Medina 1, Starr 4; NEW MEXICO - Grant 7; ARIZONA - Cochise 1, Maricopa 1, Pima 1, Pinal 1, Santa Cruz 1. Total of 166 cases reported in portion of Barrier Zone in Republic of Mexico June 1-7 as follows: Sonora 93, Chihuahua 41, Coahuila 9, Nuevo Leon 9, Tamaulipas 14. Total of 12 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 71,058,000; New Mexico 3,920,000; Arizona 8,420,000; California 800,000; Mexico 74,690,000. (Anim. Health Div.).

NORTHERN CATTLE GRUB (Hypoderma bovis) - IDAHO - Adults running Latah County cattle. (O'Keefe).

FACE FLY (Musca autumnalis) - NEW JERSEY - Building up, 5-10 per face at Flemington, Hunterdon County. Annoying horses in many areas. (Ins.-Dis. Newsltr.). OHIO - Remains light to moderate in northeastern area; averaged about 20 per face on Holsteins June 7-13. (Richter). ILLINOIS - Average per head by district: West-southwest 17.5, southeast 8.8, northwest 6.8, and southwest 5.9. (Ill. Ins. Rpt.). IDAHO - Up to 4 (average 1) per face on beef and dairy herds at Kendrick, Moscow, and Potlatch in Latah County. (O'Keefe).

HOUSE FLY (Musca domestica) - NEW JERSEY - Beginning to build up in all areas. Increasing in poultry houses and egg rooms (Ins.-Dis. Newsltr.).

HORN FLY (Haematobia irritans) - NEW JERSEY - Increasing statewide. (Ins.-Dis. Newsltr.). MARYLAND - Ranged 40-50 per head on dairy cattle at Easton, Talbot County. (U. Md., Ent. Dept., June 6). FLORIDA - Reached summertime abundance in Everglades in May. Averaged 518 per pastured steer June 9. (Janes). ALABAMA - Remains very heavy on unprotected beef herds in Wilcox, Bibb, Dallas, and other

central and southern counties. Lighter on cattle as far north as Fayette County. (Farquhar et al.). ILLINOIS - Average per head by district: Southeast 343.3, southwest 104.5, west-southwest 53.8, and northwest 5.8. (Ill. Ins. Rpt.). WYOMING - Ranged 10-160 (averaged 60) per head on Laramie County cattle. (Parshall). IDAHO - Ranged 5-75 per animal and averaged less than 30 per side on beef and dairy herds at Kendrick, Moscow, and Potlatch in Latah County. (O'Keefe).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Average per head by district: West-southwest 19.3, southeast 4.0, and southwest 1.5. (Ill. Ins. Rpt.).

MOSQUITOES - NEVADA - Adults heavy in irrigated areas of Meadow Valley Wash, Lincoln County. (Miller). WYOMING - Aedes dorsalis, A. vexans, and A. melanion larvae collected April 25 at Cheyenne, Laramie County. (Rich). MINNESOTA - Light traps collected 23 species for week ending June 6 in Minneapolis and St. Paul area. Very unusual catch of 1,125 A. abserratus in one trap at northern limit of district near Bethel; very light elsewhere. Other species taken: A. cinereus, A. punctor, A. vexans, Anopheles walkeri, Culex restuans, C. terFitans, and Culiseta inornata. Mansonia perturbans in bite collections June 6 and in light traps June 5-6; emergence will peak about second week in July. Aedes dominated bite collections: abserratus, cinereus, dorsalis, fitchii, sticticus, stimulans, and vexans. (Minn. Pest Rpt.). ALABAMA - Probably Culex pipiens quinquefasciatus very heavy at Monroeville, Monroe County. Problem such, unified control efforts being requested. (Lemons, June 6). MARYLAND - Mosquitoes remain heavy in many lowland wooded areas on Eastern Shore. Landing counts ranged 10-15 after entering woods in Queen Annes County. A. canadensis and A. grossbeckii predominate. (U. Md., Ent. Dept., June 6).

A TABANID FLY (Diachlorus ferrugatus) - FLORIDA - Problem at Gainesville, Alachua County, for 2-3 weeks; annoyed people and range cattle. (Strayer).

AMERICAN DOG TICK (Dermacentor variabilis) - TENNESSEE - Heavier than usual in southwestern counties. (Locke, June 6). MINNESOTA - Very numerous in margins of wooded areas in Washington, Dakota, and Ramsey Counties. (Minn. Pest Rpt.).

SCYTODID SPIDERS (Loxosceles spp.) - CALIFORNIA - L. laeta infested 5 buildings in park at Sierra Madre, Los Angeles County. Discovered by M. Thompson June 4, 1969. Identified by M. Thompson; verified by W. Gertsch. This is a new State record. Major infestation in auditorium building; in closets, attics, and cupboards. Collected 75 spiders prior to fumigation June 8. Numbers and webbing indicate presence for at least 2 years. Considered more poisonous than L. reclusa. No reports of bites to date. (Waldron). NEBRASKA - One L. reclusa (brown recluse spider) specimen taken at post office in Palmyra, Otoe County, May 29 for new county record. (Keith).

#### HOUSEHOLDS AND STRUCTURES

WHARF BORER (Nacerdes melanura) - DISTRICT OF COLUMBIA - Adults collected in buildings at 5 locations during late May and early June 1969. Caused concern as some persons confused them with cockroaches or other pests. Larvae of this species infest wet wood, particularly mouldy wood. (Fluno).

GERMAN COCKROACH (Blattella germanica) - ARIZONA - Heavy in northwestern Phoenix residential areas in Maricopa County. (Ariz. Coop. Sur., June 6).

#### BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - On chilli, cotton, pecans, and alfalfa in Mesilla Valley, Dona Ana County. (Elson, Seagraves). WYOMING - Adults and larvae averaged 34 per 100 sweeps of Platte and Laramie County alfalfa. (Parshall). MISSISSIPPI - Coleomegilla maculata heavy on cotton in Monroe, Lee, and Yazoo Counties. (Dinkins). MARYLAND - Lady beetles ranged 10-15 per sweep of red clover at Church Hill, Queen Annes County. (U. Md., Ent. Dept., June 6).

A DAMSEL BUG (*Nabis* sp.) - WYOMING - Adults averaged 15 per 100 sweeps of Platte and Laramie County alfalfa. (Parshall).

A BIG-EYED BUG (*Geocoris punctipes*) - MISSISSIPPI - Increasing rapidly in cotton; about 10-12 per 1,000 row feet in Monroe County. (Dinkins).

A MIRID BUG (*Deraeocoris* sp.) - OREGON - First generation appearing in Jackson County. Seems most effective predator of pear psylla in area. (Larson).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (*Oulema melanopus*) - PENNSYLVANIA - Collected on oats on farms for following new county records. Larvae June 4 in Mifflin Township, Dauphin County, by L.R. Pealer. Adults June 4 in Frankstown Township, Blair County, by W. Bloom. Adults June 5 in Montour County by J.T. Ayres. MARYLAND - Adults light on oats at Oakland, Garrett County, for new county record. Collected by W.T. Garrett June 9. WEST VIRGINIA - Light on farms for following new county records. Adults on oats May 27 in Preston County and on wheat June 10 at Junction, Hampshire County, by A. Miller. Adults and larvae on oats June 5 in Doddridge County, and on wheat June 6 in Harrison County; larvae on wheat in Brooke County, adults on oats in Ohio County and on wheat in Taylor County by Goddard and Grimms, June 6. Larvae on oats at Glenville, Gilmer County, and on wheat in Lewis County by McClung and Blackshire June 6. Adults and larvae on oats June 6 at Hamlin, Lincoln County, by Sisson and Sisson. Larvae on oats June 11 at Moorefield, Hardy County, by Saucier and Jones. KENTUCKY - Larvae on oats on farms for following new county records. May 28 at Lawrenceburg, Anderson County, and at Harrodsburg, Mercer County, and June 4 at Travellers Rest, Owsley County, by W.A. Smith. June 3 at Mount Washington, Bullitt County, by T. Smith and at Ellisburg, Casey County, by P.D. Maxwell. June 3 at Tomahawk, Martin County, and June 4 at White Oak, Morgan County, by P.E. Shipman. June 4 in Larue County by J.R. Erbling. June 4 at Turnersville, Lincoln County, and June 5 at Mount Vernon, Rockcastle County, by P.W. Turner. June 5 at Elizabethtown, Hardin County, by J. Wheeler and at Mummie, Jackson County, by W.J. Luckwitz. June 6 in Meade County by J.H. Milner. June 9 at Netty, Magoffin County, by W.H. Reckner. INDIANA - On oats for following new county records. Larvae May 26 in Clark County and May 17 in Scott County by R.B. Cummings. June 3 in Greene County by L.W. Gouty and J.C. Larsen. Larvae June 3 in Marion Township, Dubois County, by J.R. Jansen. Adults June 4 in Orange County by V.R. Knapp. Larvae June 4 in Rutherford Township, Martin County, and in Jefferson Township, Pike County; June 5 in Morgan Township, Harrison County, in Greenville Township, Floyd County, and in Jackson Township, Washington County; June 6 in Harrison Township, Spencer County, by K.C. Kruse. June 6 at Mackey, Gibson County, by P.E. Flint, and in Lawrence County by L.W. Gouty and J.R. Jansen. All new county records determined by R.E. White. (PPC).

In Indiana, cereal leaf beetle eggs ranged 24-48 and larvae 24-36 per linear foot of oats at New Castle, St. Joseph County. Adults and eggs declined May 28 to June 5. (Shade). Larvae 1-7 per stem on 50-75 percent of 6 to 8-inch oats northeast of line between South Bend and Fort Wayne, Allen County. Larvae heaviest in area of U.S. Highway 6 between Ligonier, Noble County, and Waterloo, De Kalb County. Light larval feeding on 20-60 percent of 2 to 4-inch oats throughout northeastern and north-central areas north of U.S. Highway 30 and east of South Bend. All checked fields unsprayed. (Huber, June 6). OHIO - Adults declining in eastern area; usually below 20 per 100 sweeps of oats. Egg deposition complete; larvae reaching full growth. Late-planted oats missed by ovipositing females. Rarely more than trace damage on young oats in eastern area. Many "headed out" oatfields show feeding damage. Oat damage averaged 10-20 percent in northeastern and east-central area. Fields with 30 percent or more feeding damage in Medina, Holmes, Carroll, Columbiana, Coshocton, Knox, Licking, and Franklin Counties. Sprayed 300-400 acres of Union County oats (Mohler) and 200 acres in Ashland County (Knight).

EUROPEAN CLOVER LEAF TIER (*Mirificarma formosella*) - CALIFORNIA - To help determine geographic limits, 100 traps baited with "hexalure" deployed in northern and central areas. Ten traps each, set in Colusa, Glenn, and Yolo Counties. Seventy more set in central area. In 7 counties to date: El Dorado, Placer, Sacramento, Nevada, Sutter, Yuba and Butte. (Cal. Coop. Rpt.). Butte County is new county record. (PPC).

EUROPEAN PINE SHOOT MOTH (*Rhyacionia bouliana*) - OREGON - Limited infestation discovered last week in May in southwest section of Portland, Multnomah County. Numerous pines of several species contained late instars and pupae. Adults emerged June 4. First of control sprays applied June 5. Isolation plus control measures to be used to prevent spread. (Fisher).

FORMOSAN SUBTERRANEAN TERMITE (*Coptotermes formosanus*) - SOUTH CAROLINA - Specimens collected in home in Charleston, Charleston County, in early March 1957 by W.G. Ford. Species recently determined by V.H. Owens and confirmed by D.R. Smith, establishes this termite in the United States 8 years earlier than previously reported. Local spread apparently has been limited, as the 1957 infestation is only a few doors from the infestation reported in 1968. See CEIR 17(27):603 and 15(32):907-908 for first reports in South Carolina and the U.S. (PPC).

GRASSHOPPERS - OREGON - Several species becoming threatening in Snake and Imnaha River areas in Wallowa County. Controls may be necessary. (Every). NEVADA - Up to 90+ nymphs per square yard (mostly *Melanoplus sanguinipes*) infested about 5,000 acres of alfalfa and grain in Diamond Valley, Eureka County. Infestations and damage variable from field to field. (Heringer). About 400 acres treated with insecticides and borders of crops baited. (Nev. Coop. Rpt.). *Oedaleonotus enigma* averaged 25-35 per square yard on 600 acres in Crumb Canyon area south of Battle Mountain, Lander County. *Aulocara ellioti* and *O. enigma* averaged 15-20 per square yard on rangeland bordering Elko, Elko County. (Martinelli). UTAH - Nymphal numbers below normal over most Box Elder County areas. *A. ellioti* and *Camnula pellucida* now adult, plus small numbers of *Trimerotropis* spp. (Knowlton, June 10). NEW MEXICO - Grasshoppers ranged 4-26 per square yard on Lea County range. (Dickerson). As high as 45 per square yard near Carrizozo, Lincoln County. (Dunlap, Bower). Averaged 8-9 per square yard on 170,000 acres of Quay County range. (Finnie). Cool, rainy weather retarded hatch in Union and Colfax Counties. (Finnie, Bartholf). COLORADO - First and second instars of *M. femurrubrum*, *Orphulella pelidna*, and others appearing; up to 6 per square yard in field margins in northeastern and east-central areas. (Johnson). WYOMING - Averages per 100 square feet in 2 study areas of Platte County. At Glendo June 5, total counts averaged 77. Predominant species mainly in second and third instars: *A. ellioti* 5, *Ageneotettix deorum* 27, *Amphitornus coloradus* 17. Late species hatching: *Trachyrhachys kiowa* 7, *Opeia obscura* 1, *Phlibostroma quadrimaculatum* 6. At Guernsey June 6, total counts averaged 152. Predominant species mainly in third instar: *A. ellioti* 32, *A. deorum* 53, *A. coloradus* 33. Late species: *T. kiowa* 3, *P. quadrimaculatum* 2, *O. obscura* 3. (Pfadt). MINNESOTA - Light hatch in south-central, central, and west-central districts; few first and second instars. Cool weather slowed hatch. Few gray blister beetles in southwest district. (Minn. Pest Rpt.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - LOUISIANA - Adults light at Summerfield, Claiborne Parish, for a new parish record. Collected by A.C. Copeland May 29. Determined by D.R. Smith. (PPC).

JAPANESE BEETLE (*Popillia japonica*) - TENNESSEE - First adults of season collected June 12 in Monroe County. (Harris). NORTH CAROLINA - First adult of season at Castle Hayne, New Hanover County, May 23. (PPC South. Reg.). VIRGINIA - Adults light locally at Farmville, Prince Edward County. Adults infested smartweed at Chesapeake. First beetles this year. (Szarzyrski, June 6). MARYLAND - First adult of season on clover at Leonardtown, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - First adults at Dover, Kent County, area June 11 on roses and pussy willow. (Miller, Franklin).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - No adults trapped in May. Two larval infestations found in Hidalgo County and 1 in Dimmit County. (PPC South. Reg.).

MORMON CRICKET (Anabrus simplex) - NEVADA - Generally light, good potential for buildup on about 14,000 acres on west side of Humboldt Range in Star Peak area, Pershing County. Control project of bait application to be initiated. (Nev. Coop. Rpt.). Infested about 300 acres in Davis Canyon, Diamond Mountains, Eureka County. (Burnett).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Statistical bloom sampling in Coachella Valley indicates larvae ranged about 20 per acre in 3-4 fields week ending June 6. Chemical controls to be applied June 13. Sterile moth release week ending June 13 as follows: Coachella Valley 838,800, total to date 5,297,580; Kern County 86,400, total to date 331,900; Borrego Springs 5,960, total to date 5,960. (PPC). Survey of Coachella Valley cotton indicates 53 of 88 inspected fields blooming. (Cal. Coop. Rpt.). ARIZONA - Increasing from Yuma to Roll areas. Some fields treated in Yuma Valley, Yuma County. Very few adults caught in extensive caging and sex lure trapping experiments in Maricopa County. (Ariz. Coop. Sur.). TEXAS - Larvae ranged 10-30 per acre in few cotton fields. Limited bloom inspections made in Hidalgo County. (PPC South. Reg., May Rpt.).

PISTACHIO SEED CHALCID (Megastigmus pistaciae) - CALIFORNIA - Seventh of 10 scheduled sprays on over 600 pistachio trees completed at Chico in Plant Introduction Station. Trees not treated in 1968. Adults emerging from caged pistachio seeds. (Cal. Coop. Rpt.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Medium on 200,000 acres of range in Colfax County. (N.M. Coop. Rpt.).

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#### HAWAII INSECT REPORT

Turf, Pastures - Damage by a GRASS WEBWORM (Herpetogramma licarsisalis) sporadic in 5 acres of Kikuyu grass at Kainaliu, Kona. Larvae apparently prefer short grass while at low density. First report from Kona this year. (Davis).

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) heavy on 0.25 acre of eggplants at Kahului, Maui. Up to 75 mites per square inch of lower leaf surface. (Miyahira). CHINESE ROSE BEETLE (Adoretus sinicus) adults heavy; defoliated snap beans at Kukuiaele, Hawaii Island. Over 200 adults collected in single night. Heavily damaged flowers and foliage of unsprayed home rose planting at Makawao, Maui. (Yoshioka, Miyahira).

Fruits - An OLETHREUTID MOTH (Cryptophlebia sp.) infested 10 percent of ripe Iiitchi fruit clusters at Wilhelmina Rise, Oahu. (Davis).

Beneficial Insects - A HISTERID BEETLE (Hister nomas) and a HYDROPHYLID BEETLE (Sphaeridium scarabaeoides) active in fresh cow pads at Kalaheo, Kauai. H. nomas found for first time on Kauai. (Sugawa).

Miscellaneous Insects - A GRASSHOPPER (Oedaleus abruptus) remains trace in treated grassy areas; adults remain light in brush areas within treated perimeter at Hickam Air Force Base, Honolulu, Oahu. (Olson). Male of a LONGHORN GRASSHOPPER (Euconocephalus nasutus) caught in ditch along Farrington Highway at Wallani Tract, Waipahu, Oahu. Six of eleven known captured specimens discovered in adjacent communities of Ewa and Waipahu. (Otsuka).

## INSECT DETECTION

New State Record - A SCYTODID SPIDER (Loxosceles laeta) California: Los Angeles County (p. 456).

New County, Island, and Parish Records - ALFALFA PLANT BUG (Adelphocoris lineolatus) Missouri: Madison (p. 449). ALFALFA WEEVIL (Hypera postica) Nebraska: Kearney; Oklahoma: Harper; Wisconsin: Juneau, Waushara (p. 448). BROWN RECLUSE SPIDER (Loxosceles reclusa) Nebraska: Otoe (p. 456). CEREAL LEAF BEETLE (Oulema melanopus) Indiana: Clark, Dubois, Floyd, Gibson, Greene, Harrison, Lawrence, Martin, Orange, Pike, Scott, Spencer, Washington; Kentucky: Anderson, Bullitt, Casey, Hardin, Jackson, Larue, Lincoln, Magoffin, Martin, Meade, Mercer, Morgan, Rockcastle; Maryland: Garrett; Pennsylvania: Blair, Dauphin, Montour; West Virginia: Brooke, Doddridge, Gilmer, Hampshire, Hardy, Harrison, Lewis, Lincoln, Ohio, Preston, Taylor (p. 457). CLOVER HEAD WEEVIL (Hypera meles) Missouri: Franklin, Gasconade, Madison, St. Francois (p. 448). EUROPEAN CLOVER LEAF TIER (Mirificarma formosella) California: Butte (p. 458). A HISTERID BEETLE (Hister nomas) Hawaii: Kauai (p. 459). HOLLYHOCK WEEVIL (Apion longirostre) Nevada: Douglas (p. 454). IMPORTED FIRE ANT (Solenopsis saevissima ficheri) Louisiana: Claiborne (p. 458). MEADOW SPITTLEBUG (Philaenus spumarius) Missouri: Franklin, Madison (p. 449).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 6/6-11, BL - Beet armyworm (Spodoptera exigua) 28, cabbage looper (Trichoplusia ni) 2, corn earworm (Heliothis zea) 2, granulate cutworm (Feltia subterranea) 168, salt-marsh caterpillar (Estigmene acrea) 2, yellow-striped armyworm (Prodenia ornithogalli) 5. MISSISSIPPI - Stoneville, 6/7-13, 2BL, 66-94°F., precip. 0.66 - Armyworm (Pseudaletia unipuncta) 93, beet armyworm 2, black cutworm (Agrotis ipsilon) 56, corn earworm 109, granulate cutworm 1, salt-marsh caterpillar 10, tobacco budworm (H. virescens) 1, variegated cutworm (Peridroma saucia) 72, yellow-striped armyworm 83. NEW JERSEY - Aura, 6/4-11, BL - Armyworm 8, black cutworm 4, European corn borer (Ostrinia nubilalis) 26, yellow-striped armyworm 3. Evesboro, 6/4-11, BL - Armyworm 2. Plainsboro, 6/4-11, BL, European corn borer 7. Seabrook, 6/4-11, BL - Armyworm 26, European corn borer 18. OHIO - Wooster, 6/6-12, BL - Armyworm 43, black cutworm 3, European corn borer 97, variegated cutworm 1, wheat head armyworm (Paronta diffusa) 35. TEXAS - Waco, 6/7-13, 69-91°F., no precip. - Armyworm 5, beet armyworm 3, black cutworm 1, cabbage looper 8, corn earworm 16, granulate cutworm 11, tobacco budworm 1, variegated cutworm 14, yellow-striped armyworm 26. WISCONSIN - Armyworm 1, European corn borer 8.

Weather continued from page 444.

## WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1969

The Weather Bureau's 30-day outlook for mid-June to mid-July is for temperatures to average below seasonal normals over most areas from the Continental Divide to the Appalachians as well as the central and southern Pacific coast, the southern Plateau, and most of the south Atlantic coast. Above normal temperatures are indicated for the Northwest and also the Northeast. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal over most of the northern half of the Nation except for subnormal totals in the Pacific Northwest and near normal amounts along the New England coast as well as the northern Plains. Elsewhere, above normal rainfall is called for along the south Atlantic coast, while subnormal totals are indicated for the Southwest and also the west gulf coast region. Near normal amounts are expected in unspecified areas.

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









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UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

ARMYWORM heavy in bromegrass, wheat, corn, and sorghum in east and southeast Nebraska; pupating in Kansas, Missouri, and Nebraska. BEET LEAFHOPPER heavy on sugarbeets in Arizona. CORN LEAF APHID infested most corn and sorghum in north-east and southeast Kansas; building up in grain sorghum in New Mexico; heavy in sorghum in parts of Oklahoma. (p. 463).

GREENBUG continues damaging on grain sorghum in Nebraska and Kansas; building up on sorghum, milo, and Sudan grass in Colorado; medium to heavy on milo in California. (pp. 463-464).

CORN ROOTWORMS appearing in Iowa; heavy hatch expected in Ohio; some larval damage in Nebraska. (p. 465).

ALFALFA WEEVIL damaging alfalfa in Vermont, New York, South Dakota, and Wyoming. Populations declining in several States. (pp. 466-467).

BEAN LEAF BEETLE and MEXICAN BEAN BEETLE unusually abundant and damaging on soybeans on lower Eastern Shore of Maryland. (p. 469).

SUGAR-BEET ROOT MAGGOT required controls on 11,000 acres of sugarbeets in North Dakota. (p. 471).

TOBACCO FLEA BEETLE heavy on tobacco in southern Maryland; some injury in Wisconsin. (p. 471).

LINDEN LOOPER defoliated several thousand acres of oaks and outbreak of an OLETHREUTID MOTH heavy on 200,000 acres of oaks in Pennsylvania. (pp. 475-476).

HORN FLY required treatment on range cattle in North Dakota. FACE FLY heavy on cattle in Maryland. STABLE FLY moderate on dairy herds in Nebraska. (p.477).

EUROPEAN CHAFER adults flying in Ohio; reported for first time in Hampden County, Massachusetts. (p. 479).

CEREAL LEAF BEETLE economically important for first time in Monroe County, Michigan. (p. 479).

Detection

An APHID reported for first time in New Jersey. (p. 476).

For new county records see page 481.

Special Reports

Distribution of Pear Psylla (map). (p. 482).

Techniques to Determine Losses. Selected References 1950-1957. Part IV. (pp. 483-484).

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WEATHER FOR THE WEEK ENDING JUNE 23

**HIGHLIGHTS:** Hot dry weather prevailed in the Northwest and southern Texas. The northern Great Plains were mostly cool and dry; the central Great Plains cool and wet with damaging storms.

**PRECIPITATION:** Much of the precipitation last week occurred in connection with thunderstorms and was of the slower type and, in some cases, locally severe. Hail accompanied some of the storms. There were numerous reports of small hail and several occurrences of large hail. Golfball size hail fell in the northern sections of Amarillo, Texas, Tuesday evening and, on Wednesday afternoon, hail 2 inches in diameter fell near Brownwood, Texas, accompanied by winds gusting to 60 m.p.h. Hail as large as baseballs damaged trees, windows, and windshields near Comanche, Texas, Wednesday afternoon, and 1-inch hail, accompanied by winds gusting to 55 m.p.h. fell with heavy rain at Richmond, Virginia. Scattered thunderstorms hit the Far West, the northern California mountains, and from Texas to the Southeast on Thursday. Baseball-size hail fell east of Abilene, Texas, Thursday evening. The weekend brought violent thunderstorms and a few killer tornadoes to mid-America. Torrential rains produced flash floods in the Wichita, Kansas, and Kansas City, Missouri, areas Saturday. In the afternoon destructive winds hit southern Missouri and northern Arkansas and tornadoes occurred in Colorado, Missouri, Tennessee, Virginia, and Mississippi. Hail as large as baseballs fell in north-central Nebraska, and near Scott City, Kansas. Shortly before noon Sunday a tornado injured a number of persons and caused extensive damage in Salina, Kansas. Other tornadoes killed 2 persons at Old Mines, and 2 persons at Doe Run, Missouri. Damaging windstorms and thunderstorms also occurred in Oklahoma and Illinois on Sunday. No rain or only light sprinkles fell in southern Arizona, the southeastern third of Texas, and Louisiana. It has been several weeks since Louisiana has received important rainfall.

Weather continued on page 472.



## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (*Pseudaletia unipuncta*)** - INDIANA - Blacklight trap catches throughout State light; no economic infestations reported to June 13. (Huber). MISSOURI - Ranged 4-17 per square foot in lodged or dense wheat; larvae pupating. (Munson). KANSAS - About 50 percent pupation reported in sample from bromegrass field in Jefferson County. (Brooks). Very few (less than 10 per square yard) found in wheat and bromegrass checked in Marion, Harvey, and Sedgwick Counties. (Simpson). NEBRASKA - Heavy in bromegrass pastures, wheat, corn, and sorghum in most east and southeast counties. Tachinid flies parasitized 8-10 percent of larvae. Pupation underway, damage should continue. Ranged 4-18 per square foot in bromegrass pastures and wheat, 5-6 per corn plant in Otoe, Sarpy, Douglas, Saunders, and Lancaster Counties. (Keith).

**ASTER LEAFHOPPER (*Macrosteles fascifrons*)** - COLORADO - No adults found in fields checked in Arkansas Valley. (Burchett).

**BET LEAFHOPPER (*Circulifer tenellus*)** - WASHINGTON - Unusually low in eastern area in April; scattered pockets on Royal Slope last half of May. Heavy flight at Pasco, Franklin County, first week in June. Small numbers present elsewhere. (Landis). COLORADO - Light, ranged 0.2 to 1.1 per square foot in Mesa and Delta Counties. Sugarbeets in advanced 8 to 12-leaf stage, little evidence of curly top as of June 10. (Bulla). ARIZONA - Ranged 1-10 per plant on 80 acres of sugarbeets at Bowie, Cochise County. (Ariz. Coop. Sur.).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - KANSAS - Light to heavy (15-150 per plant) in most corn and sorghum examined in northeast and southeast areas. Nearly 100 percent of plants infested. (Simpson). OKLAHOMA - Ranged 5-500 per terminal in 8 to 9-inch sorghum in Ottawa County and in 12 to 24-inch sorghum in Tillman and Jackson Counties. Heavy in sorghum in Craig and Garvin Counties. (Okla. Coop. Sur.). NEW MEXICO - This and *Schizaphis graminum* building up in in Curry County grain sorghum fields. Few fields treated. (Crystal, Campbell).

**CORN EARWORM (*Heliothis zea*)** - DELAWARE - Early larvae active in several corn fields. (Boys, June 18). Larvae on corn in several areas, adults averaged about 2 per night in blacklight trap collections in Kent and Sussex Counties. Counts high for time of season. (Burbutis). MARYLAND - Second instars light in ears and whorls of isolated corn plants in 3 fields in Queen Annes and Dorchester Counties. Adults averaged less than 1 per night at Centreville, Queen Annes County, and Hurlock, Dorchester County, light traps. (U. Md., Ent. Dept.). VIRGINIA - Larvae in Franklin County damaged 15 percent of whorls in 50-acre field of near tasseling corn. (W.A. Allen). SOUTH CAROLINA - Damage to bean pods increasing. (Thomas, June 18). ALABAMA - From 75 to 90 percent of sweet corn harvested from several home gardens in Lee County contain larvae. Damage occurred to kernels at end of ears. (Bagby et al.). MISSISSIPPI - Third-stage larvae ranged 1-2 per ear in 30 percent of ears in 20-acre field of early dent corn in Yazoo County. (Dinkins). KANSAS - Averaged 1-3 per 10 sweeps in few alfalfa fields examined in south-central and southeast areas. (Simpson). NEW MEXICO - Light to moderate and spotty; damaging whorls of field corn in southern Dona Ana County. (Seagraves, Nielsen).

**GREENBUG (*Schizaphis graminum*)** - MISSOURI - Only occasional grain sorghum plant (less than 5 percent) infested on lower leaves; very little damage. *Sipha flava* (yellow sugarcane aphid) also light on lower leaves. (Craig). NEBRASKA - Greenbug continues to damage grain sorghum in southeast and south districts. Some reinfestation of treated fields in Jefferson, Gage, and Thayer Counties. Appears somewhat stable in east and central areas. Ranged 1-15 per plant on 10 percent of plants in Saunders County. No serious damage. Predators increasing. (Keith). KANSAS - Ranged 25-50 per plant on sorghum in Mitchell, Republic, and Jewell Counties, with about 100 percent of plants infested in fields checked. Severe discoloration common, some plants dying. Some fields abandoned, some replanted. Many fields treated twice and continue to be reinfested. Parasite and predator activity in area quite light; however, predator activity increasing in

Clay County. Greenbug declined in Washington County over last 2 weeks from 25-50 per plant in fields checked to 3-10 per plant. Discoloration ranged from none to light. No *S. graminum* noted in Nemaha, Brown, and Atchison Counties. Trace numbers (1 per 5 plants) in one sorghum field in Jefferson County. (Brooks). Ranged 1-4 per sorghum plant with 3-7 percent of plants infested in Marion and Harvey Counties. Trace (less than 1 per 10 plants) in most sorghum checked in Sedgwick, Sumner, Cowley, Elk, Chautauqua, Montgomery, Labette, and Neosho Counties. Many fields heavily infested 3 weeks ago had very few aphids. Very few parasites observed. Most fields have heavy populations of lady beetles, 6-10 adults per plant common. (Simpson). OKLAHOMA - Ranged 250-300 per plant on 50 percent of plants in scattered sorghum fields in Tillman and Jackson Counties. Ranged up to 50 per plant on occasional plants in Harmon County field. Ranged 0-20 per plant on 8 to 9-inch sorghum in Ottawa County. (Okla. Coop. Sur.). COLORADO - Building up on sorghums, milo, and Sudan grass in Cheyenne and Kiowa Counties and in Arkansas Valley. Ranged 0-60 per plant; damage appearing. (Johnson, Burchett). ARIZONA - Ranged 8-20 per plant on 20 acres of milo at Kansas Settlement, Cochise County. (Ariz. Coop. Sur.). CALIFORNIA - Medium on 135-acre planting of milo at Clarksburg, Yolo County. Heavy on milo at Davis, Yolo County, and medium on 80-acre planting at Chico, Butte County. (Cal. Coop. Rpt.).

HORNWORMS (*Manduca* spp.) - VIRGINIA - *Manduca* sp. larvae generally very light to date on newly set tobacco in Pittsylvania County. (Dominick). MARYLAND - *M. quinquemaculata* light in 3 acres of newly set tobacco near Davidsonville, Anne Arundel County; 2-3 third instars per 50 plants. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (*Empoasca fabae*) - NEW YORK - Noted in alfalfa in Ithaca area. (N.Y. Wkly. Rpt., June 16). WISCONSIN - Adults averaged as high as 3 per 10 sweeps in alfalfa as far north as Marshfield, Wood County. (Wis. Ins. Sur.).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Adults ranged 0-3 per 100 sweeps on potatoes in Otero, Bent, and Prowers Counties. Ranged 0-2 per 100 sweeps in all tomato fields checked in Arkansas Valley. (Burchett).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - KANSAS - None found in alfalfa checked in southeast and south-central areas. (Simpson). OKLAHOMA - Heavy, built up rapidly in alfalfa in some areas of Garvin County. (Okla. Coop. Sur.). ARIZONA - Light in few forage fields at Yuma, Yuma County. Averaged 250 per 100 sweeps in 30-acre field at San Simon, Cochise County. (Ariz. Coop. Sur.). WYOMING - Ranged 9-200 per 100 sweeps in 4 alfalfa fields of Crook, Campbell, and Niobrara Counties for new county records. (Parshall).

TOBACCO BUDWORM (*Heliothis virescens*) - ARKANSAS - One moth, first of season, in light trap at Kelsø June 17. (Boyer). VIRGINIA - Larvae very light on tobacco in Pittsylvania County. (Dominick).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW HAMPSHIRE - Egg laying underway. No hatch at Litchfield June 4; hatching at Salem June 11. (Sutherland). NEW YORK - White egg masses 3 per 50 stalks of early to midwhorl corn in Albany County. (N.Y. Wkly. Rpt., June 16). NEW JERSEY - Flight of first generation about over. (Ins.-Dis. Newsltr.). MARYLAND - First to third instars increasing rapidly on Eastern Shore. Ranged 7-17 per 25 infested plants; averaged 10 per 25 plants in most fields throughout Eastern Shore. Adults averaged 27 per night at Centreville, Queen Annes County, light trap. First-instar infestations averaged less than 10 percent in central counties to date. (U. Md., Ent. Dept.). OHIO - Egg masses on undersides of leaves of knee-high or higher corn in southwest area; low, less than 1 per 10 plants in most cases; ovipositing suppressed by weather. Egg masses should be more numerous in southern areas soon. First egg hatch June 14 on knee-high corn at Marietta, Washington County; feeding damage as high as 20 percent on some plants. Adults remain high; 33 collected in light trap at Wooster with 24 collected night of June 19. (Richter). INDIANA - Moths active throughout State;

egg hatch and larval feeding appearing on corn in southwest and south-central districts; 75 percent of plants infested in 500 acres of early corn near Holland, Dubois County. No larvae observed in northern three-fourths of State. (Huber, June 13). MICHIGAN - Warm nights of June 6-7 produced heavy emergence patterns in Lenawee and Livingston County blacklight traps. Female numbers fast approaching males; heavy egg laying in prospect. Some early planted fields could develop spotty economic infestations. (Newman). WISCONSIN - Averaged 85 percent emergence in Dane and Rock Counties. Eggs on older corn run 1-2 per 100 plants. (Wis. Ins. Sur.). MINNESOTA - Moth emergence in south-central and southwest districts. Few egg masses on 16+ inch corn. Pupation remains slow due to cool temperatures; averaged 50 percent in southwest district, 30 percent in west-central district. (Minn. Pest Rpt.). IOWA - Egg mass survey in Montgomery County June 18 on 30-inch corn. Forty egg masses per 100 plants found in one part of field; evidence of newly hatched larvae observed in another part of field, but no larvae found. Single egg mass observed June 17 on 1 of 6 20-inch corn plants in Page County. (Iowa Ins. Sur.). ILLINOIS - Emergence complete in southern and central sections, 75-100 percent complete in northern sections. In southern section first-generation hatch completed, second instars found; averaged 85 egg masses per 100 plants and 20 percent of plants infested. In central section egg masses averaged 30 per 100 stalks with hatch nearly 50 percent. In northern section, hatch beginning. (Ill. Ins. Rpt.). MISSOURI - Leaf feeding ranged 0-44 percent in east-central area; no egg masses; first and second instars observed. Leaf feeding averaged 52 percent in field in northeast area; egg masses present. In northwest area ranged 26-82 (averaged 44) percent; eggs and adults in all fields. (Munson). Leaf feeding in west-central area ranged 4-40 percent; larvae in 30 percent of scarred plants; very few egg masses. (Thomas). Controls applied to 1,000 acres of corn in southeast area. (Jones). KANSAS - One field of 3-foot corn in Jefferson County 60 percent infested. Fresh egg masses present, moths still in field. Nearby field 25 percent infested. Much of corn in area late. (Brooks). Infestation 60 and 80 percent, respectively, in 2 fields checked in Wyandotte County. Most larvae first stage with occasional second instar. (Simpson). TENNESSEE - Damage heavy in garden sweet corn in mid-State area. (Bogard).

CORN ROOTWORMS (*Diabrotica* spp.) - IOWA - First instars collected from corn at Sanborn, O'Brien County, and Newell, Buena Vista County, June 18. Second instars collected in Scott County June 16. (Iowa Ins. Sur.). NEBRASKA - D. virgifera and D. longicornis hatched; larval damage at Mead field laboratory June 17. (Munson). OHIO - First hatch of D. longicornis on western edge of Montgomery County June 11. Most eggs collected in Preble and Clark Counties fully developed; hatch should be heavy for next 7-10 days. Feeding damage to corn roots should appear first week in July. (D. undecimpunctata howardi adults active and low, less than 5 per acre in southwest area. Numerous gravid females observed. (Richter).

STALK BORER (Papaipema nebris) - ILLINOIS - Moving into cornfields adjacent to grassy fence rows and damaging first few rows. (Ill. Ins. Rpt.). MISSOURI - Larvae boring in stems of many weeds, small grain, and stalks of corn over most of State. (Craig). TENNESSEE - Damaging field corn in some mid-State areas. (Mullett). KANSAS - Ranged 4-15 percent in border rows of corn in Wyandotte and Leavenworth Counties. (Simpson).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI - Infestations of first to second instars ranged 0-25 percent in southeast area; 30 fields checked. (Jones).

A CARABID BEETLE (Clivina impressifrons) - IOWA - Caused damage and replanting of corn in Marshall, Scott, Monona, and Sac Counties. (Iowa Ins. Sur.).

BEET ARMYWORM (Spodoptera exigua) - NEW MEXICO - Damaging young sweet corn at Albuquerque, Bernalillo County. Injury noticeable and widespread. (Heninger).

SEED-CORN MAGGOT (*Hylemya platura*) - NEW YORK - Unusual amount of damage. Probably resistant to insecticides used in the combination seed treatments of corn. (N.Y. Wkly. Rpt., June 16). WISCONSIN - Damaged some corn in Waushara County. (Wis. Ins. Sur.).

WIREWORMS - WYOMING - Larvae destroyed 80 percent of stand of corn and 30-50 percent in another field near Byron, Big Horn County. Corn being replanted. (Burkhardt, June 12).

CORN ROOT APHID (*Anuraphis maidiradicis*) - MISSOURI - Ranged 4-30 per root system on 80-85 percent of corn in Howard County field. (Thomas).

YELLOW SUGARCANE APHID (*Sipha flava*) - OKLAHOMA - Ranged 0-75 per plant on 8 to 9-inch sorghum plants in Ottawa County. Outnumbered greenbug by about 20 to 1 in most fields. (Okla. Coop. Sur.).

#### SMALL GRAINS

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - WISCONSIN - Building up in west-central part of State; growers concerned about possible damage to oats. (Wis. Ins. Sur.). MINNESOTA - Up to 250 per row foot on oats in sandy soil areas of Dakota, Anoka, Sherburne, and Isanti Counties. Counts highest on oats over 6 inches high. High numbers plus dry weather caused some crop damage. Predators very low. *M. avenae* ranged 60-80 per row foot, mostly on heads in few fields of winter wheat in Wright County. (Minn. Pest Rpt.).

BROWN WHEAT MITE (*Petrobia latens*) - NORTH DAKOTA - Ranged up to 16 (average 5) per leaf in headed winter wheat in Williams County. No damage evident. (Brandvik).

SAY STINK BUG (*Pitiedia sayi*) - UTAH - Damaged dryland wheat in areas of Juab County. Many fields averaged 1 per 3 heads. (Esplin, Knowlton, June 16).

BARLEY THRIPS (*Limothrips denticornis*) - NORTH DAKOTA - Adults ranged up to 11 (averaged 4.5) per leaf sheath in headed barley in McKenzie County. Two per stem in early boot-stage barley in Traill County. Less than 1 per plant in Cass, Grand Forks, Walsh, and Pembina Counties. (Brandvik, Kaatz).

#### TURF, PASTURES, RANGELAND

MEADOW PLANT BUG (*Leptopterna dolabrata*) - MISSOURI - Adults taken from bluegrass in Lincoln County, and from red clover and fescue in Crawford County June 10. (Hanning).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MARYLAND - Ranged 1-10 per sweep in clover and grass hay mixtures in Frederick, Carroll, Howard, and Montgomery Counties. (U. Md., Ent. Dept.).

PERIODICAL CICADA (*Magicicada septendecim*) - COLORADO - Abundant in rangeland and cedars in various areas of Delta, Montrose, and Mesa Counties. Most feeding confined to rangeland areas. (Bulla).

#### FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEW HAMPSHIRE - Tip damage ranged 5-85 percent and larvae ranged 96-2,000 per 100 sweeps in New Boston area June 4; tip damage over 25 percent in only one field. Tip damage 1-15 percent in Concord area June 10. (Sutherland). VERMONT - Damage heavy in Chittenden County. (MacCollom). NEW YORK - Remains light in Ulster County; however, severe damage evident in occasional field. Pupating. Activity rapidly increasing, many fields in Clinton and Essex Counties showing 50+ percent tip damage. Some damage in Franklin County fields. Some early fields in Broome County frosted. Tip injury severe on new growth of unsprayed stubble. Many alfalfa fields damaged 100 percent in Orleans County; rapid defoliation occurring. Activity at peak with cocoons in

trash and on stems in Livingston County. Tip damage 100 percent in most first crop alfalfa in Wyoming County. Many acres of first cutting sprayed. Injury in Albany County increased greatly last few days. (N.Y. Wkly. Rpt., June 16). MASSACHUSETTS - Average number per 100 sweeps June 10-12 by county: Berkshire 4 adults, 669.6 larvae in 7 fields of alfalfa, tip feeding 38-84 percent. Hampshire 3 adults, 352.6 larvae in 5 fields. (Miller). MARYLAND - Larvae 0-6 per sweep on central area alfalfa. Injury to second growth in 25-acre field averaged 10 percent near Frederick, Frederick County. Activity declining statewide. (U. Md., Ent. Dept.). VIRGINIA - Continues low; damage minor. (W.A. Allen). WISCONSIN - Larvae averaged 181 per 100 sweeps on June 11 at night in Kenosha County. Adults averaged 4 per 100 sweeps. Sweeps in regrowth about 8 inches high showed 3 per 100 sweeps in Dane County, 37 and 8 per 100 sweeps in Rock County. (Wis. Ins. Sur.). INDIANA - First cutting well underway in central and northern districts. Adult emergence continued in southern districts; pupation increasing in northern districts. Except in south-central district and entire eastern third of State, infestations appeared less damaging than in 1968. (Huber, June 13). ILLINOIS - Still declining; larvae 0.2-2.0 per sweep in central and north-central sections. (Ill. Ins. Rpt.). IOWA - Collected in Wapello, Davis, and Jefferson Counties by A. Seim, and in Henry County by G. Vincent. These are new county records. (Iowa Ins. Sur.).

NORTH DAKOTA - Alfalfa weevil larvae ranged 10-2,450 (average 423) per 100 sweeps in irrigated alfalfa in McKenzie and Williams Counties. Ranged 16-40 (average 28) per 100 sweeps in dryland alfalfa. (Kaatz). SOUTH DAKOTA - Damage continued to increase in alfalfa in northern Black Hills near Spearfish, Lawrence County. Mostly second and third instars. Over 1,200 larvae per 100 sweeps on fields sampled. Adults decreased to 10 per 100 sweeps. Pupae first observed June 17. Larvae fewer in southern Black Hills, near Oral and Hot Springs, Fall River County; 200-400 per 100 sweeps common. (Jones). NEBRASKA - Larvae peaked week of June 8 in Dawson County. Damage light in most fields. Highest count 551 larvae per 100 sweeps near Gothenburg. (Manglitz, Stevens, June 13). Larvae in alfalfa continuing to decline in Dawson County; highest count 2 per sweep. (Manglitz, June 17). COLORADO - Larvae pupating in Arkansas Valley and not expected to be serious problem remainder of season. (Burchett). WYOMING - Larvae continue damaging in Washakie County; ranged 0-1,151 per 5 sweeps. Ranged 0-1,050 per 5 sweeps at Torrington and Lingle, Goshen County. (Burkhardt, June 12). Larvae averaged 40-45 per sweep in Natrona County. Averages ranged 30-300 per sweep in Sheridan County. (Baribeau). Ranged 0-9,000 per 100 sweeps in north-central and northeast areas. Larvae per 100 sweeps of alfalfa by county: Johnson 1,350, Campbell 120, Crook 412, Weston 1,112, Niobrara 13, Converse 5,500. Damage heavy in Converse County, much hay being mowed. (Parshall). UTAH - Injury moderate in most Box Elder County fields along Wasatch Front. (Allred, Knowlton, June 19). OREGON - Adults reared from late instars collected May 26 on hairy vetch at Canby, Clackamas County. (Dickason). First week in June larvae on alfalfa near Prineville, Crook County, averaged 157-182 per sweep. (Every, Dickason). Larvae averaged less than one per sweep in Benton County fields which were out about first of June. (Dickason).

CLOVER LEAF WEEVIL (*Hypera punctata*) - UTAH - Severely damaged alfalfa in few Sanpete County fields. (Knowlton, Herring, June 16). KANSAS - Adults averaged 2-6 per 10 sweeps in alfalfa in Montgomery and Labette Counties. (Simpson).

PLANT BUGS (*Adelphocoris* spp.) - UTAH - Swept 5 *A. superbus* in 10 sweeps of alfalfa at Hurricane, Washington County. Noticeable on alfalfa at Kanab, Kane County. (Davis, Knowlton, June 16). MISSOURI - *A. lineolatus* collected from red clover and fescue June 10, 1969, in Crawford County. This is a new county record. (Hanning). WISCONSIN - *A. lineolatus* nymphs numerous in some alfalfa in central counties; 10 per sweep common. Adults appearing. (Wis. Ins. Sur.).

ASH-GRAY BLISTER BEETLE (*Epicauta fabricii*) - WYOMING - Ranged 10-115 per 100 sweeps of most alfalfa in Crook and Weston Counties. (Parshall).

PEA APHID (Acyrtosiphon pisum) - MASSACHUSETTS - Average number per 100 sweeps of alfalfa June 10-12 by county: Berkshire 90.3 (7 fields), Hampshire 118.7 (5 fields). (Miller). DELAWARE - Very abundant on some alfalfa in New Castle County. (Burbutis). VIRGINIA - Continues light in most areas. (W.A. Allen). WISCONSIN - Averaged 5 per sweep in Wood County alfalfa. All sizes of nymphs present; winged individuals common. Parasitism generally very low. (Wis. Ins. Sur.). KANSAS - Averaged 0-25 per 10 sweeps in alfalfa in Marion, Harvey, Sedgwick, Sumner, Cowley, Elk, Chautauqua, Montgomery, Labette, and Neosho Counties. Lady beetles heavy in most fields. (Simpson). OKLAHOMA - Ranged 80-100 per 10 sweeps in alfalfa in Tillman County. (Okla. Coop. Sur.). COLORADO - Building up in Arkansas Valley. Ranged 20-18,000 per 100 sweeps of alfalfa. (Burchett). WYOMING - Ranged 43-689 per 5 sweeps in Washakie County and 2-115 in Goshen County. (Burkhardt). Ranged 30-200 per sweep in Natrona and Sheridan Counties. Light, 100-3,000 per 100 sweeps, in most alfalfa in Johnson, Campbell, Crook, Weston, Niobrara, and Converse Counties. (Parshall). UTAH - Ranged per 10 sweeps: 5-30 at Delta and Sutherland area, 35 at Hinckley, Millard County; 300-400 at Kanab, Kane County; generally light in Washington County. (Davis, Knowlton, June 16). NEVADA - General, medium infestations on seed alfalfa at Lages Station, White Pine County. (Peters). OREGON - Still very low in west area alfalfa fields. (Dickason).

LYGUS BUGS (Lygus spp.) - NEVADA - General, medium infestations on seed alfalfa at Lages Station, White Pine County. (Peters). ARIZONA - Averages per 100 sweeps of alfalfa as follows: 150 on 30 acres at San Simon, Cochise County; 200 on 40 acres at St. Johns, Apache County; 650 adults and 250 nymphs on 4 eastside fields in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). UTAH - Adults 8-19 and nymphs few per 10 sweeps of alfalfa in bud and blossom in Delta area; nymphs sometimes more numerous at Sutherland, Abraham, and Hinckley, Millard County. (Davis, Knowlton, June 16). COLORADO - Vary 150-800 per 100 sweeps of alfalfa in Arkansas Valley. (Burchett). WYOMING - Increasing in north-central and northeastern areas. Adults and nymphs 75-800 per 100 sweeps of alfalfa in Johnson, Campbell, Crook, Weston, Niobrara, and Converse Counties. (Parshall). KANSAS - Ranged 7-18 per 10 sweeps in alfalfa in south-central and southeast areas. (Simpson). MISSOURI - Adults and nymphs 150-200 per 10 sweeps of red clover in northeast area. (Hanning). VIRGINIA - L. lineolaris adults 100 per 100 sweeps in Charlotte County field. (W.A. Allen). MICHIGAN - L. lineolaris and Lygus spp. ranged 34-92 in 25 sweeps in Bay and Saginaw Counties June 13. Buildup earlier than in 1968. (Newman). MASSACHUSETTS - Average number of L. lineolaris per 100 sweeps of alfalfa June 10-12 by county: Berkshire 57 (7 fields), Hampshire 17.8 (5 fields). (Miller).

PLANT BUGS - WASHINGTON - Leptopterna dolabrata and Capsus ater damage heavy in timothy fields near Cle Elum, Kittitas County. (Retan).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Average per 100 sweeps of alfalfa as follows: 90 at Casa Grande, Pinal County; 50 at San Simon, Cochise County; 58 in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MINNESOTA - More numerous on alfalfa than in 1968. Yellowed alfalfa leaves above spittle mass in some fields. Appears restricted to east-central and southeast districts and eastern halves of central and south-central districts. (Minn. Pest Rpt.).

GRASSHOPPERS (Melanoplus spp.) - MISSOURI - Nymphs, mainly first instar, ranged 100-200 per 10 sweeps in several alfalfa fields in northwest area. (Huggans).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - First moth collected in Lenawee County blacklight trap June 9. (Newman). VIRGINIA - First larvae of season on Charlotte County alfalfa. (W.A. Allen).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Ranged 3,000-5,000 per 100 sweeps of alfalfa at San Simon, Cochise County. (Ariz. Coop. Sur.).

## SOYBEANS

A GRAPE COLASPIS (Colaspis sp.) - ARKANSAS - Larvae damaging roots of young plants in Craighead and Poinsett Counties. (Boyer, Barnes). First report of damage to crop by this pest in several years. (Boyer).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Unusually abundant and damaging on lower Eastern Shore. (Md. Ins. Notes). GEORGIA - Increasing on soybeans in Tift County. (Todd).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MINNESOTA - Light margin damage to soybeans appearing in Brown, Nicollet, and Redwood Counties. (Minn. Pest Rpt.). MARYLAND - Unusually abundant and damaging on lower Eastern Shore. (Md. Ins. Notes).

FALSE CHINCH BUG (Nysius ericae) - GEORGIA - Heavy, 5-10 per soybean plant in Tift County. (Todd).

THRIPS - MARYLAND - Heavy on soybeans with noticeable silvering of the leaves throughout Dorchester, Wicomico, and Worcester Counties. (U. Md., Ent. Dept.).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Averaged 50 (maximum 52) per acre in 3 of 4 untreated fields in McLennan and Falls Counties. Averaged 50 (maximum 575) per acre in 6 of 19 treated fields. Punctured squares averaged 3.7 percent in 48 treated fields, ranged zero to 12.2 percent. In 5 untreated fields averaged 10.3 percent, ranged 2-17.2 percent. (Cowan et al.). For Boll Weevil in High Plains area see page 479. LOUISIANA - Ranged 52-735 (average 222) per acre in 12 of 27 fields in Madison Parish. From 17 wing traps at 15 sites near hibernation sites 8 weevils recovered; total to date 520. From 145 wing traps on isolated island in Mississippi River, 23 weevils recovered; total to date 1,801. Recovered 5 weevils from 49 wing traps on isolated island and nearest cotton field in Madison Parish; total to date 31. From 10 wing traps at 10 sites near hibernation sites and checked daily, collected 6; total to date 129. Total weevils from all wing traps to date 2,481. (Cleveland et al.). MISSISSIPPI - Overwintered weevils moderate in cotton surveyed in Monroe County. Light in fields in Yazoo County. Feeding punctures observed on 4 of 100 squares examined in one field. (Dinkins). Found 1 weevil in 1 of 10 squaring fields, 5 in 3 of 34 squaring fields in delta counties. Punctured squares found in 11 of 34 fields; averaged 0.5 (maximum 2) percent. In 28 wing traps collected 5; total to date 243. (Pfrimmer et al.). TENNESSEE - Present in most fields in western area that supported infestations in 1968. Weevils hard to find but feeding signs in terminals easily detected. (Locke).

ALABAMA - Punctured squares increased throughout south and central areas. In Perry, Pickens, and Montgomery Counties cotton shows 1-3 good squares per stalk. "Hatchout" of first-generation weevils in this area will occur June 23 to July 15. Weevils in southern area increasing rapidly. Two farms in Wilcox County with 5-10 squares per stalk and blooming, 31 percent and 63 percent of squares punctured. (Ledbetter). On 8 to 10-leaf cotton on 3 farms in Colbert County, weevils averaged 50, 100, and 150 per acre. Earlier cotton on 1 farm with few punctured squares, up to 3 percent. (Counts, Gann). Counts in Sand Mountain area of Marshall County showed 23 per acre on 2 of 3 farms. (Murphy). Counts per acre on 4 farms in Limestone County as follows: 50, 50, 50, and 100 each. (Pickens). One weevil taken from 1 of 33 wing traps on farm in Limestone County. (Davis et al.). GEORGIA - Percent punctured squares ranged 5-17 in Turner County, 0-20 in Tift County. (Canderday). Averaged 132 overwintered weevils per acre on seedling cotton in Spalding County; 7 weevils collected from 3 wing traps June 16-18. (Beckham). SOUTH CAROLINA - Collected 1,564 weevils in 33 wing traps in 11 cotton fields; total 8,981 thru June 7. Collected 1,803 weevils, total 10,784 thru June 18 in Florence County. Emergence heavy and peaked. (Taft et al.). Appearing in fields throughout State; some old cotton in squaring stage now with up to 30 percent punctured squares. (Sparks, June 18).

**BOLLWORMS (*Heliothis* spp.)** - TEXAS - Averaged 1.5 eggs, 0.3 larvae per 100 terminals in 66 treated fields; in 8 untreated fields eggs and larvae averaged 1 per 100 terminals in McLennan and Falls Counties. Nineteen larvae collected previously on native hosts identified *H. zea*. Total to date from all hosts, 345 *H. zea* and 4 *H. virescens*. Twenty-five larvae collected previously on cotton, 18 *H. zea* and 7 *H. virescens*. (Cowan et al.). LOUISIANA - In 2 cotton fields in Madison Parish, none in 1 and light in 1. Recovered 9 *H. zea* moths in blacklight trap. (Cleveland et al.). ARKANSAS - Eggs, larvae, and damaged squares ranged zero to very low. Greatest activity in field in Pulaski County; 3 larvae found in 100 terminals. (Boyer, Barnes). Moth activity increased in southeast area; generally remains relatively low. Seven moths taken in trap June 12-16 compared with one previous week. At Hope, Hempstead County, 6 moths taken June 12-16 compared to 8 previous week. (Boyer). MISSISSIPPI - Injured squares in 23 of 34 fields in delta counties. Average injury 1 (maximum 7) percent. Eggs in 8 fields, larvae in 10. In 95 wing traps collected 197 *H. zea*; total to date 1,626. (Pfrimmer et al.). Mixed populations of *H. zea* and *H. virescens* spotty in several fields in Monroe County. About 3-4 third instars per 200 row feet in each of 12 fields surveyed in Yazoo County. (Dinkins). GEORGIA - Eggs very light but increasing in Tift and Turner Counties. (Canerday). SOUTH CAROLINA - Eggs and small larvae numerous on young cotton. (Sparks, June 18). Collected 7 *H. zea* adults thru June 7 in blacklight trap in Florence County; 1 *H. virescens* and 8 *H. zea* collected currently; total to date 227 *H. zea*, 1 *H. virescens*. (Taft et al.).

**COTTON FLEAHOPPER (*Pseudatomoscelis seriatus*)** - TEXAS - Averaged 4.4 per 100 terminals in 66 treated fields, 5.9 in 8 untreated fields in McLennan and Falls Counties. Highest average counts per sweep: 19.3 in 13 fields of horsemint, 16.2 in 3 fields of croton. (Cowan et al.). Light in High Plains in Swisher, Yoakum, Hockley, Lubbock, Hale, and Dawson Counties. (Almand, Clymer, June 17). LOUISIANA - Ranged 1-11 (averaged 2.9) per 100 sweeps in 24 of 39 untreated cotton fields in Madison Parish. (Cleveland et al.). MISSISSIPPI - Very low in 12 fields in Yazoo County. Average of 1-2 per 200 feet. (Dinkins). ALABAMA - Light damage to small squares in many young fields in Colbert and Madison Counties. (Counts et al.).

**TARNISHED PLANT BUG (*Lygus lineolaris*)** - MISSISSIPPI - Averaged 157 per acre in 6 of 10 presquaring fields in delta counties. In 24 of 34 squaring fields, averaged 1 (maximum 5) per 100 terminals. In sex lure traps collected 17; total to date 124. (Pfrimmer et al.). Increased in Yazoo County fields. Samples taken in vacuum machine averaged 16 per 200 row feet in most fields sampled. (Dinkins).

**COTTON APHID (*Aphis gossypii*)** - TEXAS - Light in High Plains in Gaines, Howard, and Terry Counties. Light to medium in Dawson and Cochran Counties; heavy in some areas of Lynn and Bailey Counties. (Almand, Clymer, June 17). SOUTH CAROLINA - Apparently decreasing. (Sparks, June 18).

**SALT-MARSH CATERPILLAR (*Estigmene acrea*)** - TENNESSEE - Causing some light damage over cotton-growing area; unusual for this area. (Locke).

**STALK BORER (*Papaipema nebris*)** - TENNESSEE - Found in several cotton fields; usually occurs later in season. (Locke).

**THRIPS** - TEXAS - Light in High Plains in Gaines, Terry, Yoakum, Garza, Howard, Dawson, and Bailey Counties. Medium in Swisher, Crosby, Lubbock, Hale, Briscoe, and Cochran Counties; some treatment applied in parts of Cochran County. Light to medium in Lynn County, medium to heavy in Hockley and Floyd Counties; some control applied in Floyd County. (Almand, Clymer, June 17). MISSOURI - Spotty in 332 of 501 fields scouted; about 20 acres treated. (Jones). TENNESSEE - Still causing damage where controls not applied. (Locke).



## TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Heavy throughout southern area. Moderate to heavy feeding on lower leaves of all newly set plants in most fields. (U. Md., Ent. Dept.). WISCONSIN - Some minor injury noted in Dane County tobacco seedbeds. About 1 percent of plants show feeding. Mating underway. (Wis. Ins. Sur.).

TOBACCO THRIPS (Frankliniella fusca) - VIRGINIA - Moderate in 2-acre field of set tobacco. Some stunting of plants noticeable in Pittsylvania County. (Dominick).

APHIDS - GEORGIA - Heavy in many fields across tobacco belt. (Miles, Giradeau).

## SUGARBEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Pupation nearly complete in Walsh and Pembina Counties. Pupae averaged 13 per square foot in 1968 sugarbeet ground. Flies evident, 10 per 100 row feet in one 3 to 4-inch high beet field in Pembina County. About 11,000 acres of beets being treated for adult control. (Kaatz). WYOMING - Up to 3 larvae per plant in 2 fields in Washakie County. Damage appearing with up to 50 percent of plants infested. Adults still active. (Burkhardt, June 12).

A LYGUS BUG (Lygus sp.) - WASHINGTON - Causing more leaf distortion than usual at Yakima, Yakima County. (Landis).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - COLORADO - Adult counts of 0-15 per 100 net sweeps in all fields checked in Arkansas Valley. (Burchett).

BEEB WEBWORM (Loxostege sticticalis) - COLORADO - Larvae appearing in beet fields; range 0-8 per 100 sweeps. (Burchett).

## MISCELLANEOUS FIELD CROPS

WIREWORMS - MINNESOTA - Severely damaged sunflowers in Wilkin County. Stands reduced and one 100-acre field destroyed. In sod or in soil bank program previous year in all cases. (Minn. Pest Rpt.).

## POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - NEW JERSEY - Building up on Gloucester County eggplants. (Ins.-Dis. Newsltr.). DELAWARE - Scattered in pepper plantings throughout State. (Boys, June 18). MARYLAND - First aphids of season, 1 plant in 50 with isolated colony; infested 1 acre of peppers near East New Market, Dorchester County. (U. Md., Ent. Dept.).

## BEANS AND PEAS

SEED-CORN MAGGOT (Hylemya platura) - NEW YORK - Unusually damaging on beans this season. Probably resistant to chlorinated hydrocarbon insecticides used in combination seed treatments. Wet season and deep planting of beans contributed to 1969 problem but not sole cause. Problem in all bean fields in Monroe, Genesee, Orleans, and Niagara Counties. (N.Y. Wkly. Rpt., June 16).

## CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittatum) - DELAWARE - In cucumber and cantaloup plantings in Kent and Sussex Counties. (Boys, June 18). COLORADO - Adults ranged 0-6 per cantaloup plant in Arkansas Valley. Controls recommended. (Burchett).

SEED-CORN MAGGOT (Hylemya platura) - NEW YORK - Unusually damaging this season. Probably resistant to chlorinated hydrocarbon insecticides used in combination seed treatments. Affecting cucumber and pickle plantings in Monroe, Genesee, Orleans, and Niagara Counties. (N.Y. Wkly. Rpt., June 16).

MELON APHID (Aphis gossypii) - MARYLAND - First of season lightly infested 1 plant in 20 on 10 acres of watermelons near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

#### GENERAL VEGETABLES

BLACK CUTWORM (Agrotis ipsilon) - OREGON - This and Peridroma saucia injured table beets at Eugene, Lane County. Larvae not abundant, but approaching economic levels. (Crowell).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Damaging okra foliage at Yuma, Yuma County. Treatments applied. (Ariz. Coop. Sur.).

ONION MAGGOT (Hylemya antiqua) - CALIFORNIA - Heavy in onion planting in Martinez, Contra Costa County. (Cal. Coop. Rpt.).

THISTLE APHID (Brachycaudus cardui) - CALIFORNIA - Heavy on artichoke plants at Arbuckle, Colusa County. (Cal. Coop. Rpt.).

ONION THRIPS (Thrips tabaci) - COLORADO - Light on small onions and increasing rapidly on onions past 4-leaf stage. Ranged 1-25 per plant on larger onions. (Burchett).

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#### HAWAII INSECT REPORT

General Vegetables - CHINESE ROSE BEETLE (Adoretus sinicus) adults heavily damaged small plantings of peanut and okra at Puunene; heavy damage of up to 90 percent of foliage on rose plants at Makawao, Maui. (Miyahira). BEAN FLY (Melanagromyza phaseoli) larvae heavy on backyard planting of snap beans at Waipahu, Oahu. (Wong).

Fruits - RED WAX SCALE (Ceroplastes rubens) adults medium on mango trees at Kahului, Maui; many with 1-10 scales per leaf. Medium, 1-8 per leaf, on hedge of 125 Podocarpus sp. at Honolulu, Oahu. (Miyahira, Kawamura). BLACK CITRUS APHID (Toxoptera aurantii) nymphs and adults medium on citrus terminals at Makawao, Maui. (Miyahira). A STINK BUG (Plautia stali) light on ripe litchi fruits at Makiki, Oahu. A new host record locally; previously reported only on beans, pomegranate, and guava. (Au).

Ornamentals and Other Plants - SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs light on Dendrobium orchids at Wailuku, Maui. Damage to 75 flowering plants generally light, but few plants with up to 50 percent bud drop. Damaged 80 percent of spikes on 200 Dendrobium plants at Hawaii Kai, Oahu. (Miyahira, Kawamura). A PLATASPID BUG (Coptosoma xanthogramma) light on bat-wing wiliwili, Erythrina vesperilio, at Poipu, Kauai. Averaged 6 adults per growing tip. (Sugawa).

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Weather continued from page 462.

TEMPERATURE: Balmly breezes and mild temperatures prevailed over much of the Nation during most of the past week. Afternoon temperatures remained in the 70's and 80's over much of the Country. One exception--parts of the central Great Plains where Topeka registered only 62° on Tuesday. A heat wave drove afternoon maximums into the 90's or higher in the Far West. Colville, Washington, registered 109° Monday and Spokane, Washington, registered 109° Tuesday afternoon. While the hot spell continued in the West, cooler weather moved into the northern Great Plains. Dickinson, North Dakota, registered 47° at 2 p.m. Thursday, and the mercury plunged to a chilly 30° at Fargo, North Dakota, Friday morning when frost occurred over much of North Dakota and the northern half of South Dakota. Temperatures averaged above normal in the Far Northwest and over the southern two-thirds of Texas where maximums reached 100° or higher on 1 or more days and in Florida. Temperatures averaged 6° to 9° below normal over the northern and central Great Plains and the Great Lakes region. (Summary supplied by Environmental Data Service, ESSA.)

## DECIDUOUS FRUITS AND NUTS

**CODLING MOTH** (*Laspeyresia pomonella*) - MARYLAND - Light this year. (Md. Ins. Notes). NEW JERSEY - Caught 3 June 11-18 in baited jar in Gloucester County. (Ins.-Dis. Newsltr.). CONNECTICUT - Some injury to unsprayed apple fruit at Storrs, Tolland County, and New Haven, New Haven County. (Kollas, June 17). NEW YORK - First entries in apples June 10 in Ulster County. Hatch began June 12 at Geneva, Ontario County. (N.Y. Wkly. Rpt.). WISCONSIN - Six caught, 4 on night of June 18. (Wis. Ins. Sur.). COLORADO - Adults in sex attractant traps in Mesa, Montrose, Delta, and Garfield Counties. Ranged from 4 up to 130 per trap. First cover sprays completed. (Bulla).

**ORIENTAL FRUIT MOTH** (*Grapholitha molesta*) - COLORADO - Second-brood flight peaked June 10. Adults 109 per 5 traps, highest at Palisade, Mesa County. (Anderson, Sisson). NEW JERSEY - Caught 36 June 11-18 in baited jar in Gloucester County. (Ins.-Dis. Newsltr.).

**PEACH TWIG BORER** (*Anarsia lineatella*) - COLORADO - Larvae and adults active in peach orchards on Western Slope. Sprays being completed. (Bulla). OREGON - First-generation adults in bait traps at Salem, Marion County. (Larson).

**A TENT CATERPILLAR** (*Malacosoma californicum lutescens*) - NORTH DAKOTA - Larvae 500-600 per tree; defoliation 20-30 percent on apples at Portal, Burke County. (McBride).

**PLUM CURCULIO** (*Conotrachelus nenuphar*) - OKLAHOMA - Heavy on Choctaw County plums. (Okla. Coop. Sur.). MARYLAND - Light this year. (Md. Ins. Notes). CONNECTICUT - Activity on apples appears over in some areas, but fresh feeding scars noted at Storrs, Tolland County, and New Haven, New Haven County. (Kollas, June 17). RHODE ISLAND - Adults active at Kingston, Washington County. (Mathewson, June 12).

**APPLE APHID** (*Aphis pomi*) - CONNECTICUT - Building up on apples in most areas. Expected to be main problem in apple orchards next 2 weeks. (Kollas, June 17).

**BLACK CHERRY APHID** (*Myzus cerasi*) - UTAH - Remains very numerous on cherries in Box Elder County. (Knowlton, Allred, June 19). Interfering with harvest in some sweet cherry orchards. Unusually numerous in Salt Lake County home orchards. (Burningham, June 19).

**PEAR PSYLLA** (*Psylla pyricola*) - NEW YORK - Resistance to phosphate materials continues in several new locations in Ulster County. (N.Y. Wkly. Rpt., June 16).

**WHITE APPLE LEAFHOPPER** (*Typhlocyba pomaria*) - MARYLAND - Problem on apples at Smithsburg and Hagerstown, Washington County. (Md. Ins. Notes).

**SAN JOSE SCALE** (*Aspidiotus perniciosus*) - WASHINGTON - First crawlers on apple June 13 in commercial orchards. (Johnson, Allen).

**TEPHRITID FLIES** (*Rhagoletis* spp.) - NEW YORK - First *R. cingulata* captures in emergence cages June 13 at Geneva, Ontario County. (N.Y. Wkly. Rpt.). NEW JERSEY - Two *R. pomonella* caught June 11-18 on 2 sticky boards in Gloucester County. (Ins.-Dis. Newsltr.).

**SPIDER MITES** - UTAH - *Tetranychus mcDanieli* severely discolored apple and pear foliage in 2 orchards at Hurricane, Washington County, and orchard at Santaquin, Utah County. (Davis, Knowlton, June 16). COLORADO - *T. urticae* building up in few apple orchards in Mesa and Delta Counties. Controls applied. (Bulla). MARYLAND - *Panonychus ulmi* spotty but increases expected with hot weather. (Md. Ins. Notes). NEW HAMPSHIRE - *P. ulmi* increasing in orchards where controls inadequate. (Sutherland).

**ERIOPHYID MITES** - CALIFORNIA - *Eriophyes pyri* medium on pear trees at Hanford, Kings County, and on apple trees at Kentfield, Marin County. Showing up in local areas

more than in past years. (Cal. Coop. Rpt.). WASHINGTON - First visible rust by Epitimerus pyri on fruits June 9 on trees with light crop. Damage 25 percent at Naches, Yakima County. (Johnson).

#### CITRUS

Citrus Insect Situation in Florida - Mid-June - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 65 (norm 45) percent of groves; 44 (norm 26) percent economic. Decreased but still in high range and above normal. Upward trend starting and expected to continue through July. Heavy infestations will be more numerous than average in most districts. Highest districts west, north, south, and central. East, especially low. TEXAS CITRUS MITE (Eutetranychus banksi) infested 36 (norm 69) percent of groves; 20 (norm 47) percent economic. At lowest mid-June level in 10 years. Increase expected but will remain below normal. Highest district north. CITRUS RED MITE (Panonychus citri) infested 46 (norm 63) percent of groves; 26 (norm 38) percent economic. Below normal; expected to continue near current moderate level. GLOVER SCALE (Lepidosaphes gloverii) infested 84 (norm 86) percent of groves; 16 (norm 30) percent economic. Entered high range but below normal. Increase expected. Highest district south; others slightly lower. PURPLE SCALE (L. beckii) infested 67 (norm 81) percent of groves; 6 (norm 11) percent economic. Will remain subnormal and moderate. CHAFF SCALE (Parlatoria pergandii) infested 50 (norm 70) percent of groves; less than 1 (norm 15) percent economic. Will remain below normal and low. YELLOW SCALE (Aonidiella citrina) infested 70 (norm 68) percent of groves; 4 (norm 11) percent economic. Below normal and moderate; little change expected. BLACK SCALE (Saissetia oleae) infested 62 (norm 69) percent of groves; 36 (norm 49) percent economic. Reached high range; will continue current upward trend. Statewide population not expected to exceed normal level. Wide variation among districts. An ARMORED SCALE (Unaspis citri) infested 18 percent of groves; moderate to heavy in 4 percent. Increase expected. WHITEFLIES infested 74 percent of groves; 40 percent economic. Above normal and in high range; further increase expected. MEALYBUGS infested 60 percent of groves; 27 percent economic. Near normal level for June. Will increase further, enter high range in late June, and remain high through July. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy in citrus nurseries at Yuma, Yuma County; treatments applied. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Treatments necessary in citrus seed-beds at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - WASHINGTON - This species, B. rugosotriatus, and Peritelinus oregonus damaged 1.75 acres of strawberries at Stevenson, Skamania County. (Shanks, June 13).

MEADOW SPITTLEBUG (Philaenus spumarius) - MINNESOTA - More numerous this year on strawberries. Appears restricted to east-central and southeast districts and eastern halves of central and south-central districts. (Minn. Pest Rpt.).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - UTAH - Damage moderate in Salt Lake County strawberry patches. (Burningham, Knowlton, June 19).

BLUEBERRY MAGGOT (Rhagoletis mendax) - NEW JERSEY - Moderate numbers of adults appearing in many blueberry areas. First flies caught June 10. Catch in most heavily infested field increased from 4 to 89 in 15 traps June 10-18. (Ins.-Dis. Newsltr.).

#### ORNAMENTALS

ROSE CHAFER (Macroductylus subspinosus) - IOWA - Damaging roses and peonies at Maquoketa, Jackson County. (Iowa Ins. Sur.). RHODE ISLAND - Adults abundant throughout State. (Reli, Field, June 12).

FIR ENGRAVER (Scolytus ventralis) - WASHINGTON - Completely girdled some mugho pines 18-24 inches above ground level at several residences in Yakima, Yakima County. (Gregorick, June 13).

BAGWORM (Thyridopteryx ephemeraeformis) - ILLINOIS - Hatched; begun to feed in central area. (Sur. Bull., June 17). MARYLAND - Newly hatched on evergreens in several areas. (Md. Ins. Notes).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - WYOMING - Crawlers emerging on lilac at Newcastle, Weston County. (Parshall).

SPIDER MITES - MISSOURI - Starting to brown evergreens in central and northwestern areas. (Craig). NEW JERSEY - Troublesome on many juniper specimens. (Ins.-Dis. Newsltr.).

#### FOREST AND SHADE TREES

TORTRICID MOTHS (Choristoneura spp.) - PENNSYLVANIA - Noted for first time June 6. Stripped several hundred acres of hemlock. Infestation borders U.S. Highway 209 at Leighton exit of northeast extension of Pennsylvania Turnpike in Carbon County. Many trees completely stripped. About 25 percent pupation June 6; few moths June 12. (Pa. For. Pest Rpt.). MICHIGAN - C. pinus larvae about one-half to three-fourths grown; nests becoming noticeable. (Wallner, June 16). WISCONSIN - C. pinus larvae declined due to parasites and predators in Douglas, Polk, Burnett, and Bayfield Counties. (Wis. Ins. Sur.).

A GELECHIID MOTH (Exoteleia nepheos) - MICHIGAN - Adults and pupae collected in Ingham County. Probably well distributed in State. Previous collections at Belleville, Wayne County, and West Olive, Ottawa County. (Wallner, June 16).

CONIFER SAWFLIES (Neodiprion spp.) - VIRGINIA - N. pratti pratti reached highest counts this spring since low of 1962 after epidemic in Piedmont and Coastal Plain in 1959-1961. Defoliation up to 20 percent in most areas. Defoliation heaviest, 20-75 percent, in western Henry and Patrick Counties. Incidence of parasites in Henry County low in 1968. Exenterus canadensis (an ichneumon wasp) accounted for 18 percent of total parasitism, 30 percent or more in past years in Piedmont. (For. Pest Sur. Rpt., May). MICHIGAN - N. sertifer larvae in southern Lower Peninsula nearly full grown; many dropping to soil to pupate. (Wallner, June 16).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - On occasional small spots of up to 0.5 acre in size in Southampton, Surry, Gloucester, King William, Charles City, and Hanover Counties. Three new spot infestations on Virginia and shortleaf pines (0.3-0.5 acre) in Campbell County; single spot of 4 trees in Mecklenburg County. (For. Pest Sur. Rpt., May).

PALES WEEVIL (Hylobius pales) - VIRGINIA - Damaged white pine in Bland, Virginia pine in Henry, and loblolly pine (40 percent kill on one acre) in Halifax County. (For. Pest Sur. Rpt., May).

DOUGLAS-FIR TWIG WEEVIL (Cylindrocopturus furnissi) - WASHINGTON - Adults emerging week of June 2 in Mason County. (Saunders).

PINE SPITTLEBUG (Aphrophora parallela) - VIRGINIA - Widespread on loblolly pine throughout southeastern Coastal Plain Counties. (For. Pest Sur. Rpt., May).

AN OLETHREUTID MOTH (Pseudexentera improbana) - PENNSYLVANIA - One of heaviest outbreaks in Clinton County and western Lycoming County; visible from State Highway 44 north of Haneyville and State Highway 144 south of Renovo. Affected predominantly white oak and chestnut oak at higher elevations. Involved at least 200,000 acres; completely stripped majority of trees. Third year of heavy defoliation in these areas, but much more widespread this year. Some trees died fall of 1968; heavy mortality expected later this summer. Similar infestations in Districts 7 and 19 collapsed this year. Active in Schuylkill County; 80 percent defoliation

on 200+ acres west of Morgantown, Lancaster County. (Pa. For. Pest Rpt., June).

GEOMETRID MOTHS - PENNSYLVANIA - First Erannis tiliaria infestations in State since 1962 at several locations. Defoliated several thousand acres of oaks near Cornwall on Lebanon and Lancaster County line; many completely stripped. Defoliation 50-90 percent on several hundred acres near Pine Grove Furnace, Cumberland County. Spotty in Fulton County. Heavier than normal on other trees over much of State. Predicted heavy defoliation by Physostegania pustularia to red maple this spring did not materialize. (Pa. For. Pest Rpt.). See CEIR 19(22):385. MICHIGAN - Half-grown Alsophila pomataria larvae caused partial defoliation of forest trees at Shakey Lake Park, Menominee County; infested about 1,200 acres. (Hanna).

TENT CATERPILLAR MOTHS (Malacosoma spp.) - VIRGINIA - M. americanum widespread; defoliation complete on single trees in Henry and Roanoke Counties. (For. Pest Sur. Rpt., May). OHIO - M. disstria larval feeding complete and pupation underway. Defoliation moderate to very heavy on about 5,000 trees in strip about 30 miles wide along Ohio River in Monroe and Belmont Counties. (Soine). MICHIGAN - M. disstria not epidemic as previously anticipated. (Wallner, June 16). OREGON - M. californicum pluviale defoliation heavy on alder near Elsie, Clatsop County. (Goeden).

PINK-STRIPED OAKWORM (Anisota virginiensis) - WISCONSIN - Adults numerous on 500 acres of northern pin oaks June 12 in Douglas County; eggs plentiful on undersides of leaves. Spent and mating moths present. Trees defoliated in 1968 less vigorous than trees not defoliated in 1968. (Wis. Ins. Sur.).

A TORTRICID MOTH (Croesia semipurpurana) - PENNSYLVANIA - Completely stripped about 500 acres of scarlet oaks in eastern end of Clarks Valley, Dauphin County. (Pa. For. Pest Rpt., June).

SADDLED PROMINENT (Heterocampa guttivitta) - PENNSYLVANIA - Adults emerged at Tobyhanna State Park, Monroe County, and in northeastern Lycoming County first week of June. Eggs will be laid soon. (Pa. For. Pest Rpt., June).

MIMOSA WEBWORM (Homadaula anisocentra) - OKLAHOMA - Moderate on mimosa in most areas to very heavy in some sections of northwestern Oklahoma City, Oklahoma County. (Okla. Coop. Sur.). MARYLAND - Beginning to infest mimosa in southern sections. (Md. Ins. Notes). NEW JERSEY - Starting to build up on honeylocust. (Ins.-Dis. Newsltr.).

CARPENTERWORM (Prionoxystus robiniae) - NEBRASKA - Adults emerging at Benkelman, Dundy County. Severe larval damage to elms. (O'Dea, June 18).

A PIT SCALE (Asterolecanium minus) - PENNSYLVANIA - Some mortality and extensive dieback to chestnut oak and white oak in several areas. Heavy along forest roads in eastern and northeastern Centre, northwestern Union, southeastern Clinton, Pike, and southern Lycoming Counties and in area east of Whipple Dam in Huntingdon County. (Pa. For. Pest Rpt., June).

AN APHID (Periphyllus californiensis shinji) - NEW JERSEY - Heavy on leaves and twigs of Japanese maple (Acer palmatum var. dissectum) at Trenton, Mercer County, May 6, 1964. Collected by F.N. Pagliaro. Determined by M.D. Leonard. This is a new State record and first record on Japanese maple. Subsequently collected during 1965 at Haddonfield, Camden County, in yellow water pan for new county record as follows: 540 alatae May 9-12 and 15 alatae May 16-22. Also known to occur in Pennsylvania, California, and Washington. (Leonard).

PERIODICAL CICADAS (Magicicada spp.) - VIRGINIA - M. septendecim severe in Carroll County. Spotted in Russell and Henry Counties. (For. Pest Sur. Rpt., May). IOWA - M. cassini adults of Brood IX of 17-year race collected in Marengo, Iowa County; identified by T. Moore. Cast skins collected from Muscatine, Clinton, Jackson, Linn, and Iowa Counties; adult from Johnson County June 19. (Iowa Ins. Sur.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - TENNESSEE - Damage more noticeable in central and eastern areas; foliage heavily mined in many areas. (Quillin). VIRGINIA - Locally severe in areas of Franklin, Roanoke, and Montgomery Counties. (W.A. Allen).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WISCONSIN - Some emergence noted in Racine County; conditions appear unfavorable. (Wis. Ins. Sur.).

MOUNTAIN-ASH SAWFLY (Pristiphora geniculata) - NEW HAMPSHIRE - Hatched June 9 at Durham, Strafford County. Numbers appear lower than in 1968. (Conklin).

AN ERIOPHYID MITE (Aceria neocessigi) - CALIFORNIA - Heavy on twigs and fruits of cottonwood trees at Barstow, San Bernardino County. Cottonwood is important shade tree in this desert area. (Cal. Coop. Rpt.).

#### MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Total of 13 cases reported in U.S. June 15-21 as follows: TEXAS - Bee 2, Brewster 1, Kerr 1, Medina 1, Starr 1; NEW MEXICO - Grant 3; ARIZONA - Cochise 2, Graham 1, Santa Cruz 1. Total of 249 cases reported in portion of Barrier Zone in Republic of Mexico June 8-14 as follows: Sonora 121, Chihuahua 86, Coahuila 16, Nuevo Leon 12, Tamaulipas 14. Total of 8 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 67,928,000; New Mexico 4,480,000; Arizona 11,320,000; California 800,000; Mexico 80,028,000. (Anim. Health Div.).

FACE FLY (Musca autumnalis) - MARYLAND - Heavy on cattle, 2-125 per head, in Frederick, Howard, Montgomery, Harford, and Baltimore Counties. (U. Md., Ent. Dept.). ILLINOIS - Average per head by district: West-southwest 11.4, west 4.9, and southeast 4.5. (Ill. Ins. Rpt.). MISSOURI - Ranged 6-55 (averaged 27) on untreated 30-cow herd in northwestern area; ranged 4-32 (averaged 15) on calves. (Munson). NORTH DAKOTA - Adults averaged 20-25 per face on untreated range cattle in Ransom and Richland Counties. (McBride). UTAH - Annoyed Weber County horses. (Knowlton, June 19).

HOUSE FLY (Musca domestica) - NEBRASKA - Activity increasing in feedlots in Lancaster and Saunders Counties. (Campbell).

HORN FLY (Haematobia irritans) - ILLINOIS - Average per head by district: Southeast 267.4, west 34.5, and west-southwest 71.3. (Ill. Ins. Rpt.). MISSISSIPPI - About 100-300 adults per head on 25 untreated cattle in Yazoo County. (Dinkins). OKLAHOMA - Averaged 200 per head on cattle dipped 2 weeks ago in Cherokee County. (Okla. Coop. Sur.). KANSAS - Ranged 75-250 per head in Marion and Harvey Counties. (Simpson). NEBRASKA - Ranged 25-50 per side on 7 range herds in Keith County. (Campbell, Raun, June 18). WYOMING - Ranged 5-175 (averaged 40) per head on 4 herds in Johnson and Crook Counties. (Parshall). NORTH DAKOTA - Adults ranged 50-200 (average 120) per head on untreated range cattle in McKenzie County. Counts of 3,000 per bull on some. Counts of 200 per head in sandhills area in Richland and Ransom Counties. Up to 15 per head on treated herds. Treatments being applied to 10,000 head of range cattle in sandhills area in Richland and Ransom Counties. (Brandvik, McBride).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Average per head by district: West-southwest 8.3, southeast 3.9, and west 0.8. (Ill. Ins. Rpt.). NEBRASKA - Ranged 7-10 per leg on 3 dairy herds near Lincoln, Lancaster County. Ranged 7-10 per leg on 3 feedlot herds in Lancaster and Saunders Counties. (Campbell).

MOSQUITOES - NEVADA - Aedes dorsalis adults heavy near Lages Station, White Pine County. (Peters). Culex tarsalis larvae and adults numerous and widespread in Douglas County. (Munk). UTAH - Very numerous and annoying at Deseret, Delta, and Abraham, Millard County. (Knowlton, Davis, June 16). Unusually annoying at Logan and Lewiston, Cache County. (Knowlton, June 16). IOWA - In light traps June 5-11.

at Ames, Story County: Aedes vexans 13, Culex pipiens 19, C. restuans 9, C. tarsalis 10, and Culiseta inornata 16. Identified by W. Rowley. (Iowa Ins. Sur.).  
MINNESOTA - Larvae very low in Minneapolis and St. Paul area week ending June 13. Trap collections low, 506 females in 16 traps. Cool weather restricted activity. Bite collections in dense vegetation revealed variety of single-brooded species in moderate numbers. Areas with concentrations of adults treated. Mansonia perturbans adults increasing in daytime bite collections and trap collections at Bethel. Apparently overwintered in moderate to high numbers in cattail and sedge swamps in northern areas. (Minn. Pest Rpt.).

A MAMMAL CHEWING LOUSE (Tricholipeurus virginianus) - OKLAHOMA - Heavier than normal on deer checked in Cherokee County. Averaged about 1 per square inch. (Okla. Coop. Sur.).

A LOUSE FLY (Lipoptena mazamae) - OKLAHOMA - Light numbers of adults noted active on deer in Cherokee County. (Okla. Coop. Sur.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Adults averaged 20 per 6-square-inch area on Cherokee County cattle. High enough on Cherokee County deer to kill fawns in some cases. Common, mostly nymphs, in recreational areas in McCurtain County. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - ALABAMA - Two specimens collected from home in Cleburne County. (Farrington). This is a new county record. (PPC).

#### HOUSEHOLDS AND STRUCTURES

A POWDER-POST TERMITE (Cryptotermes brevis) - ALABAMA - In furniture in home in Mobile County for a new county record. Determined by F. Lechleitner. (Pelham et al.).

#### STORED PRODUCTS

RUSTY GRAIN BEETLE (Cryptolestes ferrugineus) - CALIFORNIA - Larvae and adults medium; feeding on supply of marijuana in County Clerks office in Santa Barbara County. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults and larvae 9-60 per 100 sweeps of alfalfa in north-central and northeastern areas. (Parshall). OKLAHOMA - Larvae and adults, mainly Hippodamia convergens, 0.1-3.0 per aphid-infested sorghum plant in Jackson and Tillman Counties. Averaged 7 per 10 sweeps of Tillman County alfalfa. (Okla. Coop. Sur.).

A KLAMATH-WEED BEETLE (Chrysolina gemellata) - CALIFORNIA - Adults heavy on Klamath-weed in Sierra foothills area. Beetles moving into areas where absent for past few years. (Cal. Coop. Rpt.).

A FLEA BEETLE (Altica carduorum) - COLORADO - Adults released on Canada thistle at higher altitudes in northwestern and western areas. (Anderson, Sisson).

HETEROPTEROUS PREDATORS - ARKANSAS - Orius insidiosus adults and nymphs numerous on soybeans and cotton; higher on soybeans than in cotton. Geocoris punctipes eggs and adults numerous on cotton and soybeans. Nymphs few; should increase. Nabis spp. generally higher than normal on cotton and soybeans. (Boyer, Barnes).  
WYOMING - Nabis spp. adults and nymphs 6-40 per 100 sweeps of alfalfa in north-central and northeastern areas. (Parshall).

ALKALI BEE (Nomia melanderi) - WASHINGTON - First males began emerging in some nest sites at Touchet, Walla Walla County; Heterostylum robustum (a bee fly) first noted in numbers June 3. (Johansen, Eves).



A LEAFCUTTING BEE (Megachile rotundata) - WASHINGTON - First males began emerging about May 29 from nest boards held outdoors through winter at Touchet, Walla Walla County. (Johansen).

A PHYTOSEIID MITE (Typhlodromus occidentalis) - COLORADO - Only in few orchards on Western Slope, low levels found to June 10 (except in one orchard). (Bullia).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Overwintered weevils in High Plains noted in 3 fields in Kent County past weeks. Not detected in field in Dickens County as of June 17. Overwintered weevils detected in traps in 2 fields in north-west part of Borden County above Caprock. This area extensively surveyed and no weevils detected in fields to June 17. (Almand, Clymer). For Boll Weevil in other areas see page 469.

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Adults on oats on farms for new county records. By W.M. Puchaez June 11 at Darien, Genesee County, and June 17 in Rush Township, Monroe County. By D. Huffman June 13 in Bennington Township, Wyoming County, and June 18 in Richmond Township, Ontario County. PENNSYLVANIA - On oats for new county records. By J.P. Lilley, adults June 9 in Canton Township, Bradford County, larvae June 17 in Northumberland Township, Wyoming County, and larvae June 19 in Union Township, Berks County. Larvae by L.R. Pealer June 10 in North Newton Township, Cumberland County, Fayette Township, Juniata County, Liverpool Township, Perry County; June 13 in Madison Township, Columbia County, and Hegin Township, Schuylkill County; and larvae June 19 in West Fallowfield Township, Chester County. By P. Soneibaker June 11, larvae in Fairview Township, York County. By B. Steck June 12, larvae at Letterkenny, Franklin County. By A.A. Schub June 12, adults in Susquehanna County. By M.C. Jones June 13, larvae at McConnellsburg, Fulton County. WEST VIRGINIA - Light on oats on farms for new county records. By Grimm and Mullenex June 6, adults in Pendleton County and larvae in Barbour County; and June 16, adults in Randolph County, larvae in Grant, Mineral, and Upshur Counties and adults and larvae at St. George, Tucker County. By Brinker and Barton June 16, adults and larvae at Flatwoods, Braxton County, and larvae at Gilboa, Nicholas County. By A.E. Tuston June 16, adults at Colfax, Marion County. By D. Sisson and L. Sisson June 17, larvae at Charleston, Kanawha County, and at Wayne, Wayne County. By M.A. Saucier and V.E. Bostic June 20, larvae at Renick, Greenbrier County. KENTUCKY - Larvae light on oats on farms for new county records. By D. Moses June 9 at Hazel Green, Wolfe County. By T.S. Smith June 9 in Marion County. By W.J. Luckwitz June 9 at Manchester, Clay County. By J.H. Milner June 11 at Boston, Nelson County. By J.R. Eibling June 12 at Bonnieville, Hart County. ILLINOIS - Larvae light on oats on farm in Platt County for new county record. Collected by Osborne June 10. INDIANA - Larvae in Knox and Sullivan Counties for new county records. Collected by D.E. Kuhn June 3. All above records determined by R.E. White. (PPC).

Cereal leaf beetle larvae in Indiana peaked at New Carlisle; pupation just beginning. Oviposition declining, should be complete by June 25. Larvae averaged 3 per stem on untreated oats in area. Adult lady beetle populations, mostly Coleomegilla maculata, doubled on oats June 9-13; averaged 2-3 per 100 row feet at New Carlisle. First lady beetle larvae of season on oats June 11. (Huber). MICHIGAN - Economically important for first time in Monroe County. (Janes, June 16).

EUROPEAN CHAFER (Amphimallon majalis) - OHIO - Adults flying about trees June 16 at Cleveland, Cuyahoga County. Larvae and pupae in soil beneath these trees. (Tighe). MASSACHUSETTS - Adults light on grass at Ludlow, Hampden County, for a new county record. Collected by W.B. Rose June 19. Determined by R.D. Gordon. (PPC).

GRASS BUGS - UTAH - Labops hesperius medium at Sheep Creek, light at Blue Fly, very light at Pines and Cameron Wash, Garfield County. Heavy at Goat Ranch and Riddle Swale; light at Upper Valley. (Thomson, June 19). Heavy on 1,000 acres in Wanrhodes Creek area of Diamond Creek, Utah County. (Thornley, Knowlton, June 19).

GRASSHOPPERS - WASHINGTON - Nymphs averaged 6-7 per square yard over several thousand acres in Dalles Mountain area 20 miles southwest of Goldendale, Klickitat County. Melanoplus bivittatus, M. sanguinipes, M. packardii present. (Nonini, June 13). M. sanguinipes, Oedaleonotus enigma, Aulocara ellioti, and Amphitornus coloradus nymphs 12-14 per square yard, 5 percent adults on range south of Center-ville, Klickitat County. (Nonini, Nishimura). Much damage to leaves on 500 acres of peppermint near Longview, Cowlitz County. (Shanks). UTAH - Very numerous south of Levan, Juab County. Sprayed 3,860 acres west of Utah Lake, Utah County. Numerous in south Hansel Valley, Box Elder County, and south of Fountain Green, Sanpete County. (Thornley, Knowlton, June 16). Serious on 1,000 acres in Freedom and Fountain Green area of Sanpete County; mostly on cropland, Hansel Vally infestation in Box Elder County covers about 1,500 acres. Control excellent on 3,850 acres sprayed in Utah County west of Utah Lake; part sprayed twice. Generally very light in Curlew Valley area of Box Elder County. (Thornley, Knowlton, June 19). WYOMING - Did not exceed 20 per square yard in most areas of Goshen, Platte, Niobrara, Converse, Natrona, Johnson, and Hot Springs Counties. (Patch). COLORADO - First to third instars of M. femurrubrum, M. bivittatus, M. angustipennis, Hesperotettix speciosus, Orphulella pelidna, and other species appearing throughout eastern area. Ranged 0-15 (average 2-5) per square yard. (Johnson). KANSAS - Small nymphs averaged 8-35 per 10 sweeps of alfalfa in Chautauqua County. (Simpson). SOUTH DAKOTA - Counts per square yard near Hot Springs airport, Fall River County: 30 in margins, 7 in fields; 50 percent M. bivittatus third instar through 10 percent adult; 40 percent M. differentialis second through fifth instar. Averaged 10 per square yard in roadsides and field margins near Holy Rosary Mission, Shannon County; M. femurrubrum first to second instars, M. bivittatus first through third instar. (Burge, Zimmerman). MINNESOTA - Hatch of early species completed on lighter soils in central and east-central districts, underway in heavier soils in southern area. High, 10-20 per square yard on grassy alfalfa in Sherburne and Isanti Counties. M. packardii predominant in most fields; 80 percent adults. M. bivittatus and M. sanguinipes light and in third and fourth instars. M. femurrubrum eggs in eyespot to fully formed; hatched in some fields with light ground cover. Soybean field in Sherburne County had margin damage extending 2 rods into field. Heavy leaf feeding damage (20 percent) by grasshoppers, averaging 10 per square yard, and gray blister beetle, averaging 8 per row foot. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Heavy infestation on Red Creek Road, Hampton Bays in Suffolk County. (N.Y. Wkly. Rpt., June 16).

JAPANESE BEETLE (Popillia japonica) - SOUTH CAROLINA - First reported on June 14, and feeding damage heavy June 16 in Ebenezer community, Oconee County. (Nettles). VIRGINIA - Locally severe on new foliage of pyracantha and medium on field corn in Franklin County. (W.A. Allen). First emergence on sassafras June 18 at Damascus, Washington County. (Fulk). RHODE ISLAND - First adults at Kingston, Washington County. (Mathewson, June 11). OHIO - First adult activity of year June 16 at Columbus, Franklin County. (Shepard).

MORMON CRICKET (Anabrus simplex) - NEVADA - Generally infested 20,000-25,000 acres of rangeland in Rocky Canyon and Cow Creek areas of Seven Troughs Range, Rosebud Canyon area in Kamma Mountains, and Majuba Canyon area of Majuba Mountain in Pershing County. Good potential for buildup. (Heringer).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSISSIPPI - Cysts on farm at Fort Adams, Wilkinson County, for a new county record. Collected by R.E. Smith June 16. Determined by V.H. Owens. (PPC).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Larvae damaging roots of tomato plants in Harris County. (Salter).

## INSECT DETECTION

New State Record - An APHID (Periphyllus californiensis shinji) New Jersey: Mercer County. (p. 476).

New County Records - ALFALFA PLANT BUG (Adelphocoris lineolatus) Missouri: Crawford (p. 467). Iowa: ALFALFA WEEVIL (Hypera postica) Davis, Henry, Jefferson, and Wapello (p. 467). An APHID (Periphyllus californiensis shinji) New Jersey: Camden (p. 476). BROWN RECLUSE SPIDER (Loxosceles reclusa) Alabama: Cleburne (p. 478). CEREAL LEAF BEETLE (Oulema melanopus) Illinois: Piatt; Indiana: Knox, Sullivan; Kentucky: Clay, Hart, Marion, Nelson, Wolfe; New York: Genesee, Monroe, Ontario, Wyoming; Pennsylvania: Berks, Bradford, Chester, Columbia, Cumberland, Fulton, Franklin, Juniata, Perry, Schuylkill, Susquehanna, Wyoming; York; West Virginia: Barbour, Braxton, Greenbrier, Grant, Kanawha, Marion, Mineral, Nicholas, Pendleton, Randolph, Tucker, Upshur, Wayne (p. 479). EUROPEAN CHAFER (Amphimallon majalis) Massachusetts: Hampden (p. 479). A POWDER-POST TERMITE (Cryptotermes brevis) Alabama: Mobile (p. 478). SOYBEAN CYST NEMATODE (Heterodera glycines) Mississippi: Wilkinson (p. 480). SPOTTED ALFALFA APHID (Therioaphis maculata) Wyoming: Campbell, Crook, Niobrara (p. 464).

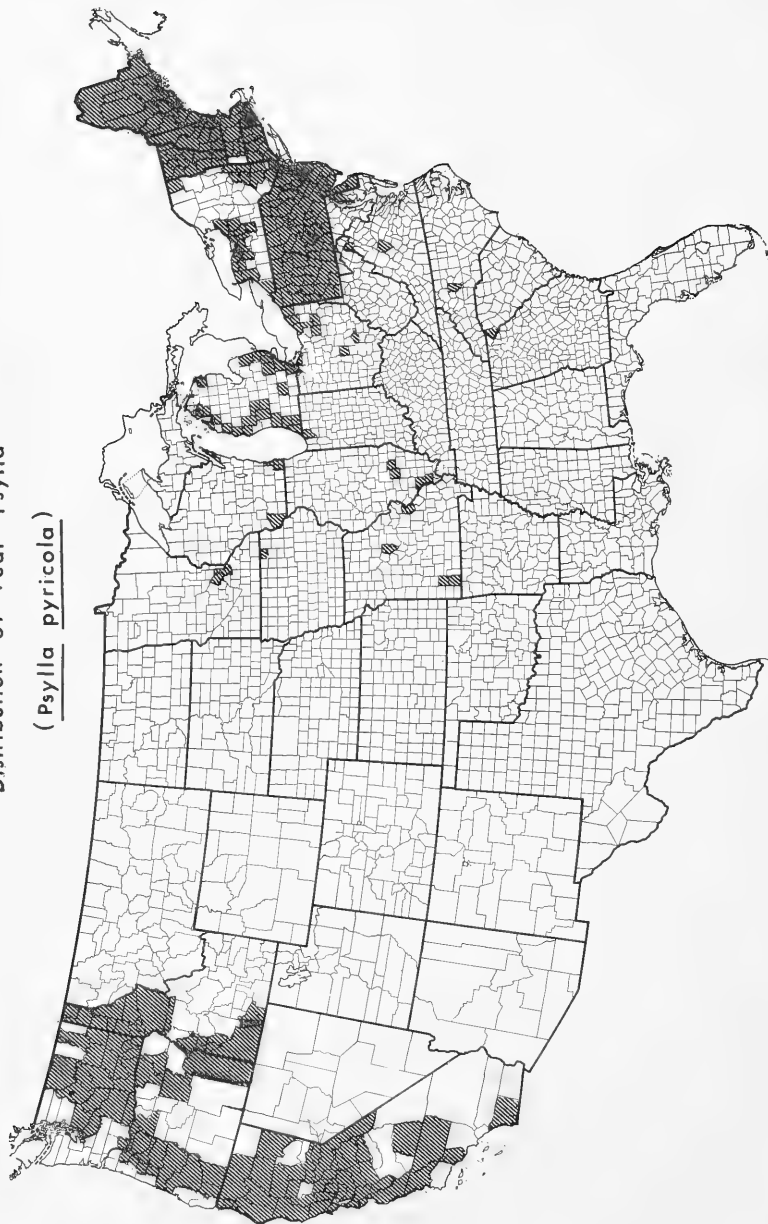
## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 6/13-19, BL - Corn earworm (Heliothis zea) 9, granulate cutworm (Feltia subterranea) 53, salt-marsh caterpillar (Estigmene acrea) 1, tobacco hornworm (Manduca sexta) 1, yellow-striped armyworm (Prodenia ornithogalli) 5, Monticello, 6/12-18, 2BL - Armyworm (Pseudaletia unipuncta) 7, black cutworm (Agrotis ipsilon) 26, cabbage looper (Trichoplusia ni) 28, corn earworm 3, fall armyworm (Spodoptera frugiperda) 6, granulate cutworm 65, salt-marsh caterpillar 1, tobacco budworm (H. virescens) 10, tobacco hornworm 5, variegated cutworm (Peridroma saucia) 12, yellow-striped armyworm 40. KANSAS - Powhattan, 6/17-18, BL - Army cutworm (Chorizagrotis auxiliaris) 6, armyworm 12, black cutworm 10, European corn borer (Ostrinia nubilalis) 16, wheat head armyworm (Faronta diffusa) 3. Wolcott, 6/16-17, BL - Army cutworm 2, armyworm 2, black cutworm 2. MISSISSIPPI - Stoneville, 6/14-20, 2BL, 59-96° F., precip. 4.80 - Armyworm 50, beet armyworm (Spodoptera exigua) 2, black cutworm 11, corn earworm 178, fall armyworm 4, granulate cutworm 4, salt-marsh caterpillar 26, tobacco budworm 2, variegated cutworm 26, yellow-striped armyworm 102. MISSOURI - Fair Grove, 6/10-18 - Armyworm 170, black cutworm 6, corn earworm 1, European corn borer 11, variegated cutworm 8, yellow-striped armyworm 5. NEW JERSEY - Aura, 6/11-18, BL - Corn earworm 2, European corn borer 1, yellow-striped armyworm 3. Cedarville, 6/11-18, BL - Black cutworm 1, corn earworm 1, variegated cutworm 1. Evesboro, 6/11-18, BL - European corn borer 2. Plainsboro, 6/11-18, BL - Armyworm 1, black cutworm 2. OHIO - Wooster, 6/13-19, BL - Armyworm 32, black cutworm 5, European corn borer 51, variegated cutworm 2, wheat head armyworm 34. TEXAS - Waco, 6/14-20, 70-94° F., precip. 0.07 - Armyworm 5, beet armyworm 14, black cutworm 1, cabbage looper 13, corn earworm 27, granulate cutworm 30, salt-marsh caterpillar 1, tobacco budworm 2, variegated cutworm 4, yellow-striped armyworm 22. WISCONSIN - Madison, 6/12-18, BL - Armyworm 5, black cutworm 4, European corn borer 12.

## CORRECTIONS

CEIR 19(25):458 - EUROPEAN PINE SHOOT MOTH (Rhyacionia bouliana) should read (Rhyacionia buoliana).

Distribution of Pear Psylla  
(Psylla pyricola)



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Plant Pest Control Division

Agricultural Research Service, USDA

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## TECHNIQUES TO DETERMINE LOSSES

Selected References 1950-1957\*

### Part IV

Additional copies of Parts I through IV of this bibliography are available from Survey and Detection Operations.

#### References

AGRICULTURAL RESEARCH SERVICE. 1954. Losses in agriculture--a preliminary appraisal for review. U. S. Dept. Agr. ARS-20-1, 190 pp.

BARNES, O. L. and COAUTHORS. 1953. Tests of insecticides for grasshopper control--1950, 1951, and 1952. U. S. Bur. Ent. and Plant Quar. E-860, 18 pp. Includes techniques on page 3

BASU, A. C. and BANERJEE, S. N. 1957. Study on the assessment of damage done by Hispa armigera Ol. to paddy crop. Indian J. Agr. Sci. 27(3):295-301

BECK, E. W. 1950. Estimates of damage by the European corn borer to field corn in the United States in 1949. U. S. Bur. Ent. and Plant Quar. Insect Pest Survèy Spec. Sup. 1950(2), 3 pp.  
Ostrinia nubilalis

BLICKENSTAFF, C. C. 1957. The nature of damage to field corn by the corn earworm, Heliothis zea (Boddie), and the fall armyworm, Laphygma frugiperda (A. and S.). Iowa State Coll. J. Sci. 32(2):133-135

BREAKEY, E. P. and DAILEY, E. F., JR. 1956. A method for identifying cyclamen mite damage on northwest variety strawberry plants. Wash. State Col. Ext. Serv. Cir. 261, 4 pp.

CHAMBERLIN, F. S. 1956. A method of insect damage determination on shade-grown tobacco. U. S. Dept. Agr. Coop. Econ. Ins. Rpt. 6(49):1104

COLBERG, W. J. 1957. Damage from barley thrips. Nowest. Crop Impr. Assoc. Ext. Conf. Rpt., pp. 19-20

COON, B. F. 1951. Japanese beetle damage in field corn. Pa. Agr. Expt. Sta. Prog. Rpt. 55, 7 pp.  
Popillia japonica

DECKER, G. C. 1954. A century of insect losses. Agr. Chem. 9(8):40-41.

DECKER, G. C. 1955. Wanted--an evaluation of insects losses. J. Econ. Ent. 48(2):226-227.

DITMAN, L. P. and DITMAN, J. L. 1957. An apparatus for measuring corn earworm injury to sweet corn. J. Econ. Ent. 50(3):371-372  
Heliothis zea

HAUSSLER, G. J. 1952. Losses caused by insects. U. S. Dept. Agr. Yearbook 1952:141-146

\*Additional citations for 1959 and 1968 are included at the end of this list.

HILLS, O. A. and TAYLOR, E. A. 1950. Lygus damage to sugar beet seed in various stages of development. Amer. Soc. Sugar Beet Technol. Proc. 6:481-487

JUDENKO, E., JOHNSON, C. G. and TAYLOR, L. R. 1952. The effect of Aphis fabae Scop. on the growth and yield of field beans in a garden plot. Plant Pathol. 1(2):60-63

MCKINLAY, K. S. and GEERING, Q. A. 1957. Studies of crop loss following insect attack on cotton in East Africa. I.--Experiments in Uganda and Tanganyika. Bul. Ent. Reš. 48(4):833-849

PRADHAN, S. and PRASAD, S. K. 1955. Correlation between the degree of damage due to Chilo zonellus Swin. and the yield of jowar grain. Indian J. Ent. 17(1):136-137

STRICKLAND, A. H. 1951. The assessment of insect populations in relation to crop losses. Internatl. Cong. Ent. Trans. 9(1):611-618

STRICKLAND, A. H. 1954. The assessment of insect pest density in relation to crop losses. Commonwealth Ent. Conf. Rpt. 6:78-83

WILBUR, D. A. 1957. Pre-harvest kernel injury just exactly resembles bug damage. Grain and Feed J. 114(8):39-40

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ADDITIONAL REFERENCES 1959 AND 1968

HARRIS, H. M. 1959. Insect losses - a project of the committee on agricultural pests of the Agricultural Board, NAS-NRC. Ent. Soc. Amer. No. Cent. Br. Proc. 14:70-71

KANIA, C. and SEKULA, J. 1959. Estimates of losses in yield of corn due to European corn borer (Pyrausta nubilalis Hbn., Lep., Pyralidae). Polskie Pismo Ent. Ser. B. 3/4(15/16):139-146. In Pol., Engl. Sum.

KOUSKOLEKAS, C. and DECKER, G. C. 1968. A quantitative evaluation of factors affecting alfalfa yield reduction caused by the potato leafhopper attack. J. Econ. Ent. 61(4):921-927

MATHES, R., CHARPENTIER, L. J. and MCCORMICK, W. J. 1959. Losses caused by the sugarcane borer in Louisiana. Internatl. Soc. Sugar Cane Technol. Proc. Cong. 10: 919-921

MCMILLIAN, W. W., WIDSTROM, N. W. and STARKS, K. J. 1968. Rice weevil damage as affected by husk treatment within methods of artificially infesting field corn plots. J. Econ. Ent. 61(4):918-921

MISTRIC, W. J., JR. and COVINGTON, B. M. 1968. Effects of square removal on cotton production with reference to boll weevil damage. J. Econ. Ent. 61(4):1060-1067



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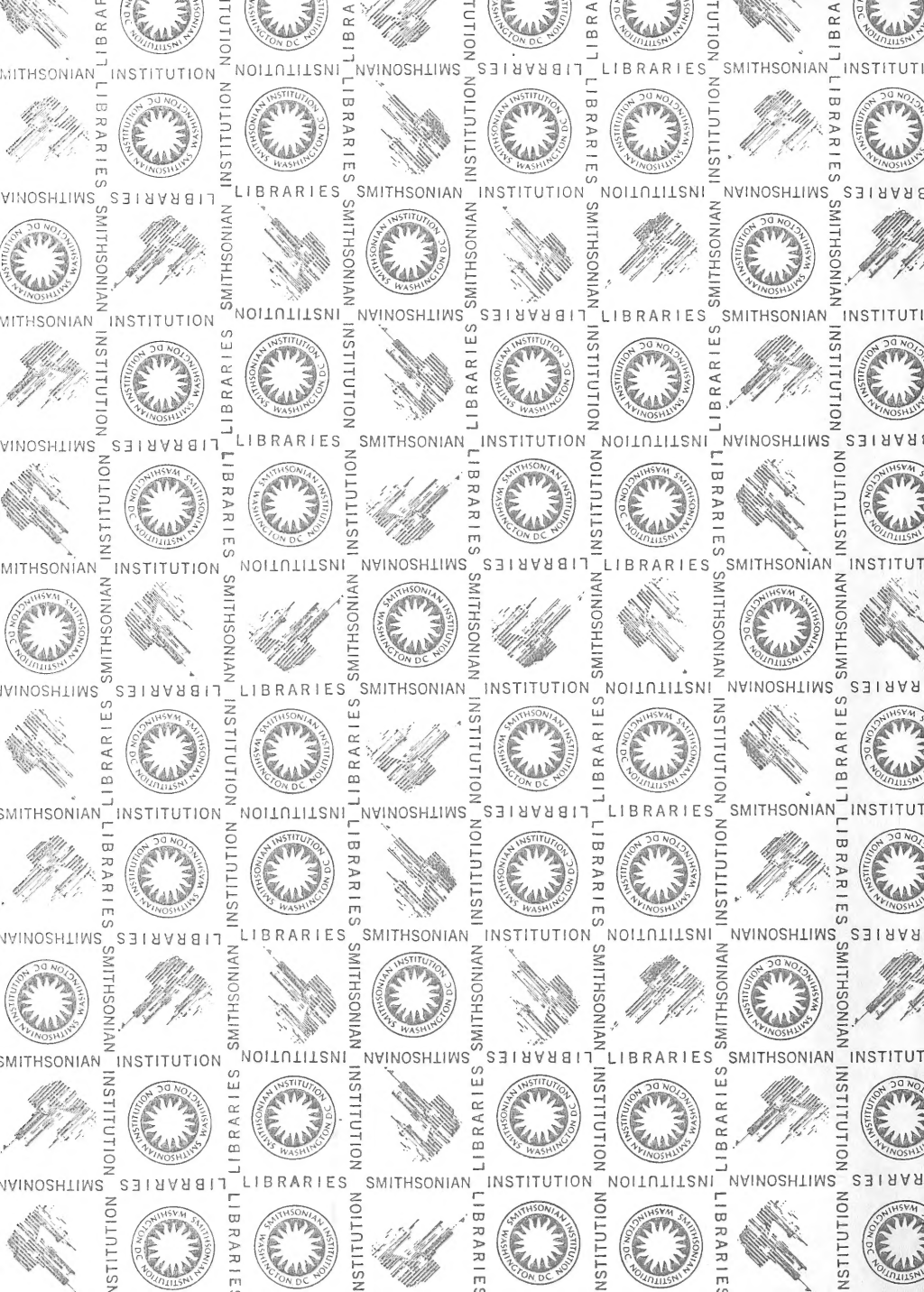


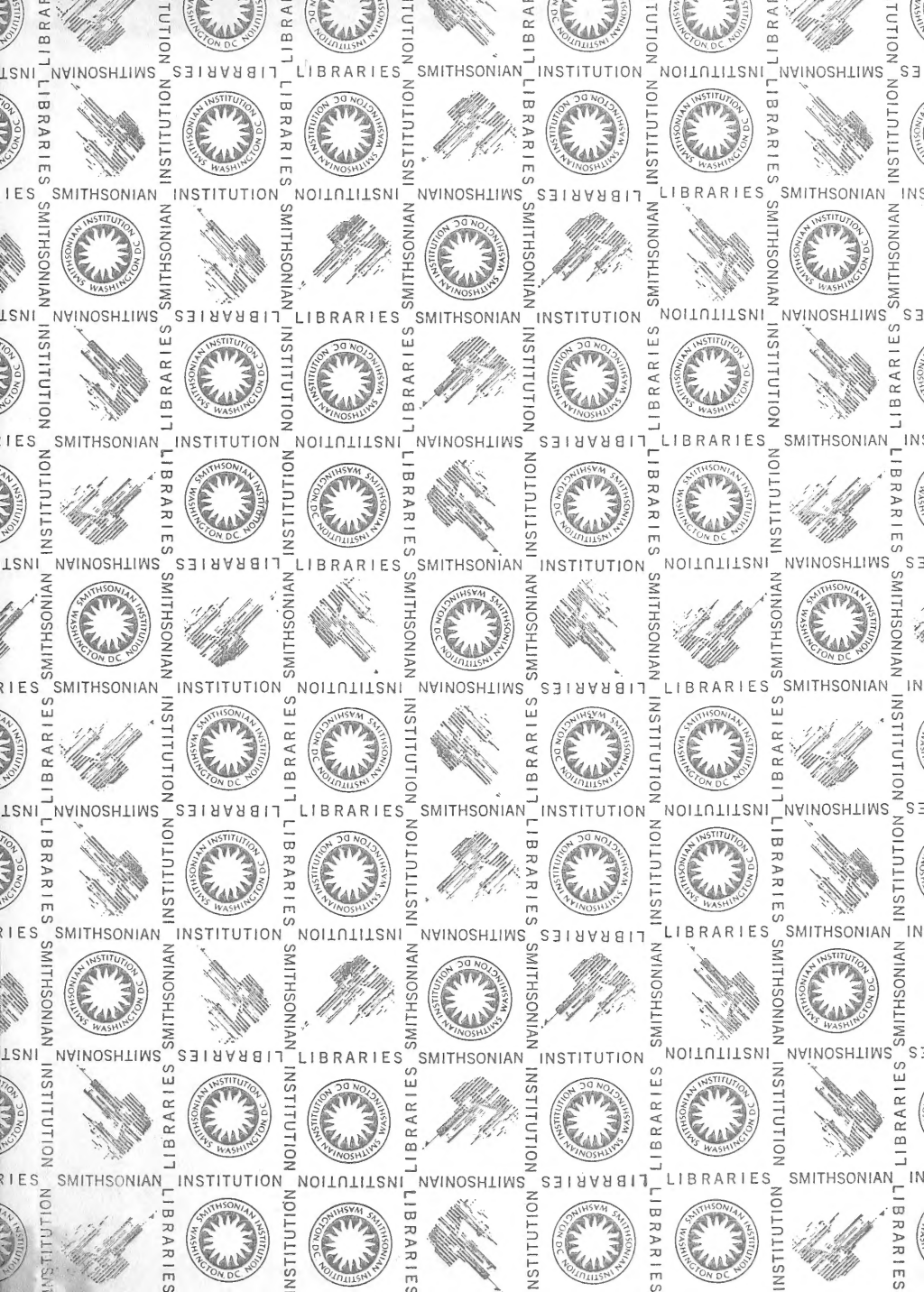
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