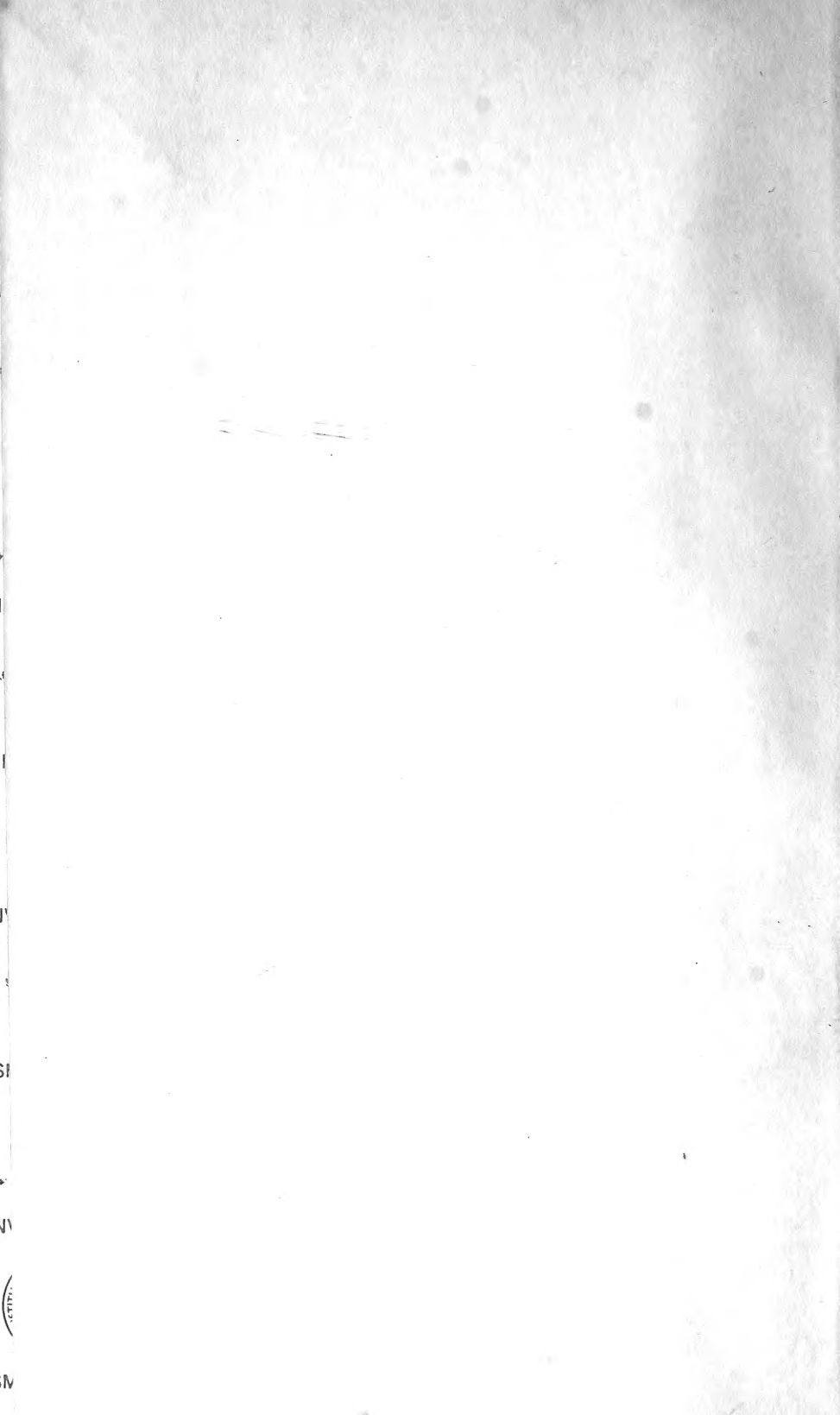
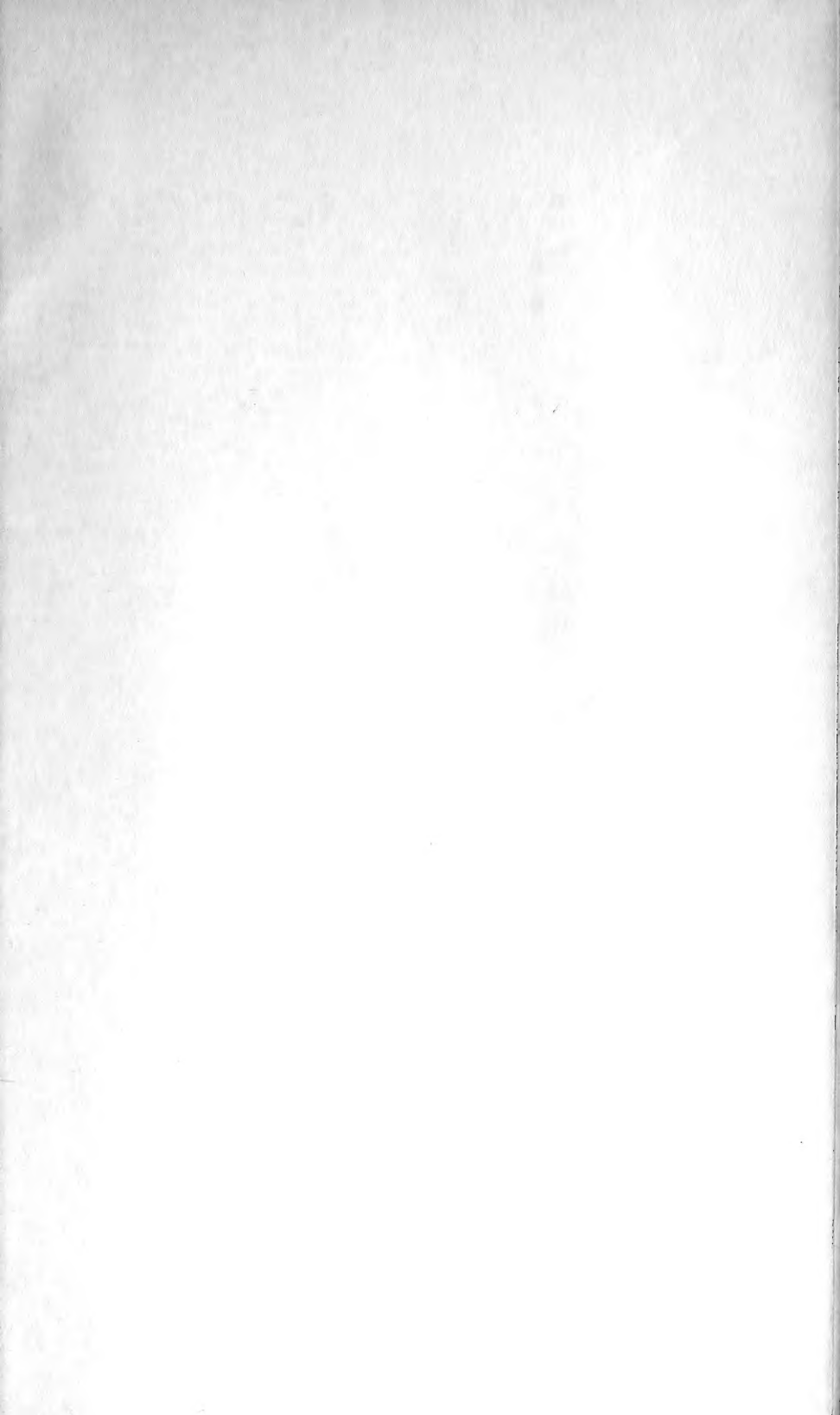


S  
N  
S  
N  
SI  
N  
SI  
N  
SM

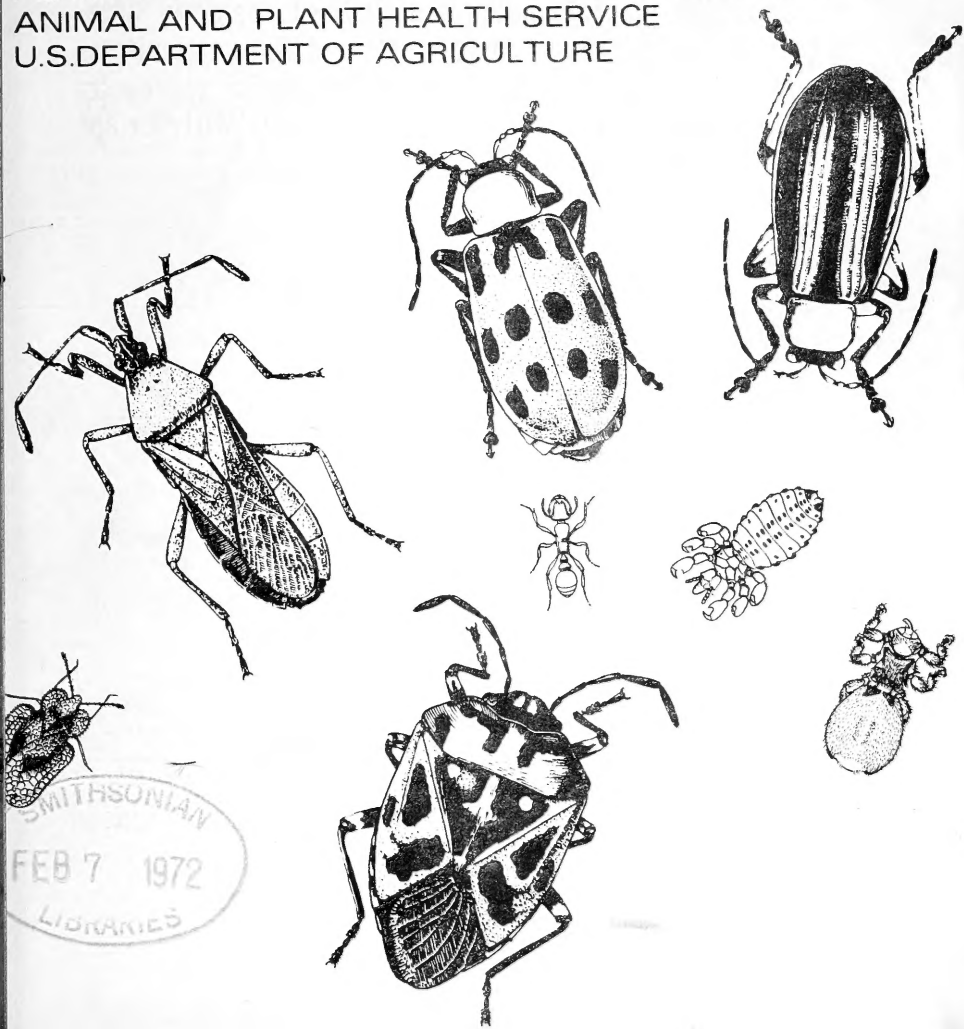






# Cooperative Economic Insect Report

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



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

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

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

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



## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG remains light in most States; some light damage and population increase in Rolling Plains of Texas. (p. 3).

SOUTHERN PINE BEETLE outbreak in Louisiana. (p. 4).

TOBACCO MOTH larvae losses heavy to stored tobacco in North Carolina. (p. 5).

Detection

A CECIDOMYIID reported for first time from Florida. This is a new North American record. Larvae feed on some scale insects. Occurs in South America. (p. 5).

A WHITEFLY reported for first time from Florida. This is a new Continental United States record. (p. 4).

New State records include a CECIDOMYIID from Florida (p. 4) and a GRASS BUG from Nevada (p. 6).

For new county and island records see page 6.

Special Reports

The 1972 outlook for GRASSHOPPERS based on the 1971 adult survey. See centerfold map.

Insect Detection in the United States in 1971. Seven new Western Hemisphere records reported. (pp. 10-16).

Reports in this issue are for weeks ending December 24 through January 21 unless otherwise indicated.

## CONTENTS

Special Insects of Regional Significance.....	3
Insects Affecting	
Corn, Sorghum, Sugarcane.....	3
Small Grains.....	3
Turf, Pastures, Rangeland...	4
Forage Legumes.....	4
General Vegetables.....	4
Citrus.....	4
Ornamentals.....	4
Forest and Shade Trees...	4
Man and Animals.....	5
Stored Products.....	5
Beneficial Insects.....	5
Federal and State Plant Protection Programs.....	6
Detection.....	6
Hawaii Insect Report.....	7
Weather of the Week.....	8
Light Trap Collections.....	9
Insect Detection in the United States - 1971.....	10
The 1972 outlook for GRASSHOPPERS. Centerfold.	

---

### NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

#### MID-JANUARY TO MID-FEBRUARY 1972

The National Weather Service's 30-day outlook for mid-January to mid-February is for temperatures to average below seasonal normal in the Southwest and over the eastern half of the Nation except for near to above normal over the south Atlantic Coast States. Elsewhere near normal temperatures are in prospect except for above normal in Montana. Precipitation is expected to exceed normal over the Gulf and Atlantic Coast States as well as the Great Lakes region. Subnormal totals are indicated west of the Divide while 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 National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price \$5.00 a year.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - ARKANSAS - Larva found in vetch in northwest area period ending January 21. (Boyer).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Populations remain on brush stands throughout most of Central Valley. Ranged 1-6 per sweep in Kern County early in period. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - TEXAS - Light and widespread throughout Motley County. Some light damage to wheat in Hall and Jones Counties. Moderate infestations in Throckmorton County. Greenbug damage in panhandle remained static late December due to cold weather. (Boring, Pallmeyer). Populations increased week ending January 21 in Rolling Plains; still light in south-central areas. Damage light to oats and wheat from Rolling Plains area. Some controls applied. Light to heavy on wheat in Knox County. (Boring). OKLAHOMA - Continues to decline. Surveys negative in Payne County December 30. Ranged 0-2 per linear foot of wheat and oats in Mayes County. Averaged 5 per linear foot in early planted, ungrazed wheatfield in Payne County and 0 and 0.5 per linear foot in 2 fields planted later and grazed. (Okla. Coop. Sur.). KANSAS - Averaged 10 per row foot of wheat in Shawnee County and ranged 0-2 per row foot in 3 Pottawatomie County fields early in period. About 5 percent winged. Ranged 3-57 per row foot (4 fields) in Morris County and 26 per row foot in Dickinson County field. (Bell). ARKANSAS - Appeared on wheat in northwest areas period ending January 21. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Ranged per 100 sweeps of alfalfa in Yuma County period ending January 7: 20-140 at Yuma, 20-500 at Parker. Counts of 1,500 per 100 sweeps in one field on Yuma Mesa, leaves turning purple. Counts of 265 per 100 sweeps of alfalfa in Yuma Valley, Yuma County, period ending January 14. CALIFORNIA - This species and Frankliniella occidentalis (western flower thrips) in scattered fields of alfalfa in Imperial County period ending January 21. Some controls needed. (Cal. Coop. Rpt.).

## CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - NEW MEXICO - Percent of cornstalks infested ranged 75-100 in Chaves and Eddy Counties. (Mathews).

## SMALL GRAINS

A GELECHIID MOTH (Leucogonia californica) - CALIFORNIA - Larvae infested newly planted wheat at Knights Landing, Yolo County. Larvae mined out germ of wheat. Larvae ranged 10-50 per square foot in heavier infestations. First occurrence of this type of damage. No host was associated with this species as larval form not associated with adult in early records. (Cal. Coop. Rpt.).

MESSIAN FLY (Mayetiola destructor) - KANSAS - Heavy in wheatfield in Morris County. Many plants dead or dying and most plants had + infested tillers. Four other fields surveyed negative. Light infestation found in field in Butler County but 4 others negative. Negative in 3 fields in Harvey County. (Bell).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Damage light to wheat and other small grains in Rolling Plains counties. Damage light to oats and wheat in Jones County. (Boring).

#### TURF, PASTURES, RANGELAND

A CECIDOMYIID (Asteromyia modesta) - FLORIDA - Adults reared from leaves of daisy fleabane (Erigeron sp.) at Miami, Dade County, by C.E. Stegmaier April 16, 1971. Determined by R.J. Gagne. This is a new State record. (Fla. Coop. Sur.).

GRASSHOPPERS - NEVADA - Specimens of Opeia obscura collected at Alamo, Lincoln County, August 9, 1971 by G.M. Nishida and D.F. Zoller; and Cordillacris cinerea collected at Rocky Canyon, Pershing County, by R.C. Bechtel and P.C. Martinelli. Determinations by R.C. Bechtel. These are new county records. (Bechtel).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - KENTUCKY - Eggs averaged 154 per square foot in several alfalfa fields in Fayette County, and period ending January 21, averaged 124 per square foot. (Barnett). MISSOURI - Egg counts during November ranged from 3.2 per square foot in north-central area to 1,275.2 in south-central area. Heavy counts in central and south-central areas. (Huggans).

#### GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Larvae appearing in damaging populations on lettuce in Palm Beach County, January 11. (Janes).

#### CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Heaviest count of 6.2 per leaf from lemon groves at Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

#### ORNAMENTALS

A WHITEFLY (Pealius hibisci) - FLORIDA - Specimen collected from cassava in nursery at Samsula, Volusia County, by C.L. Speaker and C.R. Roberts on July 3, 1971. Determined by L.M. Russell. (Fla. Coop. Sur.). This is a new record for Continental United States. This is an oriental species. Common in Hawaii on hibiscus and gardenia. (PP).

#### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - LOUISIANA - Outbreak in about 4 million acres. During period September to December 10 million board feet salvaged. Estimated additional 10 million board feet need to be salvaged. Weather hindering salvage operations. (Nachod USFS).

A WEEVIL (Hylobius aliradicis) - FLORIDA - Adult found on floor of house at Astor Park, Lake County, January 15, by L.W. Taylor. This is a new county record. Feeds on roots of slash pine. (Woodruff).

SPRUCE BUD SCALE (Physokermes piceae) - OREGON - Old scales and crawlers present on Alberta spruce, at Portland nursery, Multnomah County. (Nicoliason). Presence of crawler stage at this time of year is unusual. (Penrose).

#### MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 21 cases reported in U.S. December 18 to January 21 as follows: TEXAS - 21. Total of 444 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows December 26 to January 21: Sonora 116, Chihuahua 22, Coahuila 52, Nuevo Leon 37, Tamaulipas 217. Total of 21 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 screwworm flies released: Texas 55,852,000; Mexico 354,168,000. (Anim. Health).

CATTLE LICE (Haematopinus spp.) - CALIFORNIA - Mainly H. eurysternus (shortnosed cattle louse) first heavy infestations of season on cattle in McClain, Cotton, and Cimarron Counties. Moderate in Marshall County. Remain light in Payne County. (Okla. Coop. Sur.). OKLAHOMA - Mostly H. eurysternus moderate on cattle in Ottawa County. Populations beginning to increase in untreated herds. Heavy on cattle in Cotton and Pontotoc Counties. Moderate to heavy in Hughes County. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Ranged 0-22 per head on cattle in Payne County. Moderate on cattle in Cimarron, Cotton, and Marshall Counties. (Okla. Coop. Sur.).

EAR TICK (Otobius megnini) - OKLAHOMA - Heavy on cattle in Cotton County. (Okla. Coop. Sur.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Light on cattle in Choctaw County. Severe infestation on one herd of horses north of Hugo. (Okla. Coop. Sur.).

#### STORED PRODUCTS

TOBACCO MOTH (Ephestia elutella) - NORTH CAROLINA - Preliminary results show losses heavy to stored flue-cured tobacco in some central Coastal Plain counties. Estimated pound loss by county: Onslow 2,000; Cumberland 2,000; Duplin 40,000; Edgecombe 75,000; and Greene 60,000. Losses continue heavy period ending January 21, estimates of 150,000 pound loss in Johnston County and 5,000 pounds in Halifax County. Percent of growers with problems range from 3 in Halifax County to 90 in Columbus County. (Ext. Ser.). CALIFORNIA - Infested honey bee combs in storage at Camarillo, Ventura County. Larvae 100 per hive and damage noted. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

A CECIDOMYIID (Olesicoccus coccidiora) - FLORIDA - Adults reared from Barbados cherry period July 21-26, 1971 at Hialeah, Dade County by C.E. Stegmaier. Determined by R.J. Gagne. (Fla. Coop. Sur.). This is a new North American record. Larvae of this species feed on eggs of some scale insects. Occurs in South America. (PP).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Mound building heavy in Mobile County. Winged forms in mounds in Lee County, period ending January 21. (Vickery et al.).

GRASS BUGS (Labops spp.) - NEVADA - L. hesperius adults collected on crested wheatgrass near Jarbidge, Elko County, July 23, 1970 by B. Webster. Determined by R.C. Bechtel. This is a new State record. L. hirtus nymphs and adults collected on Kentucky bluegrass at Big Creek Canyon, Lander County, June 30, 1971 by R.C. Bechtel and P.C. Martinelli. Determined by R.C. Bechtel. This is a new county record. (Bechtel).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Forming cocoons on cotton roots in fields previously found infested in southern Dona Ana County. Infested bolls generally ranged 4-20 percent at Roswell, Chaves County and at Artesia, Eddy County. (N.M. Coop. Rpt.). Lint cleaner inspections indicated spotted infestations occur throughout Dona Ana County end of December. (Hare).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - One adult female collected on rangeland at White Oak, Lincoln County. Egg clusters easy to find but hard to estimate counts, late December. (Perry).

## DETECTION

New North American Record - A CECIDOMYIID (Olesicoccus coccidiora) - FLORIDA - Dade County. (p. 5).

New State Records - A CECIDOMYIID (Asteromyia modesta) - FLORIDA - Dade County. (p. 4). A GRASS BUG (Labops hesperius) - NEVADA - Elko County (p. 6). A WHITEFLY (Pealius hibisci) - FLORIDA - Volusia County. (p. 4).

New County and Island Records - AN ARMORED SCALE (Fiorinia fioriniae) HAWAII - Lanai (p. 7). A GRASSHOPPER (Opeia obscura) - NEVADA - Lincoln (p. 4). A GRASSHOPPER (Cordillaeis cinerea) - NEVADA - Pershing (p. 4). A GRASS BUG (Labops hirtus) - NEVADA - Lander (p. 6). SORGHUM MIDGE (Contarinia sorghicola) HAWAII - Hawaii (p. 7). A WEEVIL (Hylobius aliradicis) FLORIDA - Lake (p. 4).

## HAWAII INSECT REPORT

Corn, Sorghum - SORGHUM MIDGE (Contarinia sorghicola) recovered from sorghum at Kohala, Hawaii, for a new island record. (Mitchell, Kobayashi). All stages of CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate to heavy in 20 acres of corn and sorghum at Kaunakakai, Molokai; routine controls had been applied. (Fujimoto).

General Vegetables - BEE T ARMYWORM (Spodoptera exigua) infestations increased to moderate in green onion fields at Waianae, Oahu; many fields show as much as 30 percent of leaves affected during period ending December 24. Following week, larvae trace in 3,000 square foot planting at Waimanalo. Also in whorls of sweet corn in same area. (Au, Kawamura). All stages of MELON APHID (Aphis gossypii) moderate to heavy in acre of young sweet pepper at Waianae, Oahu. Light to moderate damage by DIAMONDBACK MOTH (Plutella xylostella) to 40 percent of leaves in 5,000 square feet of daikon at Waimanalo and 80 percent of leaves at Pearl City, Oahu first 14 days of reporting period. Third week, larvae and pupae light in 3,000 square feet of daikon at Koko Head. Adults light.

Forest and Shade Trees - Follow up surveys for an ADELGID (Pineus pini) positive on previously treated bonsai plants for eggs on Hawaii. Controls applied. Infestations continue on Parker Ranch. Eradication efforts continue on Maui. (Yoshioka et al.). All stages of an ARMORED SCALE (Fiovinia fioriniae) moderate on Monterey pine on Lanai for a new island record. (Miyahira).

Fruits and Nuts - Collected 8 larvae of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) from lime tree at Ewa, Oahu. Surveys during previous 30 days negative on this tree. (Au). All stages of BARNACLE SCALE (Ceroplastes cirripediformis) light in 160 acres of passion fruit at Kahului, Maui. Controls applied. No parasite activity noted. (Miyahira).

Man and Animals - Collected 146 VEXANS MOSQUITO (Aedes vexans nocturnus) and 1,778 SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) in 55 light traps on Oahu. Aedes ranged 0-51 per trap at Ewa. Culex ranged 0-51 per trap at Sunset Beach. (Mosq. Contr. Br., Dept. of Health).

Miscellaneous Pests - Total of 72 specimens of GIANT AFRICAN SNAIL (Achatina fulica) recovered during December on Kauai, 71 at Poipu, and single 5 inch long specimen at Wahiawa. Controls continue. (Sugawa). Eggs, juveniles, and adults heavy in 40 square yards of wasteland on Oahu. About 12 specimens of Euglandina rosea (rosy predator snail) noted amid infestation. (Olson).

## WEATHER OF THE WEEK ENDING JANUARY 24

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

**PRECIPITATION:** Precipitation was sparse over most of Nation Monday January 17. Skies were clear and sunshine abundant due to two large high pressure systems, one over the Great Basin and the other over the East. By Monday evening, cold air was pouring into Montana. Snow accompanied the outbreak and by midnight, 3 inches had fallen at Great Falls. Winds at Livingston, Montana, gusted to 67 m.p.h. By Tuesday morning, Billings, Montana, lay under 3 inches of new snow and wind at Lander, Wyoming had gusted to 75 m.p.h. By Wednesday, the pattern for the week was getting fairly well established. Quasi Stationary Front stretched from the central Great Plains to Virginia. Snow fell from the northern Rocky Mountains to the upper Mississippi River Valley. Northerly winds caused snow flurries on the southern shore of Lake Superior. Moist southerly winds caused cloudy skies with showers and thunderstorms from the Ohio River to the Gulf of Mexico. Dense fog covered parts of Kansas and Missouri Thursday morning. Snow mixed with sleet and freezing rain slicked highways and made travel difficult over a narrow strip, which separated the snow zone on the north from showers and thunderstorms on the south. Thursday evening, snow had spread eastward to western New York and freezing rain iced central Pennsylvania and central New York.

**TEMPERATURE:** Brisk southerly winds behind the eastern high warmed the southern and central Great Plains. By midweek, the central Great Plains had warmed to the 60's and 70's. Ardmore, Oklahoma, registered 76° Tuesday afternoon. Brisk northerly winds held temperatures down over the northern Great Plains. Stations near the Canadian border from Cut Bank, Montana to Duluth, Minnesota remained below zero all day Wednesday. In contrast, Tampa, Florida registered 82° Wednesday afternoon. At midweek, the front stretched from the central Great Plains to Virginia. Northerly winds cooled the area north of the front. Southerly breezes warmed the southland. Temperatures reached the 80's over much of Texas Saturday and Sunday afternoons. Cotulla registered 91° Sunday, when temperatures from the Ohio River to the Gulf of Mexico reached the 60's and 70's. Temperatures averaged colder than normal along the southern coast of California along the Canadian border from Montana to Lake Superior and northern Maine. Rest of the Nation averaged warmer than normal. Great Basin, central Rocky Mountains and a large area from eastern Texas to western Tennessee averaged 12° or more warmer than normal.

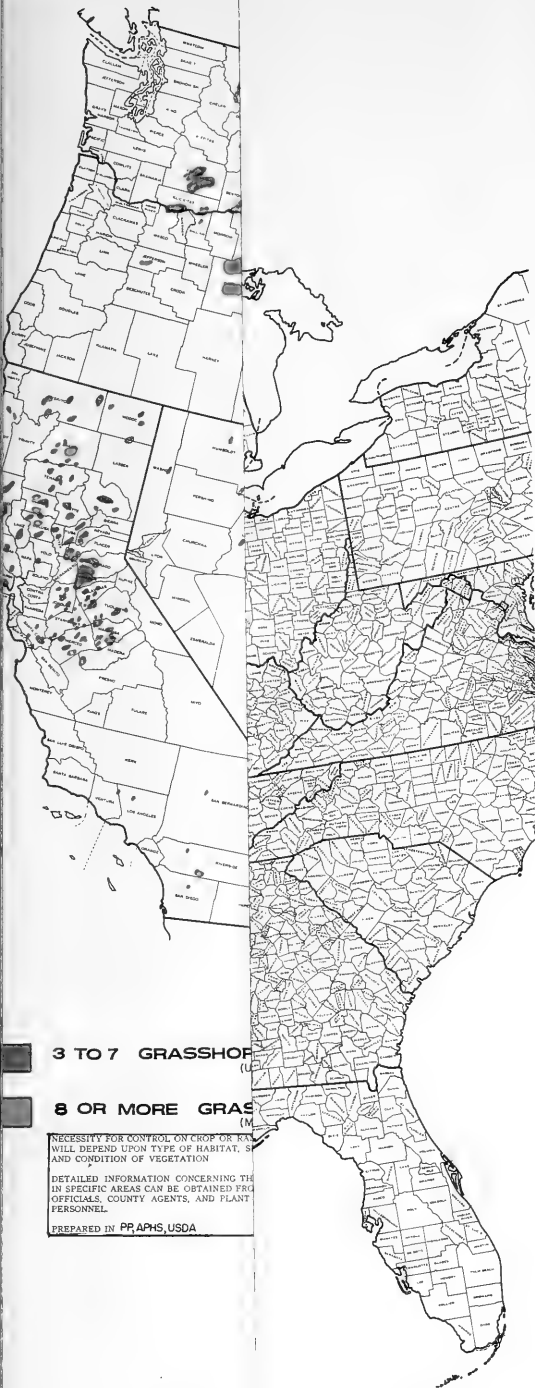


**UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE  
Plant Protection and Quarantine**

of cooperative grasshopper adult population, and indicates the potential for control in those areas where control measures will be handled by the States in 15 Western and Midwestern States.

**RANGELAND GRASSHOPPER  
ACREAGE BY RANGE CLASSIFICATION**

(Areas shaded)



**3 TO 7 GRASSHOPPERS PER ACRE**

**8 OR MORE GRASSHOPPERS PER ACRE**

NECESSITY FOR CONTROL ON CROPS OR RANGELAND WILL DEPEND UPON TYPE OF HABITAT, SEASON, AND CONDITION OF VEGETATION

DETAILED INFORMATION CONCERNING THE PRESENCE OF GRASSHOPPERS IN SPECIFIC AREAS CAN BE OBTAINED FROM STATE OFFICIALS, COUNTY AGENTS, AND PLANT PROTECTION PERSONNEL.

PREPARED IN PP, APHS, USDA

CRES	TOTAL ACRES
0	12,000
100	17,700
200	59,000
300	117,920
400	900,000
500	2,656,980
600	142,200
700	53,060

Plant Protection personnel in

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

**TO COOPERATORS:**

This map is based upon the results of cooperative grasshopper adult surveys made during the late summer and fall of 1971. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1972. Nymphal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1972.

Control on grasshopper infested croplands will be handled by the farmers with technical assistance from Division and State personnel. The infested rangeland areas total 10,966,170 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 1971**

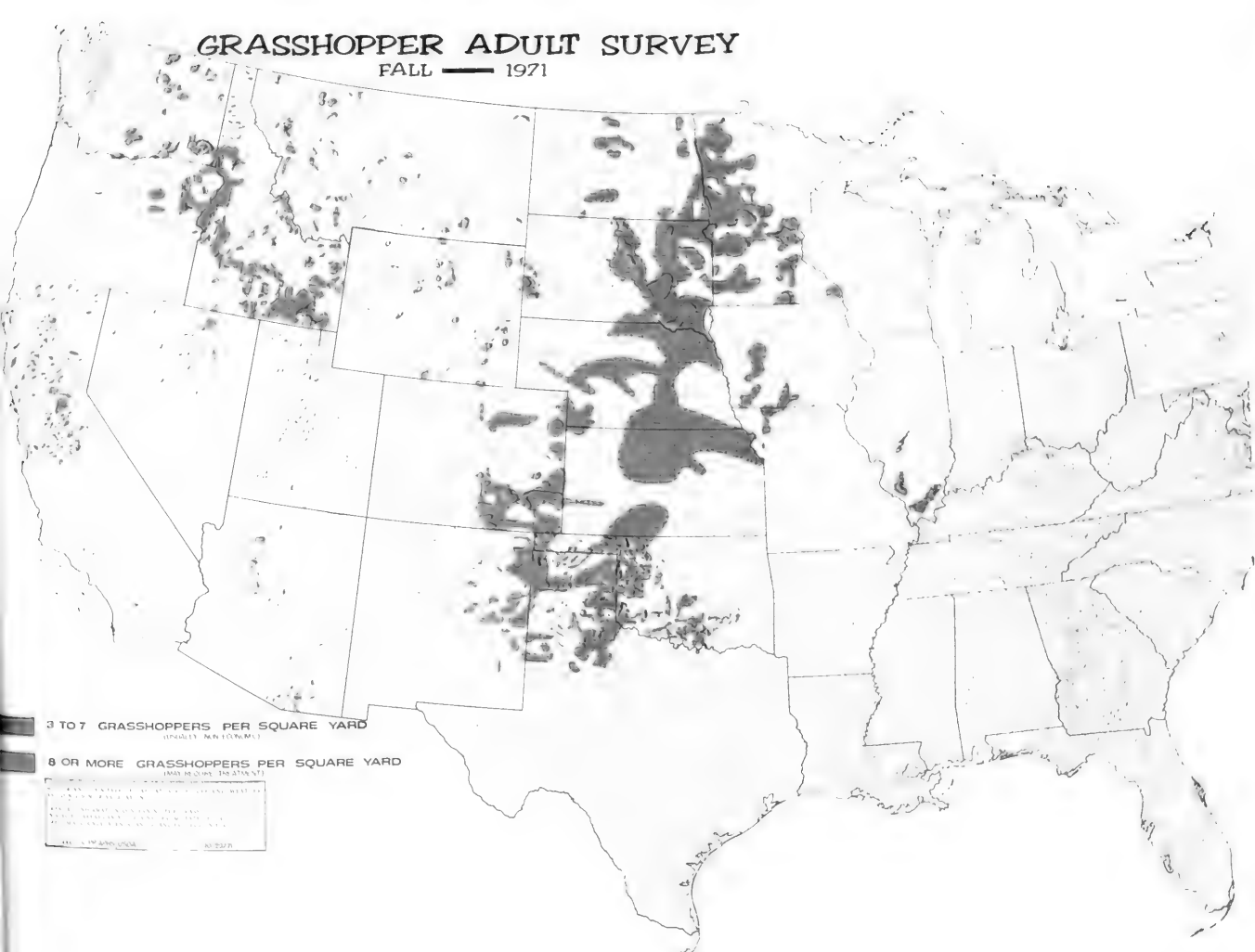
(Areas shown in red)

REGION AND STATE	LANDOWNERSHIP - ACRES		TOTAL ACRES	REGION AND STATE	LANDOWNERSHIP - ACRES		TOTAL ACRES
	PRIVATE & STATE	PUBLIC DOMAIN			PRIVATE & STATE	PUBLIC DOMAIN	
<b>CENTRAL</b>							
N. Dakota	12,000	--	12,000	New Mexico	625,000	--	625,000
S. Dakota	7,100	10,600	17,700	Oregon	945,900	194,120	1,140,020
<b>WESTERN</b>				Utah	19,200	16,330	35,530
Arizona	10,600	48,400	59,000	Washington	273,700	46,500	320,200
California	116,420	1,500	117,920	Wyoming	147,280	16,400	163,680
Colorado	880,000	20,000	900,000	<b>SOUTHERN</b>			
Idaho	1,015,080	1,641,900	2,656,980	Oklahoma	1,903,000	--	1,903,000
Montana	81,200	61,000	142,200	Texas	2,819,880	--	2,819,880
Nevada	20,310	32,750	53,060				

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

# GRASSHOPPER ADULT SURVEY

FALL — 1971



3 TO 7 GRASSHOPPERS PER SQUARE YARD  
(STIPPLED AREA)

8 OR MORE GRASSHOPPERS PER SQUARE YARD  
(SOLID BLACK AREA)

U.S. DEPARTMENT OF AGRICULTURE  
NATIONAL CENTER FOR WEED RESEARCH  
1-1000 UNIVERSITY DRIVE  
MORGANTOWN, W. VA. 26506  
U.S. GOVERNMENT PRINTING OFFICE: 1971 O 252721

# MENT OF AGRICULTURE

## HEALTH SERVICE

### Quarantine Programs

It surveys made during the late summer and fall of 1971. The survey reveals initial severity of infestations for 1972. Nymphal surveys, made in the spring, be necessary in 1972.

farmers with technical assistance from Division and State' personnel. The States. Areas on the map are diagrammatic. Within these areas, infestations

### HOPPER INFESTATIONS

#### REGIONS, FALL 1971

(shown in red)

REGION AND STATE	LANDOWNERSHIP — ACRES		TOTAL ACRES
	PRIVATE & STATE	PUBLIC DOMAIN	
New Mexico	625,000	--	625,000
Oregon	945,900	194,120	1,140,020
Utah	19,200	16,330	35,530
Washington	273,700	46,500	320,200
Wyoming	147,280	16,400	163,680
<b>SOUTHERN</b>			
Oklahoma	1,903,000	--	1,903,000
Texas	2,819,880	--	2,819,880

in cooperation with various State Agencies concerned.

**LIGHT TRAP COLLECTIONS**

Locality	Date	Temp.	Humidity	Wind	Direction	Time	Species	Number	Sexes	Age	Stage	Notes
FLORIDA Gainesville 12/17-21 Gainesville 12/22-28 Gainesville 12/29-1/6 Gainesville 1/7-13 Gainesville 1/14-20	BL						Blattella germanica	8				
	BL						Blattella germanica	4				
	BL						Blattella germanica	2				
	BL						Blattella germanica	4				
	BL						Blattella germanica	1				
MISSISSIPPI Stoneville 12/17-30 Stoneville 12/31-1/6 Stoneville 1/7-13	2BL	40					Blattella germanica	52				
	BL	6.13					Blattella germanica	7				
	BL	1.14					Blattella germanica	5				

INSECT DETECTION IN THE UNITED STATES - 1971

Fifteen new United States records were reported in the Cooperative Economic Insect Report during the year. These included 7 species new to the Western Hemisphere - 6 in Hawaii and 1 in New York. There were also 8 new North American records - 2 in California, 1 in Hawaii, 1 in Nebraska, 2 in Oregon, and 2 in Virginia. Seventy-one new State distribution records of pests already found in the United States were reported.

NEW UNITED STATES RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Probable Origin</u>	<u>Collected on</u>	<u>CEIR Page</u>	<u>Economic Importance</u>
<u>Aculus comatus</u> 3/ an eriophyid mite	Oregon	Benton	Europe	Filberts	474, 481	Could be economic
<u>Acyrtosiphon festucae</u> 3/ an aphid	California	Los Angeles	Europe	Fescue grass	340, 349	Currently noneconomic
<u>Ananca kanack</u> 1/ an oedemerio	Hawaii	Hawaii	Tahiti	At light	594	None
<u>Emmesomyia socia</u> 1/ an anthomyiid fly	New York	Cayuga	Europe	A sphecid wasp	5	None
<u>Euscelis ohausi</u> 3/ a leafhopper	Oregon	Benton	Europe	Scotch broom	616, 620	Could be beneficial
<u>Exuviaspis enceliae</u> an armored scale	California	Riverside	Mexico	<u>Encelia</u> sp.	293, 299	Unknown
<u>Haematoecha rubescens</u> 1/ A reduviid bug	Hawaii	Oahu	China, Japan	Home	594	Unknown
<u>Hexacola hexatoma</u> 3/ A pteromalid wasp	Virginia	Montgomery	Europe	Frit fly	400, 402	Beneficial

<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>Lamenia caliginea</u> 1/ <u>A fulgorid plant-</u> hopper	Hawaii	Kauai	Pacific area	Trees	383, 385	Could be economic
<u>Leucopis ocellaris</u> * <u>A chamaeyiid fly</u>	Hawaii	Oahu	North America	A mealybug	481	Beneficial
<u>Papilio xuthus</u> 1/ <u>A swallowtail butterfly</u>	Hawaii	Oahu	Orient	<u>Citrus spp.</u>	383, 385	Could be economic
<u>Pericyma cruegeri</u> 1/ <u>A noctuid moth</u>	Hawaii	Kauai	Australia, Borneo	Royal poinciana	193, 298	Could be economic
<u>Protopiophila australis</u> 1/ <u>A piophilid fly</u>	Hawaii	Oahu	Australia, Fiji	Bones on beach	481	Beneficial
<u>Sceptrothelys grandiclauda</u> 3/ <u>A pteromalid wasp</u>	Nebraska	Dawson	Europe	Cocoons	699, 700	Economic
<u>Trichomalus statutus</u> 3/ <u>A pteromalid wasp</u>	Virginia	Montgomery	Europe	Frit fly	400, 402	Beneficial

1/ Western Hemisphere.

2/ Not in continental United States.

3/ North America.

\* Genus currently under revision.

ADDITIONAL NEW STATE RECORDS

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Aceria theospyri</u> An eriophyid mite	Virginia	King and Queen	persimmon	110
<u>Acleris minuta</u> A tortricid moth	Alabama	Cullman	apple trees	752
<u>Aedes abserratus</u> A mosquito	Maryland	Garrett	cranberry	548
<u>Aedes riparius</u> A mosquito	Pennsylvania	Indian Gap	-	780
<u>Agkistrocerus megerlei</u> A tabanid	South Carolina	Sumter	-	732
<u>Antianthe expansa</u> A membracid	Hawaii	Oahu Island	-	535
<u>Aphis fabae</u> Bean aphid	Oklahoma	Garvin	<u>Cirsium undulatum</u> thistle	696
<u>Aphis hederarum</u> Ivy aphid	Oregon	Marion	ivy	58
<u>Aphycus mexicanus</u> An encyrtid wasp	Hawaii	Oahu Island	fiddlewood	165
<u>Argyrotaenia pinatubana</u> Pine tube moth	Missouri	St. Louis	white pine	32
<u>Aroga websteri</u> Sagebrush defoliator	Montana	Park	sagebrush	694
<u>Brachycolus asparagi</u> Asparagus aphid	Delaware	Kent	asparagus	709
<u>Brachycolus asparagi</u> Asparagus aphid	Maryland	Prince Georges	asparagus	660
<u>Bucculatrix thurberiella</u> Cotton leafperforator	Hawaii	Oahu Island	cotton	299
<u>Carulaspis juniperi</u> Juniper scale	Wisconsin	Dane	juniper	753
<u>Ceratocombus vagans</u> A jumping ground bug	New Hampshire	Hillsboro	leaf litter	460
<u>Cerococcus parrotti</u> A soft scale	Maryland	Prince Georges	Basswood tree	380



<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Chaetophloeus heterodoxus</u> A bark beetle	North Dakota	McHenry	chokecherry	684
<u>Chelopistes meleagridis</u> Large turkey louse	Oregon	Clackamas	turkeys	127
<u>Cinara pinivora</u> An aphid	Maryland	Prince Georges	<u>Pinus taeda</u>	779
<u>Clavaspis subsimilis</u> An armored scale	Florida	Monroe	red mangrove	265
<u>Corythucha montivaga</u> A lace bug	California	Mono	wyethia plants	742
<u>Datana contracta</u> A notodontid moth	Alabama	Lee	post oak	754
<u>Dectes sayi</u> A cerambycid beetle	Tennessee	Tipton	soybeans	3
<u>Diabrotica longicornis</u> Northern corn rootworm	Virginia	Floyd	alfalfa	680
<u>Diabrotica virgifera</u> Western corn rootworm	Michigan	Allegan	-	656
<u>Diceroprocta vitripennis</u> A cicada	Wisconsin	Sauk	cedar	83
<u>Epitrix hirtipennis</u> Tobacco flea beetle	South Dakota	Sanborn	-	632
<u>Eriophyes canestrinii</u> An eriophyid mite	Oregon	Benton	boxwood	58
<u>Eucosma gloriola</u> Eastern pineshoot borer	West Virginia	Mineral	pine	684
<u>Eudecatoma marylandica</u> An eurytomid wasp	Pennsylvania	Schuylkill	oak	620
<u>Eurytoma obtusiventris</u> A eurytomid wasp	Pennsylvania	York	golden rod	548
<u>Eutrombicula belkini</u> A chigger mite	Oregon	Harney	Collared lizards	236

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Exenterus canadensis</u> An ichneumon	West Virginia	Boone	pupa of a conifer sawfly	432
<u>Gargaria genitsae</u> A treehopper	Oregon	Benton	Scotch broom	616
<u>Hesperophanes pubescens</u> A longhorned beetle	Virginia	Montgomery	light trap	567
<u>Heterodera glycines</u> Soybean cyst nematode	South Carolina	Horry	farm	781
<u>Heterodera lespedezae</u> Lespedeza cyst nematode	Tennessee	Haywood	lespedeza	32
<u>Homaledra sabalella</u> Palm leaf skeletonizer	Alabama	Mobile	palms	779
<u>Kimminsia schwarzi</u> A brown lacewing	Pennsylvania	Indiana	pine	754
<u>Lepidosaphes pini</u> An armored scale	Hawaii	Oahu Island	<u>Pinus</u> sp.	112
<u>Lepidosaphes pini</u> An armored scale	Pennsylvania	Philadelphia	pine	68
<u>Lopholeucaspis japonica</u> An armored scale	Delaware	New Castle	maple	532
<u>Megachile concinna</u> A leafcutting bee	Idaho	Canyon	-	348
<u>Neacoryphus bicrucis</u> A lygaeid bug	Hawaii	Oahu Island	leaf litter	402
<u>Norape ovina</u> A megalopygid moth	Tennessee	Knox	redbud	742
<u>Notoedres douglasi</u> An itch mite	Oregon	Hood River	squirrel	127
<u>Oryzaephilus mercator</u> Merchant grain beetle	Nevada	Clark	dog food	5
<u>Oulema melanopus</u> Cereal leaf beetle	Wisconsin	Walworth	oats	432

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Paralobesia</u> <u>liriodendrana</u> An olethreutid moth	Alabama	Macon	poplar	779
<u>Pericyma cruegeri</u> A noctuid moth	Hawaii	Kauai Island	royal poinciana	298
<u>Phenacoccus aceris</u> Apple mealybug	California	Siskiyou	shrubs	414
<u>Phloeotribus</u> <u>dentifrons</u> A bark beetle	North Dakota	McHenry	hackberry	684
<u>Phoebis sennae</u> A pierid moth	Alabama	Marengo	<u>Cassia</u> <u>alta</u>	779
<u>Pinyonia edulicola</u> A midge	Wyoming	Albany	pine	263
<u>Platygaster</u> <u>obscuripennis</u> A platygasterid wasp	Pennsylvania	Sullivan	willow	548
<u>Porthetria dispar</u> Gypsy moth	District of Columbia		-	548
<u>Psilocorsis</u> <u>faginella</u> An oecophorid moth	Alabama	Houston	oak	753
<u>Pteromalus venustus</u> A pteromalid wasp	South Dakota	Brookings	nest	363
<u>Pulvinaria ericicola</u> A soft scale	Delaware	New Castle	azaleas	432
<u>Rhopalosiphum padi</u> An aphid	Tennessee	Knox	small grain	340
<u>Rhopalosiphum padi</u> An aphid	Virginia	Botetourt	wheat	777
<u>Rhyacionia bushnelli</u> An olethreutid moth	California	San Diego	pine	662
<u>Rhyacionia rigidana</u> Pitch pine tip moth	Missouri	Texas	pine	58
<u>Rumina decollata</u> A snail	Alabama	Montgomery	-	778
<u>Schizaphis graminum</u> Greenbug	Oregon	Umatilla	barley	259

<u>Species</u>	<u>State</u>	<u>County</u>	<u>Collected on</u>	<u>CEIR Page</u>
<u>Sitona scissifrons</u> A weevil	Missouri	Atchison	alfalfa	67
<u>Tabanus cymatophorus</u> A tabanid	South Carolina	Newberry	-	733
<u>Tenthredinidae</u> <u>nematus abbottii</u> A sawfly	Alabama	Lee	locust	567
<u>Tetralopha</u> <u>asperatella</u> A pyralid moth	Alabama	Houston	oak	753
<u>Tetralopha militella</u> A pyralid moth	Alabama	Lee	sycamore	753

Prepared by Economic Insect  
Survey and Detection Staff  
January 28, 1972

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(1-4):10-16, 1972



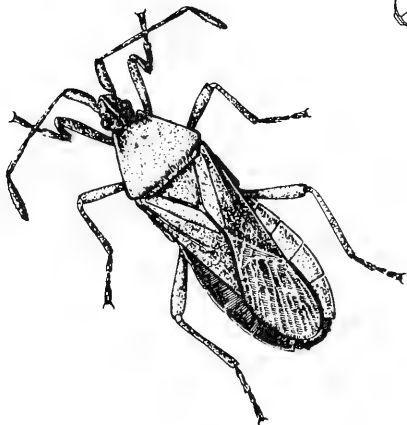
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



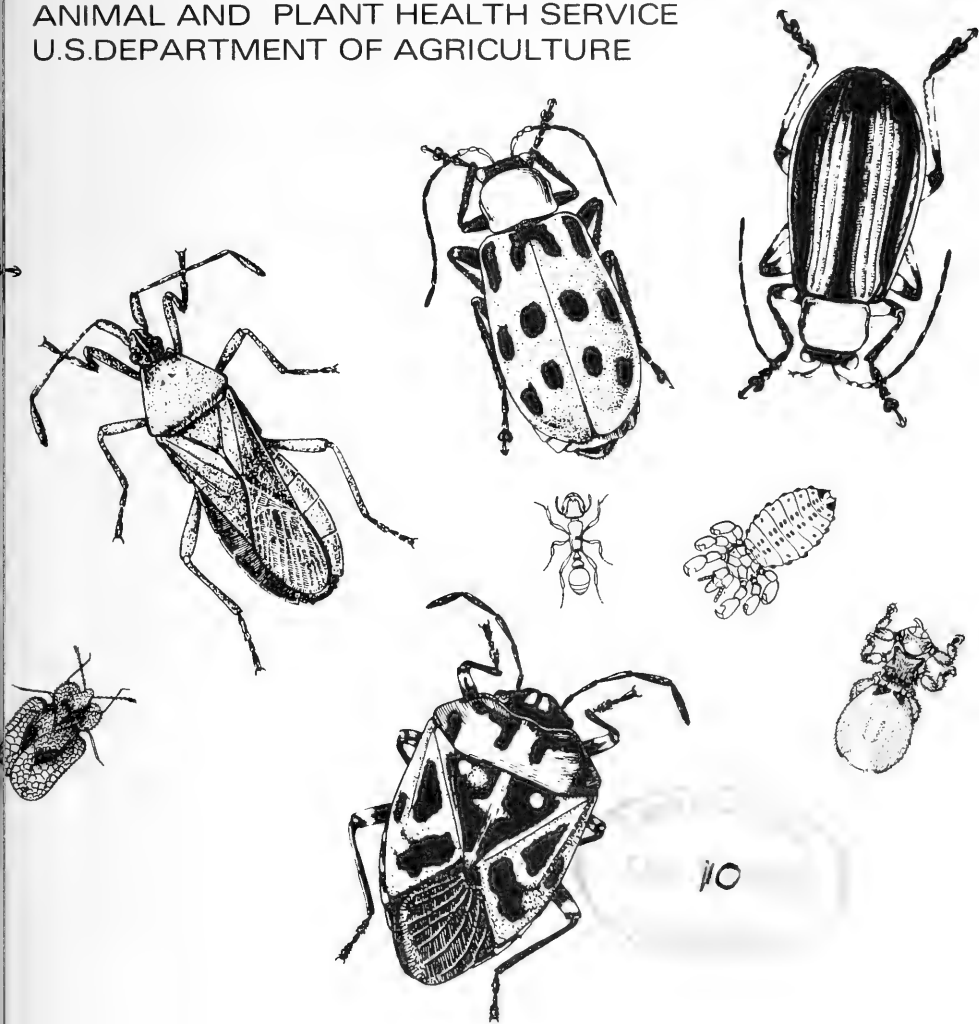
0004 SMINLISMIAL22 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



C 17  
Ent.

# Cooperative Economic Insect Report

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



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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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



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

GREENBUG remains light in small grain in Oklahoma and New Mexico. (p. 19).

EUROPEAN CORN BORER mortality light in portions of North Carolina. (p. 19).

Special Report

EUROPEAN CORN BORER increased in 8 of 15 States reporting in 1971. Decreases were recorded in Maryland, Kansas, Minnesota, Ohio, South Dakota, and Michigan. The population in Illinois is 3 percent higher than the average for the past 10 years. (pp. 2-28).

Reports in this issue are for week ending January 28 unless otherwise indicated.

## CONTENTS

Special Insects of Regional Significance.....	19
Insects Affecting	
Corn, Sorghum, Sugarcane.....	19
Small Grains.....	19
Forage Legumes.....	19
Potatoes, Tomatoes, Peppers.....	19
Cole Crops.....	19
General Vegetables.....	19
Man and Animals.....	19
Stored Products.....	20
Hawaii Insect Report.....	20
Corrections.....	20
Light Trap Collections.....	21
Status of the European Corn Borer in 1971.....	22

---

### WEATHER OF THE WEEK ENDING JANUARY 31

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

**HIGHLIGHTS:** Arctic cold spread far southward during the week. Heavy local snows occurred in Oswego County, New York. The heaviest rains occurred in Kentucky and over the lower Mississippi River Valley.

**PRECIPITATION:** A large winter storm swung out of the central Rocky Mountains across the Great Plains and Great Lakes to southeastern Canada early in the week. It brought stormy weather to much of the Nation. Heavy snow fell from the northern Rocky Mountains to the nearby Great Plains accompanied by gale winds. South of the Snow Belt, freezing rain glazed roads, trees, wires, and other outdoor objects. Several inches of new snow accumulated in the North Central States. Winds at Worthington, Minnesota, gusted to 63 m.p.h. Monday afternoon. Strong winds picked up fallen snow piled in deep drifts and in some places reduced the visibility to zero. Heavy rains soaked coastal sections of the Pacific Northwest and snow fell in the nearby hills and mountains. Cold air spilled over the Continental Divide and caused snow along the northern Pacific coast. Five inches accumulated at Quillayute, Washington, in 6 hours late Monday and 6-12 inches fell in the Seattle area. The deep snow snarled the traffic west of the divide. The snow continued Tuesday and by Tuesday evening, Olympia, Washington, lay beneath 20 inches of snow and 12-18 inches covered Seattle. Paradise Ranger Station received 1.5 feet of new snow, bringing the depth there to 22 feet. Meanwhile, heavy snow was falling in the Great Lakes area. At Duluth, Minnesota, 11 inches of snow fell accompanied by strong winds which piled the snow in drifts up to 4 feet deep. Snow also began falling in the Northeast where strong winds drifted the snow and cut visibility to zero. White Plains, New York, clocked wind gusts which peaked at 76 m.p.h. and at Syracuse, New York, the gusts reached 70 m.p.h. Strong winds and snow continued Wednesday in the Northwest and in the southwestern deserts. Where there was no snow, winds filled the air with sand and dust. Boonville, New York, received a foot of new snow Tuesday afternoon with severe blowing and drifting. At Mt. Desert Rock, Maine, the gusts reached 93 m.p.h. Blizzards

Weather of the week continued on page 21.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 1-4 per linear foot on barley in Chaves County. (Mathews). OKLAHOMA - Light in Cotton County wheat. None in fields checked in Texas County. (Okla. Coop. Sur.). ARKANSAS - Survey in small grain negative in northwest, northeast, and east-central areas. (Boyer et al.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Light on new alfalfa at Roswell, Chaves County. (Mathews).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Surveys show light winter mortality in 110 fields with standing stalks in Wake, Johnston, and Harnett Counties. (Hunt).

## SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Very light on small grain, occasional aphid found in northwest and northeast areas. (Boyer, Kimbrough).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSOURI - Egg count per square foot by county: Wright 553.4, Barton 48.4, and Cedar 65.8. Counts above economic levels in southern area. (Munson).

ARKANSAS - Survey still negative in northwest areas. (Boyer).

KENTUCKY - Eggs averaged 126 per square foot in Fayette County fields, 56 per square foot in Nelson County field. (Barnett).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Light in alfalfa at Roswell, Chaves County. (Mathews).

## POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Still problem on sweet peppers in eastern Palm Beach County. (Genung).

## COLE CROPS

SOUTHERN GREEN STINK BUG (Nezara viridula) - FLORIDA - Increased to moderate populations, damaged Chinese cabbage past 14 days at Belle Glade, Palm Beach County. (Janes).

## GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Overwintering populations ranged 1-10 per row yard in 600 acres of spinach near Vienna, Dorchester County. (U. Md., Ent. Dept.).

## HUMAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 4 cases reported in U.S. January 23-29, in TEXAS: Brewster 3 and Webb 1. Total of 101 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico January 16-22 as follows: Sonora 32, Chihuahua 2, Coahuila 3, Nuevo Leon 2, Tamaulipas 62. Total of 9 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 screwworm flies released: Texas 7,608,000; Mexico 85,560,000. (Anim. Health).

CATTLE LICE (Haematopinus spp.) - OKLAHOMA - Mainly Haematopinus eurysternus (shortnosed cattle louse) common on cattle in most areas, moderate to heavy in Pontotoc, Marshall, Hughes, Cotton, and Texas Counties. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Heavy on cattle in Marshall County. Moderate in Hughes County. (Okla. Coop. Sur.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Moderate on cattle in Marshall County. (Okla. Coop. Sur.).

#### STORED PRODUCTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - KENTUCKY - Adults averaged 171 per bushel of oats in Nelson County. (Barnett).

SAWTOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - KENTUCKY - Adults averaged 1,600 per bushel of oats in Nelson County. (Barnett).

---

#### HAWAII INSECT REPORT

Corn - CORN EARWORM (Heliothis zea) infestation trace in 1.5 acres of sweet corn at Waianae, Oahu. (Kawamura).

General Vegetables - Adults of LEAF MINER FLIES (Liriomyza spp.) averaged 2 per leaf in 0.5 acre of cucumber seedlings at Waianae, Oahu. Larval mines moderate on first 2 older leaves of seedlings; light on younger leaves. Trace in adjacent 0.25 acre of mature lettuce; adults averaged 6 per head. Mixed populations of BEE T ARMYWORM (Spodoptera exigua) and Liriomyza spp. were light to moderate in most green onion fields at Waianae, Oahu. Trace in isolated one acre planting in same area. (Kawamura).

Fruits and Nuts - Mixed populations of AN ARMORED SCALE (Phenacaspis cockerelli) and FLORIDA RED SCALE (Chrysomphalus aonidium) light to moderate on 200+ coconut trees at Lahaina, Maui; about 5-10 scales on pinnae of older fronds. (Ah Sam). FULLER ROSE BEETLE (Pantomorus cervinus) damage moderate to heavy to young avocado and citrus trees at Kokomo and Makawao, Maui. (Miyahira).

Forest and Shade Trees - AN ADELGID (Pineus pini) reinfested Pinus spp. plants at Kula and Makawao, Maui; chemically treated several times. (Ah Sam, Miyahira).

#### CORRECTIONS

CEIR 22(1-4):5, 6 - A CECIDOMYIID (Olesicoccus coccidivora) - FLORIDA - ... should read ... A CECIDOMYIID (Olesicoccus coccidivora) - FLORIDA. (PP).

## LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 1/21-27, BL - Black cutworm (Agrotis epsilon) 1, granulate cutworm (Feltia subterranea) 2, yellow-striped armyworm (Spodoptera ornithogalli) 1. MISSISSIPPI - Stoneville, 1/13-27, Temp. 12-79° F., precip. 0.18, BL - Black cutworm 3, granulate cutworm 17, variegated cutworm (Peridroma saucia) 3, armyworm (Pseudaletia unipuncta) 11, yellowstriped armyworm 24.

Weather of the week continued from page 18.

continued over the central Great Plains and Great Lakes Wednesday and spread eastward Thursday. Freezing rain iced an area south of the Snow Belt with glaze. In some areas it accumulated at about 0.1 inch per hour. At midnight Thursday, the glaze was affecting a wide belt from the middle Mississippi River Valley to the Ohio River Valley and northeastward to southern New England. Very heavy snow squalls occurred locally in Oswego County, New York, Wednesday to Friday and on Sunday. Some localities received 50-70 inches in the first period and 30 additional inches on Sunday. Rain fell from Alabama to Virginia. The precipitation slackened somewhat over the Pacific Northwest over the weekend, but light snow continued from the northern Rocky Mountains to New England and generous rains fell in the Deep South from eastern Texas to the Carolinas. Wide areas from southern California to New Mexico received no rain during the week.

**TEMPERATURE:** A heat wave continued in Texas early in the week, with afternoon temperatures mostly in the 70's and 80's. Bitter cold plunged southward behind a storm system which moved from the central Rocky Mountains to the Great Lakes and into Canada. Tuesday afternoon, maximum temperatures ranged from -20° at Devils Lake, North Dakota, to 84° at Fort Myers and Palm Beach, Florida. With a deep low over southeastern Canada and a large high over western Canada, the bitter cold moved from Montana, the Dakotas, Minnesota, and Wisconsin southward to the central Great Plains. Most of Kansas remained below freezing Wednesday afternoon and on Thursday most of Oklahoma continued below freezing. A sharp contrast existed between northern and southern Texas Thursday, when Abilene registered 29° and Austin 83°. Cold air spilled over the Continental Divide into the Great Basin. Subzero weather occurred in northeastern Oregon Thursday morning. Temperatures Wednesday ranged from -40° at International Falls to 84° at Fort Myers, Florida. Most of the Nation continued cold over the weekend. The main exception was the eastern portion of the gulf coast and the Florida Peninsula. The maximums along the gulf Sunday afternoon ranged from the 40's in Texas to the 70's and 80's in Florida. Typical afternoon temperatures Sunday were; Houston, Texas 42°, New Orleans, Louisiana 59°, Pensacola, Florida 66°, Tampa, Florida 78°. Temperatures averaged above normal over the southern Rocky Mountains and Rio Grande Valley along the Gulf of Mexico and the middle and southern Atlantic Coast. Most of the other areas averaged colder than normal. Most of the area from the northern Rocky Mountains to the Great Lakes averaged 10°-20° or more colder than normal.

# Status of the European Corn Borer in 1971 <sup>1/</sup>

Introduction: Surveys to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hubner)) in the fall of 1971 were conducted by cooperating agencies in 15 States. All survey data, summaries, or records of field observations were processed by the Economic Insect Survey and Detection Staff in Hyattsville, Maryland. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after completion.

The 1971 European corn borer survey was conducted during late summer and early fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. Except for some minor differences in compiling data, the accepted survey methods were followed in all cases. The survey was continued on a district basis whenever possible in 1971. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: European corn borer was reported for the first time from thirteen counties during 1971; however, the counties were in the States already known to be infested. This was eight more than reported the previous year. There were three new counties in Alabama, one county in Nebraska, and five from Kansas. South Dakota reports distribution now statewide.

Abundance: Fall populations of European corn borer increased in 8 of 15 States reporting in the survey. Decreases were recorded in Maryland, Kansas, Minnesota, Ohio, South Dakota, and Michigan. Kentucky reported abundance for the first time this year. The average number of borers per hundred plants increased in Indiana, attributed to the increase in early planted corn. Second generation populations were the heaviest since 1957 and reflect in part the ample free water available to females at the critical egg laying period. In Illinois, populations were 50 percent higher this year than last. Only 1 of 9 districts had a lower population than 1970; this was the west district. The 1971 population is 28 percent higher than the average for the past 10 years. Counts were the heaviest in the southern portion of Illinois. Populations increased in all the 5 major corn producing counties in southeastern North Dakota. In 1970, the average borers per 100 plants was 57, compared with 130 for 1971. Surveys in Iowa indicated the percent infestations were lower than last year in the southern district; elsewhere increased.

The European corn borer population in Kansas was about the same as in 1970, except for the increase in the east-central district. In Michigan, the population decreased from 142 borers per 100 plants in 1970 to 104 this year; heaviest counts were in the

1/ Survey data provided by State agricultural agencies. Data compiled and summarized by Economic Insect Survey and Detection Staff, Plant Protection Programs, Animal & Plant Health Service, United States Department of Agriculture.

southern areas. Second generation populations in Minnesota were not as heavy as last year. Populations in Missouri were similar to those of 1970, as were those in Nebraska and South Dakota. There was a slight decrease in abundance in Maryland and Ohio. In Delaware, there was an increase from 283 borers per 100 plants to 358.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1971, Compared with Data for 1970

States	1970				1971				Comparable Districts or Counties				
	:No. of :Districts :Surveyed	:Average No. :of Borers :Per :100 Plants	:No. of :Counties :Surveyed	:No. of :Districts :Surveyed	:Average No. :of Borers :Per :100 Plants	:No. of :Counties :Surveyed	:No. of :Districts :Surveyed	:No. of :Counties :Surveyed	:No. of :Counties :Surveyed	:No. of :Districts :Surveyed	:No. of :Counties :Surveyed	:No. of :Counties :Surveyed	:No. of :Counties :Surveyed
<u>Eastern</u>													
Delaware	1	283	3	1	358	3	1	283	358	3	1	283	358
Maryland	3	134	16	3	102	16	3	134	102	16	3	134	102
Total	4		19										
Average $\bar{1}$ /													
<u>North Central</u>													
Illinois	7	76	39	9	128	46	7	76	128	46	7	76	128
Indiana	12	47	92	12	100	47	12	47	100	47	12	47	100
Iowa	12	241	99	12	321	99	12	241	321	99	12	241	321
Kansas	3	96	30	6	54	30	3	96	54	30	3	96	54
Minnesota	7	130	34	7	99	34	7	130	99	34	7	130	99
Missouri	7	130	38	7	133	38	7	130	133	38	7	130	133
Nebraska	5	396	25	5	401	25	5	396	401	25	5	396	401
North Dakota	1	57	5	1	130	5	1	57	130	5	1	57	130
Ohio	5	99	33	5	73	33	5	99	73	33	5	99	73
South Dakota	6	214	35	6	204	35	6	214	204	35	6	214	204
Wisconsin	9	102	52	9	275	52	9	102	275	52	9	102	275
Total	74		482										
Average $\bar{1}$ /													
<u>Southern</u>													
Kentucky		2/		1	35	8							
Other													
Michigan	1	148	14	5	104	22	1	148	104	22	1	148	104

$\bar{1}$ / Weighted average based on districts surveyed.  
 $\bar{2}$ / Not included in the 1970 status report.



Table 2 - European Corn Borer Abundance in Corn  
Fall of 1971, Compared with Data for 1970

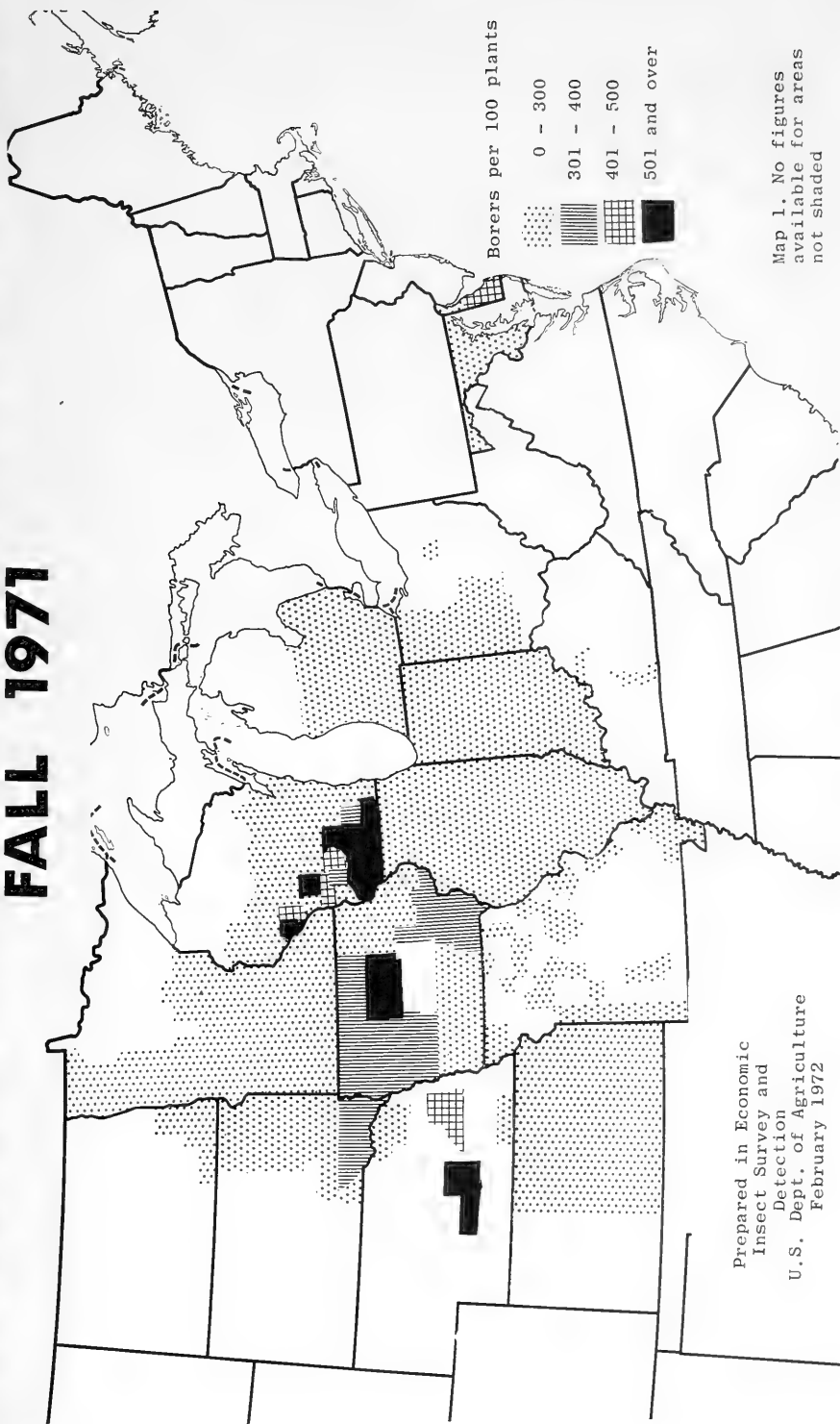
State (Districts or Counties)	Average Number: of Borers Per : 100 Plants :		State (Districts or Counties)	Average Number of Borers Per : 100 Plants	
	1970	1971:		1970	1971
<u>Delaware</u> (Agr. Expt. Sta.)			<u>Iowa (Cont.)</u>		
New Castle	255	157	District IV	346	413
Wilmington	347	427	District V	241	564
Dorchester	<u>248</u>	<u>489</u>	District VI	131	180
Average	283	358	District VII	528	443
			District VIII	94	426
			District IX	79	340
			District X	353	209
			District XI	286	217
			District XII	<u>211</u>	<u>153</u>
			Average	241	321
<u>Illinois</u> (Natural History Survey, Ext. Ser.)			<u>Kansas</u> (Ins. Sur.)		
Northwest	87	169	Northeast	100	70
Northeast	61	89	North Central	135	70
West	130	108	East Central	52	111
Central	27	67	Central	<u>4/</u>	32
West	33	109	Southeast	<u>4/</u>	34
West-southwest	105	112	South Central	-	<u>4</u>
West-southeast	92	135	Average	96	54
Northwest	<u>4/</u>	178			
Southeast	<u>4/</u>	<u>239</u>			
Average	76 <u>1/</u>	128 <u>1/</u>			
<u>Indiana</u> (Ext. Ser., Expt. Sta.)			<u>Kentucky</u>		
North-northwest	38	180	Surveyed counties	-	35
North-northeast	162	102			
North-southwest	57	117	<u>Maryland</u> (Agr. Ext. Ser.; Ins. Sur.)		
North-southeast	12	106	Eastern Shore	140	104
Central	38	107	Southern	104	58
Northwest	54	108	Central and Western		
North Central	58	78	areas	<u>158</u>	<u>112</u>
North Central	13	88	Average	141 <u>3/</u>	102 <u>3/</u>
North Central	34	101			
North-southwest	39	91	<u>Michigan</u> (Ins. Sur.)		
North-southcentral	24	74	Surveyed counties	148 <u>2/</u>	104 <u>2/</u>
North-southeast	<u>39</u>	<u>47</u>			
Average	47	100	<u>2/</u> Averages based on field averages rather than district averages.		
<u>Ohio</u> (State Dept. Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT, ARS, USDA)			<u>3/</u> Average based on averages for 16 counties rather than district averages.		
District I	306	319	<u>4/</u> Not included in the 1970 status report.		
District II	181	436			
District III	132	155			

Average based on 46 comparable counties surveyed in 1970 and 1971, 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	
	1970	1971:		:1970	1971
<u>Minnesota</u> (State Dept. Agr.)			<u>South Dakota</u> (Agr. Expt. Sta., Ext. Ser.)		
Southwest	246	102	North Central	235	177
South Central	222	171	Northeast	150	189
Southeast	131	95	Central	100	67
West Central	105	179	East Central	279	221
Central	57	61	Southeast	457	342
East Central	89	40	South Central	62	232
Northwest	57	44			
Average	130	99	Average	214	204
<u>Missouri</u> (Ext. Ser., Ins. Sur.)			<u>Wisconsin</u> (State Dept. Agr.)		
District I	122	151	Northwest	104	118
District II	187	165	North Central	110	82
District III	189	147	West Central	187	204
District IV	94	123	Central	102	394
District V	138	129	Southwest	118	555
District VI	4/	98	South Central	125	208
District VII	93	78	Southeast	77	315
District IX	88	157	East Central	58	449
Average	130	133	Northeast	35	150
			Average	102	275
<u>Nebraska</u> (Agr. Expt. Sta.; Ext. Ser., Ins. Sur.)			4/ Not included in the 1970 status report.		
Northeast	600	215	5/ Average based on counties surveyed.		
East	522	459			
Southeast	336	297			
Central	260	527			
South	261	509			
Average	396	401			
<u>North Dakota</u> (State Dept. Agr.)					
Southeast	57	130			
<u>Ohio</u> (Ext. Ser.; ARS, USDA)					
Northwestern	132	117			
West Central	96	55			
Central	57	28			
Southwestern	59	51			
Northeastern	198	77			
Average	108	67			
	99 5/	73 5/			

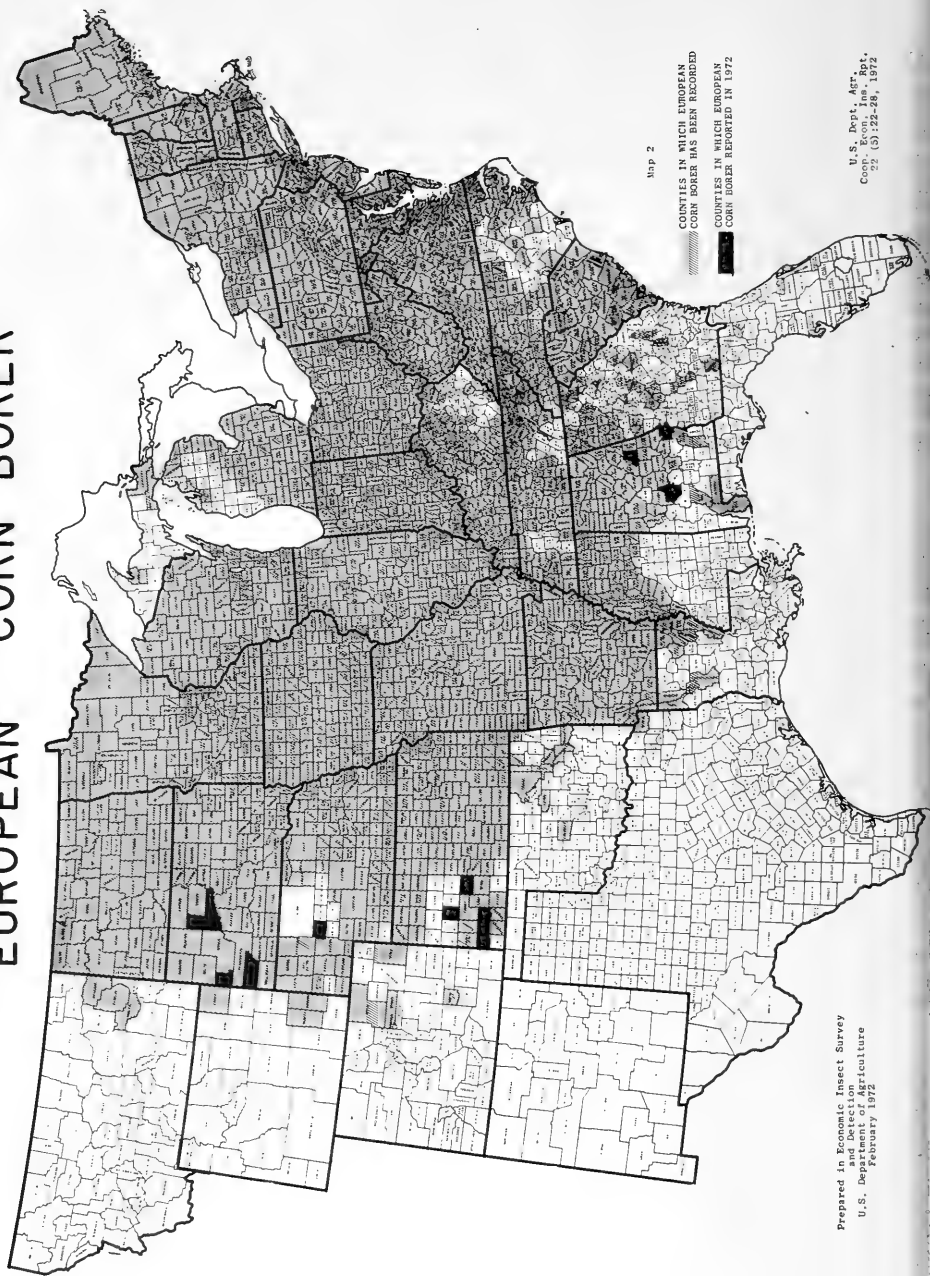
# EUROPEAN CORN BORER ABUNDANCE FALL 1977



Map 1. No figures available for areas not shaded

Prepared in Economic  
Insect Survey and  
Detection  
U.S. Dept. of Agriculture  
February 1972

# EUROPEAN CORN BORER



Map 2

COUNTIES IN WHICH EUROPEAN  
CORN BORER HAS BEEN RECORDED  
COUNTIES IN WHICH EUROPEAN  
CORN BORER REPORTED IN 1972

Prepared in Economic Insect Survey  
and Detection  
U.S. Department of Agriculture  
February 1972

U.S. Dept., Agr.  
Coop. Econ. Insect Surv.  
22 (3) 122-26, 1972



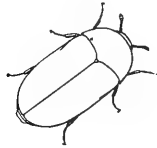
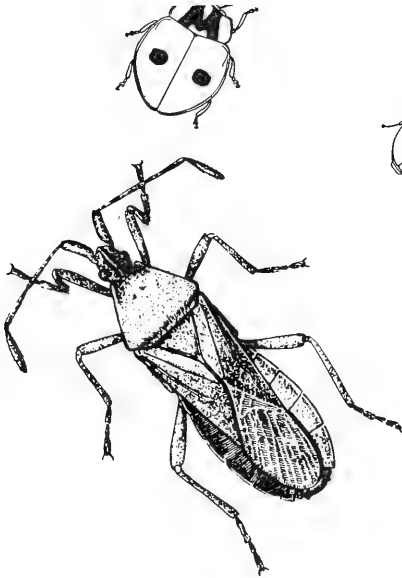
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

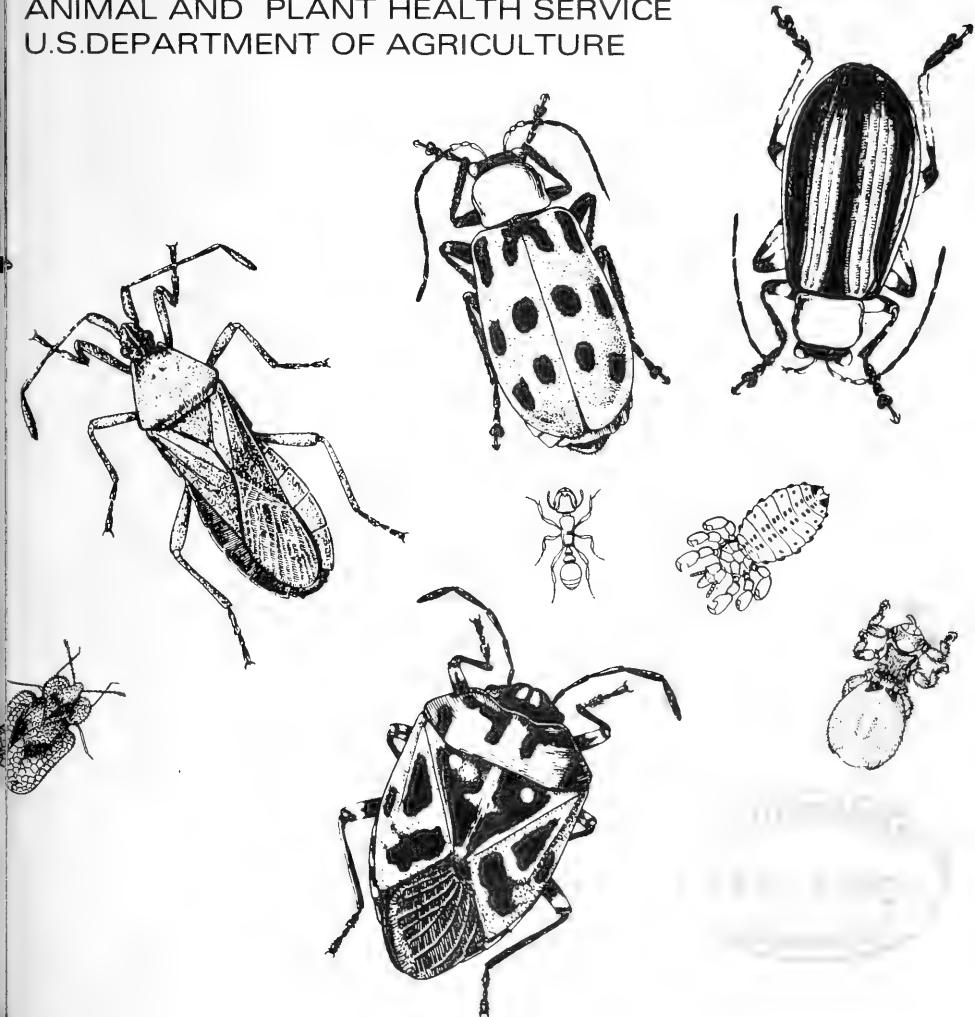


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

BEET ARMYWORM troublesome on spinach in limited area of Florida. (p. 32).

PEACH BORERS damaged peach trees in Alabama. (p. 32).

EASTERN TENT CATERPILLAR larvae appearing on wild plum in Florida. (p. 32).

Detection

For new county and island records see page 33.

Special Reports

WEEVIL hibernation survey for fall 1971 shows more weevils entered hibernation than in fall 1970 in all of the Carolinas, except the Coastal Plain, the North Delta, Central Delta, and Hill Section of Mississippi, and in central Texas. Counts were lower in the Coastal Plain of South and North Carolina, southern Tennessee, northeastern Louisiana, and the South Delta of Mississippi. (pp. 35-38).

Reports in this issue are for week ending February 4 unless otherwise indicated.

## CONTENTS

Special Insects of Regional Significance.....	31
Insects Affecting	
Corn, Sorghum, Sugarcane....	31
Forage Legumes.....	31
Peanuts.....	31
Cotton.....	31
Potatoes, Tomatoes, Peppers.	32
Deciduous Fruits and Nuts..	32
Forest and Shade Trees.....	32
Man and Animals.....	32
Households and Structures..	32
Federal and State Plant Protection Programs.....	33
Hawaii Insect Report.....	33
Detection.....	33
Light Trap Collections.....	33
Weather of the week.....	34
Boll Weevil Hibernation Survey - Fall 1971.....	35

---

### NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

FEBRUARY 1972

The National Weather Service's 30-day outlook for February is for temperatures to average below seasonal normal east of the Divide except for near normal in the south Atlantic Coast States and coastal portions of New England. Above normal temperatures are indicated for the Great Basin while near normal values are anticipated in unspecified areas. Precipitation is expected to exceed normal over the east Gulf and Atlantic Coast States as well as the lower Great Lakes. Subnormal totals indicated west of the Divide and also for portions of the central Plains and the upper Mississippi Valley. Elsewhere a near normal precipitation is in prospect.

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

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Little change in overwintering populations. Weather too cold for winter annuals to germinate or grow. No noticeable migration in Kings and Fresno Counties. Populations remain scattered in San Joaquin Valley. Frost damaged host plants in many areas. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - TENNESSEE - Control cost and yield and quality losses to corn during 1971; estimated at \$455,000. (Gordon).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Moderate in Cotton County wheat. (Okla. Coop. Sur.).

HORNWORMS (Manduca spp.) - NORTH CAROLINA - Populations increased to heaviest level in past 5 years on flue-cured tobacco. Control cost increased from \$50,000 in 1970 to \$500,000 in 1971 and losses increased from \$18,750 in 1970 to \$87,500 in 1971. This increase probably due to poor stalk destruction for previous 3 years. (Robertson). TENNESSEE - M. sexta (tobacco hornworm) control cost and yield and quality losses to tobacco during 1971; estimated at \$269,500. (Gordon).

## CORN, SORGHUM, SUGARCANE

SORGHUM MIDGE (Contarinia sorghicola) - TENNESSEE - Control cost and yield and quality losses to sorghum during 1971; estimated at \$64,480. (Gordon).

## ORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Larvae ranged 50-250 per square foot; egg counts decreased. Adults feeding first of February less active after freezing weather. (Latham). TENNESSEE - Control cost and yield and quality losses to alfalfa during 1971; estimated at \$515,200. (Gordon).

PEA APHID (Acyrtosiphon pisum) - CALIFORNIA - Adults averaged 3 per sweep in alfalfa at Salinas, Monterey County. (Cal. Coop. Rpt.).

## PEANUTS

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NORTH CAROLINA - Control cost for larvae ranged \$75,000 to \$100,000 in State during 1971. (Hunt).

## COTTON

BOLLWORM (Heliothis zea) - TENNESSEE - Control cost and yield and quality losses to cotton during 1971; estimated at \$3,568,400. (Gordon).

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Control cost and yield and quality losses to cotton during 1971; estimated at \$2,054,600. (Gordon).

## POTATOES, TOMATOES, PEPPERS

BET ARMYWORM (Spodoptera exigua) - FLORIDA - Serious on 200 acres of spinach at Zellwood, Orange County. (Fla. Coop. Sur.).

## DECIDUOUS FRUITS AND NUTS

PEACH BORERS - ALABAMA - Mixed larval populations of Sanninoidea exitiosa (peachtree borer) and Synanthedon pictipes (lesser peachtree borer) heavily damaged 2,000 peach trees. Weakened trees being removed. (Crocker, McCall).

## FOREST AND SHADE TREES

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Larvae appearing at Gainesville, Alachua County, on wild plum. (Fla. Coop. Sur.).

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae) - CALIFORNIA - Causing damage to lodgepole pine in Silver Lake, El Dorado National Forest. Many old trees dead. Silvicultural control encouraged. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 2 cases reported in U.S. January 30 to February 5 in TEXAS: Jim Hogg and Zapata. Total of 101 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 32, Chihuahua 2, Coahuila 3, Nuevo Leon 2, and Tamaulipas 62. Total of 9 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 screwworm flies released: Texas 12,198,000 and Mexico 97,290,000. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 1.5 per animal on backs of Holstein in Fayette County. (Barnett). VIRGINIA - Six untreated cattle in herd of 118 averaged 6.5 grubs per cow (range 1-15) in Buckingham County; 7 untreated cattle in herd of 78 averaged 14.6 grubs per cow (range 5-20) and 11 untreated cattle in herd of 58 averaged 2.9 grubs per cow (range 0-12) in Montgomery County. (Allen). ARKANSAS - Grubs ranged 0-51 (averaged 14.1) in 31 head of cattle in Benton County, heavier than previous years. (Lancaster, Simco).

HOG LOUSE (Haematopinus suis) - VIRGINIA - Ranged 1-15 per animal on 2 herds of cross-bred pigs, in Appomattox County. (Allen).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - TEXAS - Heavy in Erath and Hill Counties, control needed. (Hoelshcer). VIRGINIA - Infested herd of 48 cattle in Appomattox County. (Allen).

## HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - TENNESSEE - Control cost and losses to structures during 1971; estimated at \$8,184,594. (Gordon).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - SOUTH CAROLINA - Small extensions of known infestations found in Hampton, Jasper, Georgetown, Clarendon, and Sumter Counties. (Nettles). GEORGIA - Specimens collected at Tallapoosa, Haralson County, January 29 by W.C. Stewart. TEXAS - Specimens collected at Corpus Christi, Nueces County, January 10 by E.F. Sublett. Determinations by V.H. Owens, confirmed by D.R. Smith. These are new county records. (PP).

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Lint cleaner and lint cleaner screen inspections made in most cotton-producing counties during January indicated heaviest in central areas. Counts ranged 120-250 per bale in Bryan, Garvin, Marshall, Jefferson, Love, and Stephens Counties. Ranged 18-45 per bale in Cotton, Tillman, Logan, Grady, McClain, Payne, and Pawnee Counties. Counts in eastern and western areas averaged less than 1 per bale. All larvae dead in dry bolls exposed to cold weather in Oklahoma County field. (Okla. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - TENNESSEE - Yield and quality losses to soybeans during 1971; estimated at \$4,147,000. (Gordon).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae damaged roots of greenhouse tomatoes in Houston County. (Stephenson, Mathews).

---

### HAWAII INSECT REPORT

General Vegetables - BEAN FLY (Melanagromyza phaseoli) trace on petioles in small planting of yardlongbeans at Waikapu, Maui. LEAF MINER FLIES (Liriomyza spp.) moderate in seequa (Luffa acutangula) at Pupukea, Oahu, and tomato at Hauula, Oahu, and Moloaa, Kauai; larval mines confined mostly to older leaves. ONION THRIPS (Thrips tabaci) present on green onion at Waikapu, Maui. All stages of LEEK MOTH (Acrolepia assectella) on green onion at Waikapu, Maui. (Miyahira). SEEDCORN MAGGOT (Hylemya platura) heavy on 50 percent of 0.75 acre of bulb onions at Naalae-Waiakoa, Maui. (Hori).

Miscellaneous Insects - Adult of AN ICHNEUMON (Pachysomoides stupidus) taken at large in koa haole thickets at Poipu, Kauai for a new island record. P. stupidus develops as a parasite on larvae of Polistes wasps. (Sugawa).

---

### DETECTION

New County and Island Records - AN ICHNEUMON (Pachysomoides stupidus) HAWAII - Kauai (p. 33). IMPORTED FIRE ANT (Solenopsis saevissima richteri) TEXAS - Nueces (p. 33).

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 1/28-2/3, BL - Granulate cutworm (Feltia subterranea) 5, armyworm (Pseudaletia unipuncta) 1, yellowstriped armyworm (Spodoptera ornithogalli) 1. MISSISSIPPI - Stoneville, 1/28-2/3, Temp. 25-74°F., precip. 1.17, 2BL - Black cutworm (Agrotis ipsilon) 1, granulate cutworm 3, armyworm 5, fall armyworm (Spodoptera frugiperda) 1.

## WEATHER OF THE WEEK ENDING FEBRUARY 7

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

**PRECIPITATION:** Snow flurries occurred early Monday morning, January 31 from the Pacific Northwest to New England. Westerly winds blowing across Lake Ontario picked up moisture and dumped up to 2 feet of new snow at some localities in Oswego County, New York. Travel became almost impossible. A storm centered over northern Mexico caused scattered snow in southern New Mexico and western Texas. Three inches accumulated at San Angelo, Texas in 6 hours, Monday afternoon. Mixtures of snow and sleet made travel difficult in western Texas and western Oklahoma. Cold rain fell in east Texas. The storm centered in the central Rocky Mountains Tuesday, intensified and spread snow over the northern and central Rocky Mountains and northern and central Great Plains. Another low centered over the west central Gulf of Mexico caused cold rain along the gulf coast and snow northwestward to the Boston Mountains in northwestern Arkansas, and nearby portions of Oklahoma and Missouri. Snow and freezing drizzle caused slippery roads, slowed travel in parts of the central Great Plains early Wednesday. At midweek two major storms were in progress. The first centered over the Great Plains and moving toward the Great Lakes caused snow over an 8-State area from Colorado and New Mexico to the middle Mississippi River Valley, while an Atlantic storm soaked the eastern seaboard with heavy rain, accompanied by gales. Snow fell in the higher elevations of the central Appalachians and north of the Rain Belt. Washington, D.C., received 3 inches of snow early Wednesday. As the weekend approached, a second storm moved out over the Atlantic, skies cleared in the Southeast, but a northern storm continued to batter the Northeast. It dumped 26 inches of snow on Boonville, New York, Friday. The weekend brought rain to the Pacific coast with snow in the interior sections and froze on contact with the cold ground and caused slippery conditions. Light snow fell from the northern Rocky Mountains to the Great Lakes. Snow squalls occurred in lee of the Great Lakes, freezing rain fell south of the Snow Belt, and rain or drizzle occurred Saturday from the lower Rio Grande Valley to the Ohio River Valley.

**TEMPERATURE:** Cold weather gripped the entire Nation except southern Florida early in the week. Temperature at Jackson, Mississippi, dropped to 31° Monday morning, January 31. At 2 p.m. the temperature at Fort Lauderdale, Florida, had climbed to 86°. Arctic outbreak in the North dropped the temperature far below zero. Big Piney, Wyoming, registered zero degrees early Wednesday, and maximums in North Dakota in the afternoon ranged 0° to 7° Thursday morning. Subzero weather was common from eastern Washington to Minnesota in the Great Plains as far south as northern Kansas. Severe cold penetrated the Deep South over the weekend. Subfreezing temperatures occurred over northern Florida. Tampa registered 44° Saturday morning. Subzero weather held sway from eastern Montana to upper Michigan. Moline, Illinois, recorded -10° Saturday morning. Almost the entire Nation averaged colder than normal. The southern Appalachians and much of the area from eastern Washington and eastern Oregon to the Great Lakes averaged more than 10° colder than normal.

## BOLL WEEVIL HIBERNATION SURVEY - FALL 1971

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. Three samples were taken at each location in the Carolinas, Mississippi, Louisiana, and Texas. A total of 12 samples was taken in Tennessee. Thirty locations were sampled in each area in North and South Carolina; the number of counties per area from which samples were taken varied from 3 to 6. In North Carolina, Halifax County has replaced Wilson County. In Mississippi, a total of 45 samples was taken from 15 locations in each of 4 areas; each area was composed of 2 counties. Tate County has replaced Monroe County in the Hill Section of Mississippi. Samples were collected at 45 locations in northeastern Louisiana: 20 locations in Madison Parish, 10 in Tensas Parish, and 5 each in East Carroll, West Carroll, and Richland Parishes. This is the third year trash samples have been collected in Richland Parish. In Texas, 75 samples were taken from 25 locations in 4 counties, with either 6 or 7 locations sampled in each county.

The average number of boll weevils entering hibernation in the fall of 1971 was higher than in the fall of 1970 in all of the Carolinas except the Coastal Plain, the North Delta, Central Delta, and Hill Section of Mississippi, and in central Texas. Counts were lower in the Coastal Plain of South and North Carolina, southern Tennessee, northeastern Louisiana, and the South Delta of Mississippi.

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 (4,304) is 2.3 times less than in 1970 and 1.7 times less than the 28-year average.

The survey in Tennessee was conducted in Fayette, Hardeman, McNairy, and Hardin Counties. Live weevils averaged 407 per acre in this four-county area. This compares with 1,008 in 1970, 1,815 in 1969, 1,213 in 1968, 7,580 in 1967, and 7,120 in 1966.

Live boll weevils averaged 4,901 per acre of ground trash in Mississippi. This State average compares with 2,902 weevils per acre in 1970, 3,105 in 1969, 2,768 in 1968, 6,304 in 1967, and 2,956 in 1966.

In the five-parish area surveyed in northeast Louisiana, live boll weevils averaged 6,131 per acre. Average counts per acre by parish were: Madison, 6,090; Tensas, 4,762; East Carroll, 6,453; West Carroll, 8,506; and Richland, 6,292. In Madison Parish where these records have been maintained for the past 36 years and the average number of weevils per acre entering hibernation is 3,835, there have been only six years when the number of weevils per acre was higher than in the fall of 1971. The 6,090 weevils per acre in the fall of 1971 compares with 7,418 per acre recovered in the fall of 1970. In Tensas Parish, where these collections have been made for the past 16 years and the average number of weevils per acre is 5,494, the 4,762 weevils per acre recovered in 1971 compares with 5,563 weevils per acre recovered in the fall of 1970. Twelve of the 30 samples collected in Tensas Parish were from areas that received post-season diapause treatments with only 2 weevils being recovered.

There were 57 weevils recovered from 18 samples that were collected near fields that did not receive postseason treatments. There were 403 weevils per acre recovered in the areas that received post-season treatments as compared to 11,495 weevils per acre collected in the non-treated areas. This is a reduction of 96.5 percent.

In East Carroll Parish, where collections have been made for the past 15 years, the 6,453 weevils per acre in the fall of 1971 compares with the average of 6,530 weevils per acre and 4,678 weevils per acre recovered in the fall of 1970. Collections have been made for the past 4 years in West Carroll Parish and the average number of weevils per acre is 6,897. The 8,551 weevils per acre recovered in the fall of 1971 compares with 9,034 weevils per acre recovered in the fall of 1970.

Collections have been made in Richland Parish for the past 3 years, and the average number of weevils per acre is 8,443. The 6,292 weevils per acre recovered in the fall of 1971 compares with 21,619 weevils per acre recovered in the fall of 1970.

The Central Texas average of 4,167 boll weevils per acre in the fall of 1971 compares with averages of 3,392 in 1970; 1,647 in 1969; 4,070 in 1968; 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; 4,501 in 1960 and 6,631 in 1959. The survival percentage in the spring of each year from 1971--1960 was 59.8, 15.7, 70.0, 14.4, 26.5, 24.8, 100.0, 18.8, 25.4, 33.1, 33.7 and 31.1.

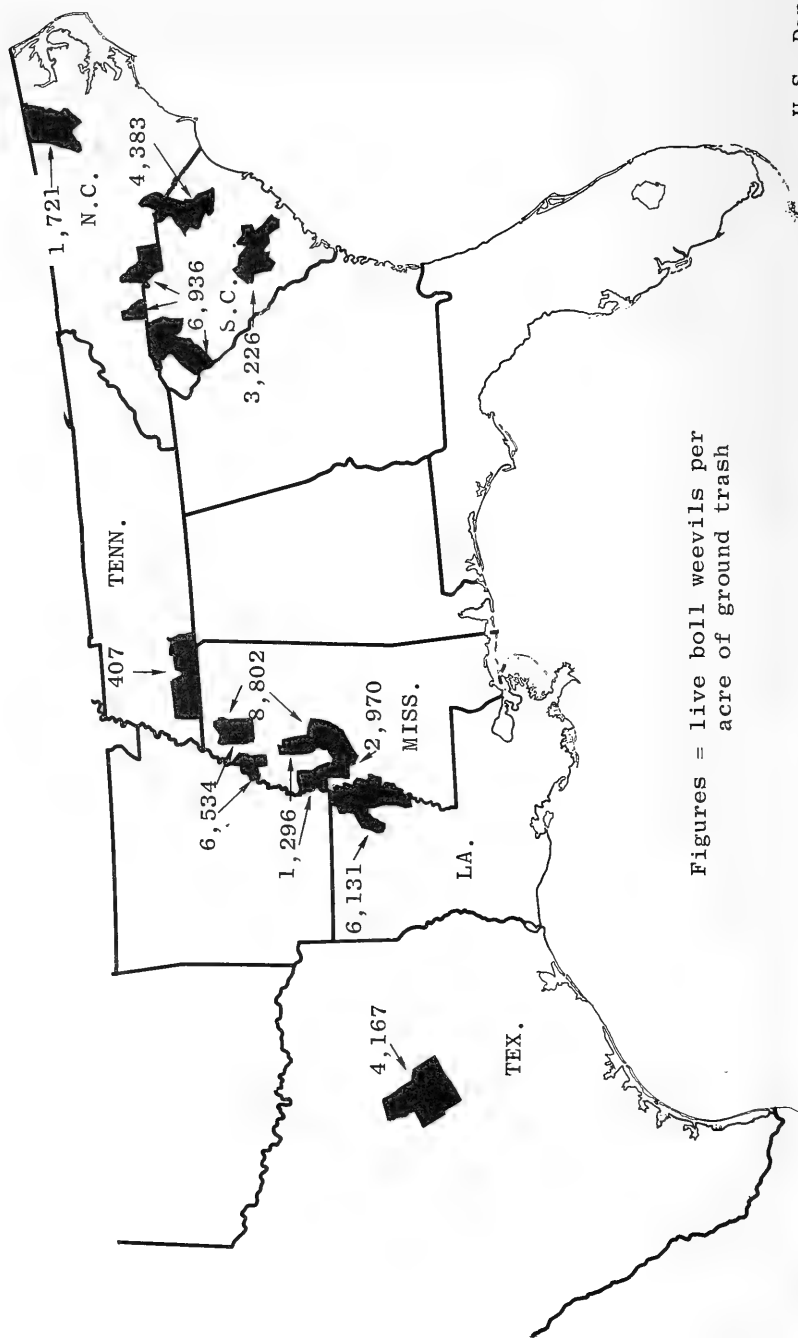
More boll weevils entered hibernation in the fall of 1971 in McLennan County than in any year except 1959. Fewer weevils were found in Falls County in 1971 than in any year except 1963 and 1969. In Limestone and Hill Counties more weevils were found than in 7 of the previous 12 years. The area average was higher in the fall of 1971 than in the past 3 years and the dry years of 1961, 1962, and 1963, but lower than all other years. Heavy rains during October, November and December prevented early harvest and stalk destruction in many fields, and there was a late buildup of weevils to enter hibernation.



Area (State and County)	Number of Weevils Per Acre	
	1970	1971
<u>NORTH AND SOUTH CAROLINA</u>		
South Central South Carolina (Orangeburg, Bamberg, and Dorchester Counties).	1,909	3,226
Coastal Plain of South and North Carolina (Florence, Darlington, and Marlboro Counties, S.C.; Scotland County, N.C.).	6,398	4,383
Piedmont of South and North Carolina (Anderson, Greenville, and Spartanburg Counties, S.C.; Mecklenburg, Cleveland, and Union Counties, N.C.).	2,312	6,936
North Central North Carolina (Nash, Halifax, Northampton, and Edgecombe Counties).	673	1,721
<u>TENNESSEE</u>		
Southern Tier of Counties (Fayette, Hardeman, McNairy, and Hardin Counties).	1,008	407
<u>MISSISSIPPI</u>		
South Delta (Sharkey and Yazoo Counties (area 1)).	3,042	2,970
Central Delta (Washington and Leflore Counties (area 2)).	1,242	1,296
North Delta (Coahoma and Panola Counties (area 3)).	756	6,534
Mill Section (Holmes and Tate Counties (area 4)).	6,588	8,802
<u>LOUISIANA</u>		
Northeastern (Madison, Tensas, East Carroll, West Carroll, and Richland Parishes).	8,458	6,131
<u>TEXAS</u>		
Central (Falls, Hill, Limestone, and McLennan Counties).	3,392	4,167

See map on following page.

BOLL WEEVIL HIBERNATION SURVEYS - FALL 1971



Figures = live boll weevils per acre of ground trash

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22 (6):35-38, 1972







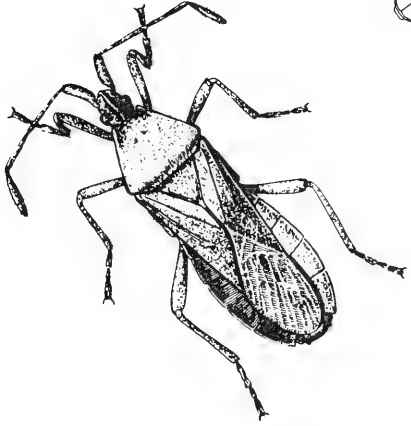
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

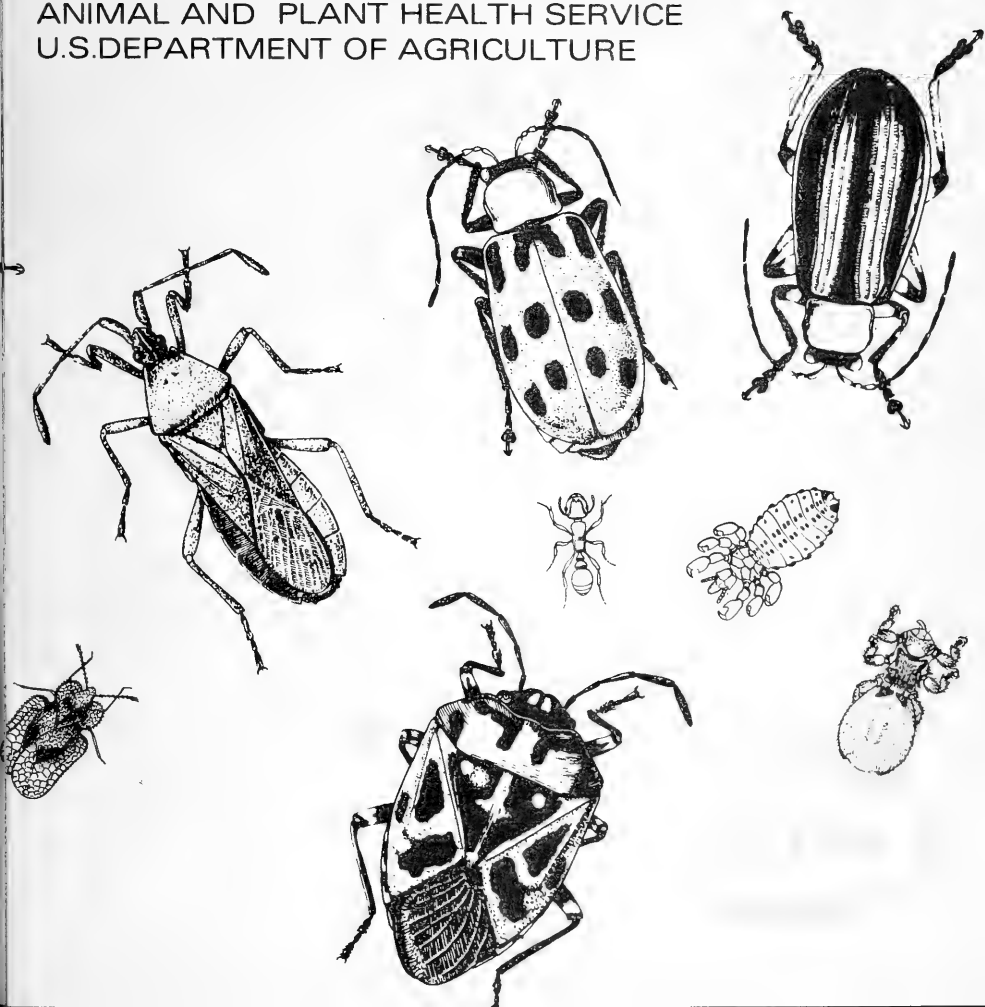


0004 SMITHSONIAN 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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



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

GREENBUG counts light in small grains in several western States. (p. 41).

CORN LEAF APHID appeared in barley in New Mexico. (p. 41).

ALFALFA WEEVIL larvae heavy in alfalfa in limited area of Texas. (p. 41).

SAN JOSE SCALE increase on fruit trees in Oregon. (p. 41).

Detection

A LEPTOPODID BUG reported for first time in Nevada for a new State record. (p. 43).

Special Reports

Summary of Insect Conditions in Hawaii - 1971 (pp. 45-49).

Ecological Range For Imported Fire Ant - Based on Plant Hardiness. Map. Centerfold.

Status of European Corn Borer in 1971 (Corrected) (pp. 50-56).

Reports in this issue are for week ending February 11 unless otherwise indicated.

## CONTENTS

Special Insects of Regional Significance.....	41
Insects Affecting	
Forage Legumes.....	41
Peanuts.....	41
Sugar Beets.....	41
Potatoes, Tomatoes, Peppers.....	41
General Vegetables.....	41
Deciduous Fruits and Nuts.....	41
Citrus.....	42
Man and Animals.....	42
Stored Products.....	43
Beneficial Insects.....	43
Federal and State Plant Protection Programs.....	43
Detection.....	43
Hawaii Insect Report.....	44
Summary of Insect Conditions in Hawaii - 1971.....	45
Status of European Corn Borer in 1971 (Corrected).....	50
Ecological Range For Imported Fire Ant - Based on Plant Hardiness. Map. Centerfold.	

### WEATHER OF THE WEEK ENDING FEBRUARY 14

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

PRECIPITATION: Unpleasant weather prevailed Monday over much of the Nation early in the week. Moderate rains fell along the northern Pacific coast, with light snow in nearby hills and mountains. Showers and thunderstorms occurred along the gulf coast. Snow fell in the southern Appalachians. Icy roads slowed travel from northeastern Pennsylvania to southern New England. Cloudy, damp weather prevailed along a front through the central and southern Atlantic States. Rain fell along the Atlantic seaboard as far south as northern Florida. Tuesday's precipitation was sparse, except for some rain along the coast in Far Northwest with snow in the mountains. Light snow from southern South Dakota to western Kansas and eastward to West Virginia and a few snow flurries in Lee of the Great Lakes. Clearing weather occurred in the South and along the Atlantic coast. Midweek, light snow fell in the central Rocky Mountains and from the northern and central Great Plains to the Ohio River Valley. Intermittent snow caused slippery roads in Illinois late Monday evening. Rains slackened some after midweek, but began again as the weekend approached. A Pacific storm produced rain or drizzle along the Washington and Oregon coast, with snow in the higher Cascades and eastward to the Rocky Mountains. Strong winds blew down the eastern slopes of the Rockies, gusting on Saturday afternoon 50-65 m.p.h. Livingston, Montana, recorded gusts of 71 m.p.h. Storm over the East intensified and produced widespread precipitation Saturday and Sunday. Strong winds occurred over much of East, especially along the coast. Gusts reached 60 m.p.h. at Cape Hatteras, North Carolina, and 65 m.p.h. at Newark, New Jersey, several inches of snow fell in parts of the Appalachians. Twelve to 14 inches buried Canaan Valley, West Virginia, and 9 inches fell at Mount Washington, New Hampshire. Heavy rains flooded some roads and highways closing them to traffic Sunday afternoon. Large area in the Southwest received no rain. Some localities in the Southwest have received no rain since late December.

Weather of the week continued on page 44.

## **SPECIAL INSECTS OF REGIONAL SIGNIFICANCE**

**GREENBUG** (*Schizaphis graminum*) - ARIZONA - Counts of 5 per 100 plants of barley and wheat on eastern side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 0-1 per linear foot of barley in northern Dona Ana County. (Riddle). TEXAS - Light on small grains in Archer and Clay Counties, some still present in Motley County. (Boring).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - NEW MEXICO - Ranged 3-6 per linear foot of barley in northern Dona Ana County. (Riddle).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - ARIZONA - Ranged 25-350 per 100 sweeps of alfalfa in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light, 1 per square foot, in alfalfa in northern Chaves County. (Mathews).

## **FORAGE LEGUMES**

**ALFALFA WEEVIL** (*Hypera postica*) - TEXAS - Larvae ranged 60-160 per square foot in random samples of alfalfa in Burlison County. (Latham).

**THREECORNERED ALFALFA HOPPER** (*Spissistilus festinus*) - ARIZONA - Ranged 25-250 per 100 sweeps of alfalfa in Yuma County. (Ariz. Coop. Sur.).

## **PEANUTS**

**TWOSPOTTED SPIDER MITE** (*Tetranychus urticae*) - NORTH CAROLINA - Losses estimated at \$200,000 on 20,000 acres in Northampton County. Resistance to miticides observed during 1971. (Hunt).

## **SUGAR BEETS**

**GREEN PEACH APHID** (*Myzus persicae*) - ARIZONA - Light to moderate in crowns of beets in many fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

## **POTATOES, TOMATOES, PEPPERS**

**GREEN PEACH APHID** (*Myzus persicae*) - FLORIDA - Increased on potatoes and tomatoes in Homestead area, Dade County. (Lee).

## **GENERAL VEGETABLES**

**GREEN PEACH APHID** (*Myzus persicae*) - MARYLAND - Overwintering adults ranged less than 5 per row yard on 600 acres of spinach near Vienna, Dorchester County. (U. Md., Ent. Dept.).

## **DECIDUOUS FRUITS AND NUTS**

**PEAR PSYLLA** (*Psylla pyricola*) - OREGON - Overwintering females on pear at Hood River, Hood River County, noted with mature eggs but oviposition not underway. Egg deposition expected to begin within next 7-14 days. (Zwick).

**SAN JOSE SCALE** (*Quadraspidiotus perniciosus*) - OREGON - Population buildup in orchards in Wasco and Hood River Counties. Scales prevalent on cherries at The Dalles and on pears in Hood River area. (Zwick).

## CITRUS

Insect Situation in Florida - End of January - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 78 (norm 63) percent of groves; economic in 56 (norm 46) percent. Population decreased and expected to decrease further in February. Still above average and in high range. Highest districts west, south, central, and north. Rust mites will be a threat to prebloom and postbloom. CITRUS RED MITE (Panonychus citri) infested 26 (norm 36) percent of groves; economic in 3 (norm 12) percent. Population below normal and very low, little change expected. Highest district west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 27 (norm 33) percent of groves; economic in 6 (norm 12) percent. Below normal abundance and at very low level. Light decrease expected. Highest district east. GLOVER SCALE (Lepidosaphes gloverii) infested 76 (norm 78) percent of groves; economic in 2 (norm 15) percent. Population below normal and in moderate range. Will continue near present level. Highest district west. PURPLE SCALE (L. beckii) infested 68 (norm 77) percent of groves; economic in 2 (norm 8) percent. Decreased to low level and will continue low. Highest district north. CHAFF SCALE (Parlatoria pergandii) infested 50 (norm 59) percent of groves; economic in 1 (norm 10) percent. Population will remain normal and low in all districts. YELLOW SCALE (Aonidiella citrina) infested 28 (norm 60) percent of groves; economic in 1 (norm 12) percent. Population very low in all districts, except east which is low to moderate. BLACK SCALE (Saissetia oleae) infested 51 (norm 37) percent of groves; economic in 31 (norm 17) percent. Decreased but still largest for any January in past 21 years of record. Additional decrease expected. Considerable variation among districts. Highest east and central. AN ARMORED SCALE (Unaspis citri) infested 30 percent of groves, economic in 21 percent. Population increased as expected due to warm winter weather. Further increase predicted due to spread by picking crews and lessening chance of subfreezing weather. MEALYBUGS, APHIDS, and SIXSPOTTED MITE (Eotetranychus sexmaculatus) currently near normal low levels for time of year. WHITEFLY larvae in normal moderate abundance but adults and eggs more numerous than average. This portends greater infestation of the spring flush. (W.A. Simaton (Citrus Expt. Sta., Lake Alfred)).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - No cases reported in U.S. February 6-12. Total of 67 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 25, Chihuahua 2, Coahuila 12, Nuevo Leon 4, Tamaulipas 24. 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 10,153,000; Mexico 88,887,000. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Grubs averaged 3.8 per head of dairy cattle in Fayette County. (Barnett).

ITCH MITE (Sarcoptes scabiei) - TEXAS - Three herds of cattle quarantined for scabies in western part of Hardeman County and in Motley County; testing underway and some herds treated. (Green).

SCAB MITE (Psoroptes equi) - Outbreak reported on cattle for first time in IOWA. Continued to infest cattle in KANSAS, OKLAHOMA, TEXAS, and NEW MEXICO during January. More than 100,000 head involved in these States. (Anim. Health).

CATTLE LICE (Haematopinus spp.) - OKLAHOMA - Mainly H. eurysternus (shortnosed cattle louse) heavy on cattle in Muskogee and Cotton Counties, moderate in Garfield County, and light in Cleveland County. (Okla. Coop. Sur.).

LONGNOSED CATTLE LOUSE (Linognathus vituli) - VIRGINIA - Counts of less than 1 per square inch on 70 Hereford cows and 10 per square inch on suckling calves at farm in Appomattox County. In another herd of 100 cows, counts lighter. Averaged 5 per square inch on third herd of 60 calves on withers, dewlaps, and heads. (Roberts).

#### STORED PRODUCTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - NORTH DAKOTA - Adults 1,280 per bushel in 17,000 bushels of stored wheat in Cass County. (McBride).

FLAT GRAIN BEETLE (Cryptolestes pusillus) - NORTH DAKOTA - Adults 384 per bushel in 17,000 bushels of stored wheat in Cass County. (McBride).

#### BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - CALIFORNIA - Bee keepers moved hives into almond orchards statewide. Almond buds beginning to swell. (Cal. Coop. Rpt.).

A LEPTOPODID BUG (Patapius spinosus) - NEVADA - Adults collected under boards and cardboard at Reno, Washoe County, November 21, 1971, by M.A. and R.C. Bechtel. Determined by R.C. Bechtel. This is a new State record. (Bechtel). Little known about this species. Other members of this genus usually predacious. Occurs in Mediterranean region and California. (PP).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Larvae in cocoons 95+ percent alive on roots of cotton stalks in southern Eddy County first week of February. (Mathews).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey in northern San Diego, San Diego County, negative. (Cal. Coop. Rpt.).

#### DETECTION

New State Record - A LEPTOPODID BUG (Patapius spinosus) - NEVADA - Washoe County. (p. 43).

## HAWAII INSECT REPORT

Turf and Pastures - GRASS WEBWORM (Herpetogramma licarsisalis) larvae trace, as many as 5 per square foot, in Bermuda grass fairway on Oahu. (Funasaki, Kashiwai).

General Vegetables - Mixed populations of LEAF MINER FLIES (Liriomyza spp.) and GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) were moderate to heavy in 0.25 acre of tomato at Hamakua and at Keaau, Hawaii; larval mines trace and T. vaporariorum light in 1.5 acres of cucumber. (Kobayashi). All stages of greenhouse whitefly heavy in 0.25 acre of dasheen, and nymphs and adults of WATERLILY APHID (Rhopalosiphum nymphaeae) light, about 10 percent of aphids mummified at Hamakua, Hawaii.

Fruits and Nuts - SOUTHERN GREEN STINK BUG (Nezara viridula) feeding noted on 318 of 1,183 macadamia nuts collected from orchards, at Haui, Kohola, and Kapaau. First report of damage by this species since late 1963 and early 1964 on Hawaii. Cluster of N. viridula eggs parasitized by Trissolcus basalis (a scelionid wasp) noted at Waipahu, Oahu; in a small planting of snap beans.

Man and Animals - Collected 146 VEXANS MOSQUITO (Aedes vexans nocturnus) and 1,778 SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) during January from 56 light traps on Oahu. Aedes ranged 0-19 per trap at Honouliuli. Culex ranged 0-740 per trap at Kailua. (Mosq. Contr. Br. State Dept. Health).

---

Weather of the week continued from page 40.

TEMPERATURES: The Far Southwest was fair and pleasantly mild early in the week. Phoenix, Arizona, registered 73 degrees Monday and Tuesday afternoons. Southern Florida was comfortably warm. The mercury at Miami reached 84 degrees Monday and 75 degrees Tuesday. In contrast, bitter cold continued over the northern Great Plains. Portions of North Dakota remained below zero Monday and Tuesday afternoons. On Monday afternoon, maximum temperatures ranged from below zero in parts of North Dakota and Minnesota to the 40's in most of Texas. The western edge of the Great Plains was much warmer than farther east. North Platte, Nebraska, warmed to 53 degrees Monday, when the mercury at Norfolk, Nebraska, climbed to only 12 degrees. Subzero temperatures occurred as far south as Kirksville, Missouri, and to the Ohio River on Tuesday when Cincinnati, Ohio, registered 3 degrees. Tuesday morning, subzero weather occurred in parts of 17 States. Cold reached the Gulf of Mexico. Beaumont, Texas, recorded 30 degrees and Jackson, Mississippi 27 degrees Wednesday morning. Bitter cold gripped the northern Great Plains. Spencer, Iowa, registered -32 degrees and Sioux Falls -27 degrees Wednesday morning. Cold sunny weather continued over much of the Nation through Wednesday. Thursday was slightly warmer. A warming trend continued Friday and the weekend. Temperatures averaged above normal over the Far West, the northern and central Rocky Mountains, and southern Florida, and cooler than normal from eastern South Dakota to northern Missouri and eastward to extreme western Pennsylvania, averaged 10 to 15 degrees colder than normal.

Highlights

Six new Western Hemisphere records were reported in 1971. SORGHUM MIDGE infested 2,000+ acres of sorghum. An ADELGID is spreading on pine but is under rigorous control. A BARK BEETLE infested coffee at Kona for the first time.

Detection

Six species were reported as new to the Western Hemisphere as follows: An OEDEMERID BEETLE (Ananca kanack) on Hawaii, a REDUVIID BUG (Haematoecha rubescens) on Oahu, a FULGORID PLANT-HOPPER (Lamenia caliginea) on Kauai, a SWALLOWTAIL BUTTERFLY (Papilio xuthus) on Oahu, a NOCTUID MOTH (Pericyma cruegeri) on Kauai, and a PIOPHILID FLY (Protopiophila australis) on Oahu.

Five species were reported as new to Hawaii as follows: A MEMBRACID BUG (Antianthe expansa); an ENCYRTID WASP (Aphycus mexicanus), COTTON LEAFPERFORATOR (Bucculatrix thurberiella), an ARMORED SCALE (Lepidosaphes pini), and a LYGAEID BUG (Neacoryphus bicrucis). All were found on Oahu.

General Vegetables

Sporadic infestations of LEEK MOTH (Acrolepia assectella) occurred in green onion fields at Koko Head, Ewa, Pearl City, and Waianae on Oahu and at Waikapu and Kahului on Maui during the first half of 1971; activity was practically nil during the remainder of the year. Larvae and adults of PEPPER WEEVIL (Anthonomus eugenii) caused heavy damage and premature fruit drop of bell peppers at Kihei, Maui, during May. Moderate infestation of the same host occurred at Wailua, Kauai, during August. CABBAGE WEBWORM (Hellula rogatalis) was light for the second consecutive year on mustard cabbage and daikon at Koko Head, Waimanalo, and Waianae, Oahu. TOMATO PINWORM (Keiferia lycopersicella) damaged small tomato plantings during February and November on Maui. Previously unreported from Maui, it now occurs on every major island in the State except on Lanai. A severe infestation also occurred in a small planting of eggplant at Pearl City, Oahu, during November despite an intensive chemical spray program.

BEAN FLY (Melanagromyza phaseoli) infestations were generally light in snap and long bean plantings on Maui and Kauai. Moderate to heavy parasitism by Opius spp. (braconids) and Halticoptera patellana (a pteromalid wasp) was noted on these islands. On Oahu, populations were generally light on commercial snap beans, soybeans, and yardlongbeans. Severe infestations occurred in these crops when chemical applications were neglected during the cotyledon stage. Parasitism was extremely low. TARO LEAFHOPPER (Tarophagus proserpina) populations were generally light in taro plantings on Maui and Oahu. Nymphs and adults of Cyrtorhinus fulvus (a predacious mirid bug) were moderate amid leafhopper populations. CARMINE SPIDER MITE (Tetranychus cinnabarinus) populations were sporadic and heavy in eggplants and snap beans on Oahu. Populations were generally light on Kauai and Maui on these crops and on tomatoes, cucumbers, papayas, and watermelons. Intensive chemical spray programs were necessary to maintain low levels.

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) populations were generally light to moderate except for two heavy peaks during the early months of 1971 and early fall at Waimanalo, Oahu. Populations were heavy in fields of bittermelon at Pupukeya, Oahu, and cucumber at Waimanalo during February. Infestations were generally light in tomato, cucumber, eggplant, watermelon, and bittermelon fields on Maui and Oahu. Adults were heavy during May in a small zucchini planting.

#### Corn, Sorghum

SORGHUM MIDGE (Contarinia sorghicola) populations ranged light to heavy in 2,000+ acres of sorghum at Kilauea, Kauai. October infestations were severe in 60 acres of mature sorghum. Seed yield was practically nil in this planting. Parasitism by a EUPELMID WASP (Eupelmus popa) averaged 5 percent of randomly collected, infested material. Populations of a PYRALID MOTH (Cryptoblabes aliena) were moderate to heavy, especially in mature seedheads of sorghum in 2,000+ acres at Kilauea, throughout the fall. SUGARCANE LEAFROLLER (Hedylepta accepta) caused moderate damage to 5 to 6 month-old sugarcane at Honokaa, Hawaii, in April. Parasitism by a braconid and a tachina fly was heavy in this 375-acre planting. SUGARCANE LEAFHOPPER (Perkinsiella saccharicida) infestations were light in sugarcane fields at Ewa, Oahu, and at Puunene and Omapio, Maui, early in 1971. Nymphs and adults of Tytthus mundulus (cane leafhopper egg sucker) were light amid infestations on Maui. CORN LEAF APHID (Rhopalosiphum maidis) nymphs and adults were light in 30 acres of seed corn at Kilauea, Kauai during September and were heavy on subsequent plantings of sorghum in October. Moderate numbers of Coelophora inaequalis (a lady beetle) and heavy parasitism by Lysiphlebus testaceipes (a braconid) were noted in early November.

#### Turf, Pasture, Rangeland

Adults of a SKIPPER (Hylephila phylaeus) are apparently stabilized in all areas of infestation. Larval damage has been negligible, even where adults were moderate on lawns and ornamentals. GRASS WEBWORM (Herpetogramma licarsisalis) caused heavy damage to Kikuyu grass pastures at Honomalino, Hawaii, early in 1971; populations in pastures, golf fairways, and memorial parks remained generally trace to light statewide.

#### Fruits and Nuts

Adults of LARGE MANGO TIP BORER (Bombotelia jocosatrix) were taken at Kahului and Hana, Maui, during April for a new island record. Light damage was noted to 100+ mango trees at Haiku, Maui, in October with about 10 percent of the young terminal leaves affected. BROWN SOFT SCALE (Coccus hesperidum) infestation was moderate on papaya seedlings at Hana, Maui, in September and about 5 percent of the adult scales were parasitized by hymenopterous parasites. COCONUT LEAFROLLER (Hedylepta blackburni) damage was heavy to coconut trees at Wailua, Waipouli and Kapaa on Kauai, at Waihee on Maui, and at Waimanalo and Makaha on Oahu during the winter and early fall. Infestations were generally light to moderate in most of these areas during the remainder of the year. Light numbers of hymenopterous and dipterous parasite cocoons were noted in most situations. Heavy infestations of a FLATID BUG (Melormenis antillarum) were noted on roadside guava trees in late 1970 near the Hilo Airport, Hawaii. On Oahu, survey of wild guava trees was negative in 1971.



BROWN CITRUS APHID (Toxoptera citricida) infestations occurred on backyard citrus trees throughout Oahu; nymphs and adults were as many as 100 per square inch of young leaves and flower buds during peak infestations. Moderate numbers of nymphs and adults of Orcus chalybeus, Azya luteipes, and Coelophora inaequalis (lady beetles) were noted amid infestations.

### Forest and Shade Trees

Heavy infestations of a CONIFER APHID (Cinara carolina) were noted on loblolly pine at Olinda, Maui, during March. This population gradually decreased, and by early October was trace, with less than one percent of the trees infested. Coelophora inaequalis (a lady beetle) was moderate amid aphids during late summer. Light infestations also occurred in 200 acres of pine at Polipoli on Maui, and at Princeville, Hanalei on Kauai during late summer and early fall. Heavy larval populations of KIAWE FLOWER LOOPER (Cosymbia serrulata) in April caused severe damage to racemes in 200 acres of Kiawe at Waimea and Kekaha, Kauai. Light populations in April on the same host at Olowalu, Maui, caused moderate damage to racemes. Light trap collections on Oahu revealed a sharp peak in August with 1,839 adults taken from 55 light traps. Adults of a NOCTUID MOTH (Melipotis indomita) were noted at large in kiawe and koa-haole thickets during January at Lanai City, Lanai for a new island record. During the summer, larval feeding caused trouble with monkeypod trees on Hawaii and an aerial application of Bacillus thuringiensis was made on 200 acres.

On Maui an isolated incidence of heavy larval populations on kiawe trees occurred at Napili. On Oahu, larval populations were relatively light on kiawe and monkeypod trees; most of the monkeypod trees apparently have recovered from a heavy attack in late 1970. Light trap collections indicated sharp peaks of adults during May and August of 1971. Larvae were numerous at the base of kiawe trees at Punahou, Honolulu in early November. Surveys for an ADELGID (Pineus pini) on Oahu revealed widespread infestations on bonsai pines in several residential districts. On Maui, infestations on Pinus sp. were discovered at Olinda in July for a new island record. Delimiting surveys were conducted and all infested plants were chemically treated. On Hawaii at the original site of discovery at Waikii, infestations of Pinus pinaster trees increased progressively and terminal dieback of younger trees was readily observed by June. Infestations of various Pinus spp. were noted along the Saddle Road and at residences at Paaulo, Honokaa, and Kamuela. Infested trees were felled and isolated with Waikii; chemical treatment was applied or recommended at all other situations on this island. MONKEYPOD MOTH (Polydesma umbricola) predominated in larval and pupal collections from loose bark of monkeypod trees throughout Oahu contrary to last year. Larval peaks in this host situation during mid-summer coincided with flushing of this host in late summer or early fall.

Infestations of a BARK BEETLE (Xylosandrus compactus) during winter and late summer in 300 acres of acacia saplings caused dieback of infested trees at Waikea, Hawaii. Moderate to heavy populations were found infesting coffee and Annona trees at Holualoa, Kona on Hawaii during September. Although this pest was first reported on the island of Hawaii in December 1966, this was the first record of its occurrence in the coffee district of Kona.

## General Pests

Damage by CHINESE ROSE BEETLE (Adoretus sinicus) was moderate to heavy to ornamentals and shade trees on Oahu and Hawaii; light damage occurred in isolated instances on snap beans, eggplant, and edible ginger in commercial fields on Oahu. Infestations of COCONUT SCALE (Aspidiotus destructor) on coconut trees throughout Oahu were moderate; generally, colonies were confined to older fronds. Nymphs and adults of Telsimia nitida and Lindorus lophanthae (lady beetles) were observed preying on this scale on coconut and on commercial papaya and banana. Light and sporadic in papaya and banana plantings, this scale apparently does not prefer these hosts. CORN EARWORM (Heliothis zea) larval infestations were heavy on lettuce and carnations at Waipouli, Kauai, and moderate in a yard planting of roses at Wailua, Kauai, during April. Larval activity ranged light to heavy in most cornfields on Oahu, despite intensive spray programs. During October, light infestations occurred on young sorghum seedheads in 250 acres at Kilauea, Kauai, and a trace population was noted in a tomato field at Waialua, Oahu. A severe outbreak of this pest at Anahola, Kauai, during the summer caused heavy damage in tomato, eggplant, and sweet pepper fields. This unusually heavy infestation may be attributed to large acreages of corn which abandoned at nearby Kilauea at about this time.

## Miscellaneous Pests

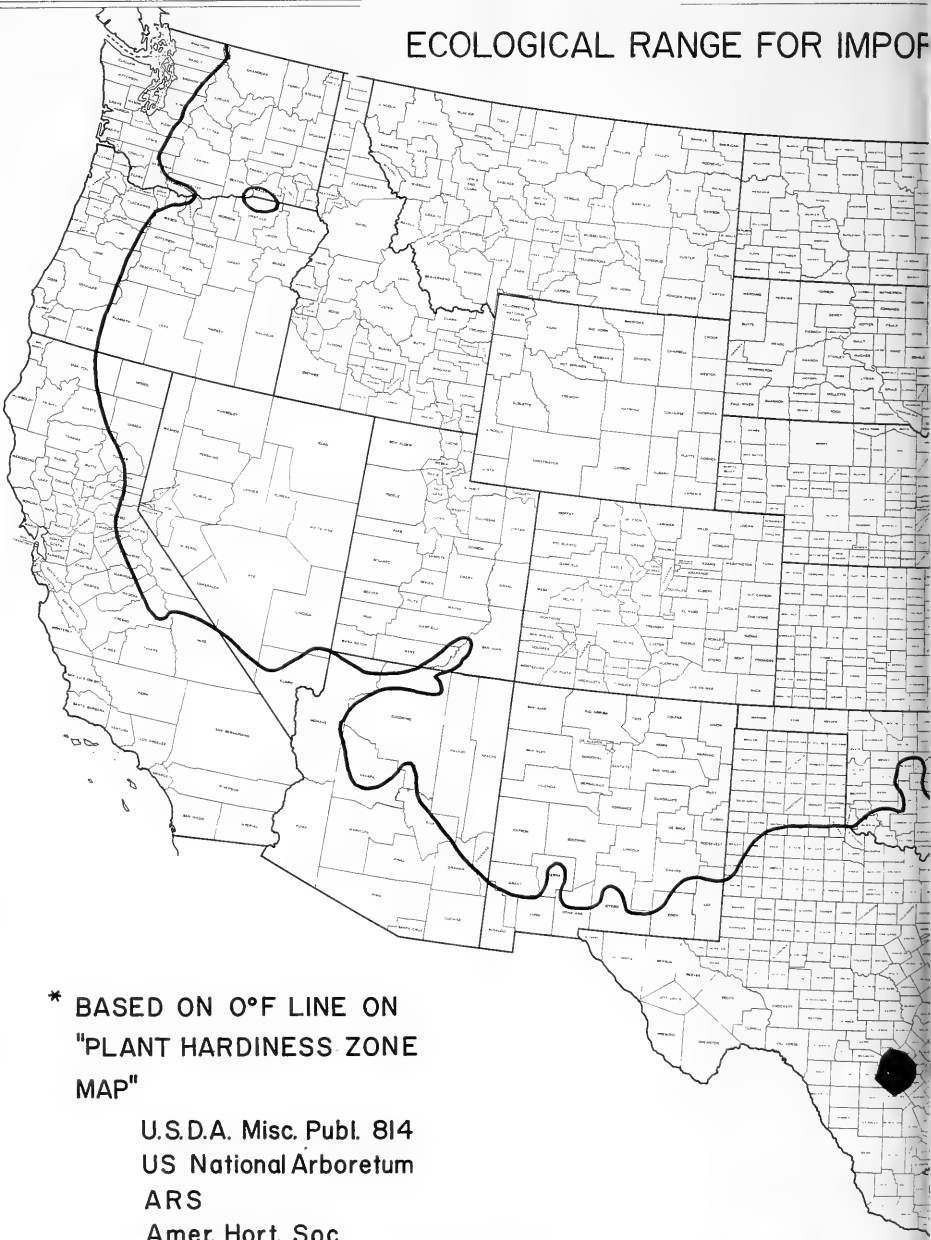
GIANT AFRICAN SNAIL (Achatina fulica) remained heavy during the winter at Poipu, Kauai, where 460+ snails were collected. During March, poison bait was dropped by air; snail activity decreased and became nil here and at Wahiawa during the summer. Activity gradually increased, and during September and October collected 30 and 245 snails respectively at Poipu. On Hawaii, snail activity throughout 1971 was extremely light and a total of 53 was collected at Kona (50 during August). On Oahu heavy populations were noted in wasteland brush on the grounds of the University of Hawaii, and at Wheeler Air Force Base during late summer. Host relationship of a GEOMETRID MOTH (Semiothisa santaremaria) was finally solved when larvae were collected from leaves of koa haole and Desmanthus virgatus in a pasture at Poipu, Kauai, during January. Dispersion on Oahu was rapid and by late spring large populations of larvae and adults were evident throughout the island. Light trap collections on Oahu reveal monthly fluctuating population levels. New island records were established for this pest on Maui, Molokai, Lanai, and Hawaii. S. santaremaria appears to have replaced KOA HAOLE LOOPER (Anacamptodes fragilaria) as the primary foliage feeder on koa haole.

## Man and Animals

VEXANS MOSQUITO (Aedes vexans nocturnus) collections in 55 light traps on Oahu from December 1970 to September 1971 averaged 22.4 per trap per month. The highest monthly average per trap was 41.2 in January; the lowest was 0.3 in March. Collections were generally highest during winter and late spring and lowest during summer. Trapped simultaneously, SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) averaged 97.1 per trap per month. The highest monthly average per trap was 169.6 in January; the lowest was 13.6 in June. Collections were generally highest during winter and lowest during summer.



# ECOLOGICAL RANGE FOR IMPOF

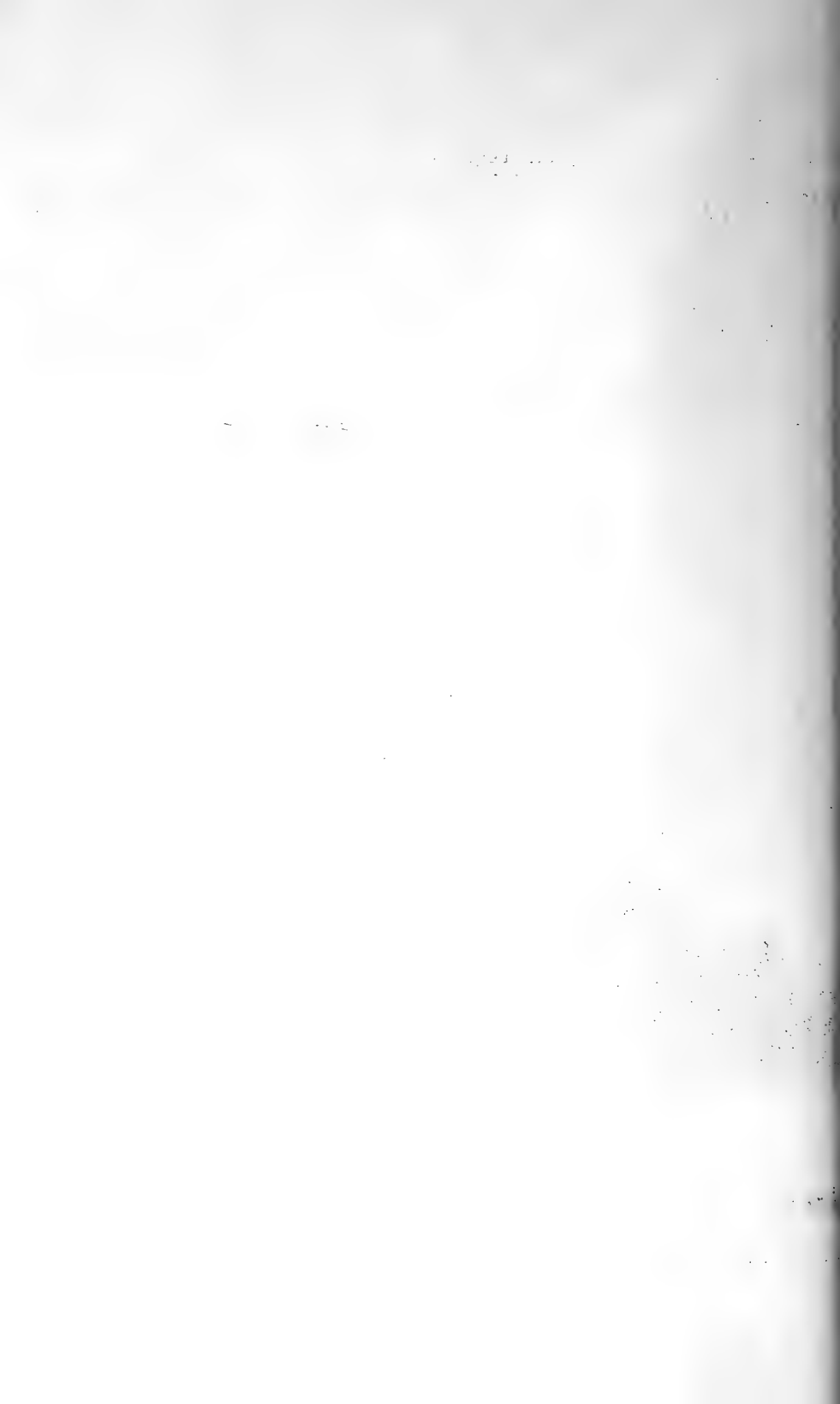


\* BASED ON 0°F LINE ON  
"PLANT HARDINESS ZONE  
MAP"

U.S.D.A. Misc. Publ. 814  
US National Arboretum  
ARS  
Amer. Hort. Soc.

IRE ANT - BASED ON PLANT HARDINESS \*





## Beneficial Insects

A random survey in April for SOURBUSH SEED FLY (Acinia picturata) on sourbush flowers (Pluchea sp.) at Komohana, Kulani, and Hawaiian Homes on Hawaii revealed an average of 26 percent infestation. A. picturata was introduced from Guatemala in 1959 to control Pluchea spp. Adults of SOUTH AFRICAN EMEX WEEVIL (Apion antiquum) were moderate on emex seedlings at Waiakoa, Maui, during January. By May, about 90 percent of the emex in pastures were infested. Larvae and adults of a GORSE WEEVIL (Apion ulicis) were heavy in about 84 percent of mature gorse seed pods in a forest reserve at Olinda, Maui. Larvae of a CACTUS MOTH (Cactoblastis cactorum) were moderate in 200 acres of cactus at Kekaha, Kauai, during October; about 10 percent of the pods were infested. An ENCYRTID WASP (Coccidoxenus mexicanus) was the most active parasite of Ceroplastes cirripediformis (barnacle scale) found infesting passionfruit vines at Kahului, Maui, during 1971. About 75-95 percent of the nymphs of C. cirripediformis in 40 acres of this planting were found to be parasitized in early April.

Adults of a CRYPTOCHAETID FLY (Cryptochetum iceryae) emerged -- from Icerya purchasi (cottony cushion scale) infesting Erythrina trees at Eleele, Kauai, in August for a new island record. An adult of a TACHINA FLY (Eucelatoria armigera) emerged from 1 of 6 Callopietria sp. (a noctuid moth) collected at Aina Haina in early April. This is the first record of field parasitism in Hawaii of this pest. A PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) was moderate to heavy on Tribulus cistoides and T. terrestris material collected on Maui. T. cistoides at Ka'u, Hawaii, was similarly affected in May. Puncturevine material from Maui, infested with M. lypriformis, was introduced in this area in early March 1971. BRACONIDS (Opius phaseoli and O. importatus) were found moderately infesting Melanagromyza phaseoli (bean fly) on Maui and Kauai. Parasitism in commercial plantings of these crops on Oahu and Hawaii was generally light as were bean fly infestations, due to intensive chemical spray applications. Percentage infestation of fruits and terminals of Melastoma malabathricum at various areas on Hawaii and Kauai steadily decreased due to activity of an ARCTIID MOTH (Selca brunella).

# Status of the European Corn Borer in 1971 <sup>1/</sup>

Introduction: Surveys to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hubner)) in the fall of 1971 were conducted by cooperating agencies in 15 States. All survey data, summaries, or records of field observations were processed by the Economic Insect Survey and Detection Staff in Hyattsville, Maryland. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after completion.

The 1971 European corn borer survey was conducted during late summer and early fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. Except for some minor differences in compiling data, the accepted survey methods were followed in all cases. The survey was continued on a district basis whenever possible in 1971. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: European corn borer was reported for the first time from thirteen counties during 1971; however, the counties were in the States already known to be infested. This was eight more than reported the previous year. There were three new counties in Alabama, one county in Nebraska, and five from Kansas. South Dakota reports distribution now statewide.

Abundance: Fall populations of European corn borer increased in 8 of 15 States reporting in the survey. Decreases were recorded in Maryland, Kansas, Minnesota, Ohio, South Dakota, and Michigan. Kentucky reported abundance for the first time this year. The average number of borers per hundred plants increased in Indiana, attributed to the increase in early planted corn. Second generation populations were the heaviest since 1957 and reflect in part the ample free water available to females at the critical egg laying period. In Illinois, populations were 50 percent higher this year than last. Only 1 of 9 districts had a lower population than 1970; this was the west district. The 1971 population is 28 percent higher than the average for the past 10 years. Counts were the heaviest in the southern portion of Illinois. Populations increased in all the 5 major corn producing counties in southeastern North Dakota. In 1970, the average borers per 100 plants was 57, compared with 130 for 1971. Surveys in Iowa indicated the percent infestations were lower than last year in the southern district; elsewhere increased.

The European corn borer population in Kansas was about the same as in 1970, except for the increase in the east-central district. In Michigan, the population decreased from 142 borers per 100 plants in 1970 to 104 this year; heaviest counts were in the

<sup>1/</sup> Survey data provided by State agricultural agencies. Data compiled and summarized by Economic Insect Survey and Detection Staff, Plant Protection Programs, Animal & Plant Health Service, United States Department of Agriculture.



southern areas. Second generation populations in Minnesota were not as heavy as last year. Populations in Missouri were similar to those of 1970, as were those in Nebraska and South Dakota. There was a slight decrease in abundance in Maryland and Ohio. In Delaware, there was an increase from 283 borers per 100 plants to 358.

Table 2 - European Corn Borer Abundance in Corn  
Fall of 1971, Compared with Data for 1970

State (Districts or Counties)	Average Number: of Borers Per :		State (Districts or Counties)	:Average Number :of Borers Per	
	100 Plants	:		: 100 Plants	:
	1970	1971:		:1970	1971
<u>Delaware</u> (Agr. Expt. Sta.)			<u>Iowa (Cont.)</u>		
New Castle	255	157	District IV	346	413
Kent	347	427	District V	241	564
Sussex	<u>248</u>	<u>489</u>	District VI	131	180
Average	283	358	District VII	528	443
			District VIII	94	426
			District IX	79	340
			District X	353	209
			District XI	286	217
			District XII	<u>211</u>	<u>153</u>
			Average	241	321
<u>Illinois</u> (Natural History Survey, Ext. Ser.)			<u>Kansas</u> (Ins. Sur.)		
Northwest	87	169	North Central	100	70
Northeast	61	89	East Central	135	70
West	130	108	Central	52	111
Central	27	67	Southwest	<u>4/</u>	32
East	33	109	Southeast	<u>4/</u>	34
West-southwest	105	112	South Central	-	<u>4</u>
East-southeast	92	135	Average	96	54
Southwest	<u>4/</u>	178			
Southeast	<u>4/</u>	<u>239</u>			
Average	76 <u>1/</u>	128 <u>1/</u>			
<u>Indiana</u> (Ext. Ser., Expt. Sta.)			<u>Kentucky</u>		
North-northwest	38	180	Surveyed counties	-	35
North-northcentral	162	102			
North-northeast	57	117	<u>Maryland</u> (Agr. Ext. Ser.; Ins. Sur.)		
Northwest	12	106	Eastern Shore	140	104
North Central	38	107	Southern	104	58
Northeast	54	108	Central and Western areas	<u>158</u>	<u>112</u>
Southwest	58	78	Average	141 <u>3/</u>	102 <u>3/</u>
South Central	13	88			
Southeast	34	101	<u>Michigan</u> (Ins. Sur.)		
South-southwest	39	91	Surveyed counties	148 <u>2/</u>	104 <u>2/</u>
South-southcentral	24	74			
South-southeast	<u>39</u>	<u>47</u>			
Average	47	100			
<u>Iowa</u> (State Dept. Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT, ARS, USDA)			<u>2/</u> Averages based on field averages rather than district averages.		
District I	306	319	<u>3/</u> Average based on averages for 16 counties rather than district averages.		
District II	181	436	<u>4/</u> Not included in the 1970 status report.		
District III	132	155			

1/ Average based on 46 comparable counties surveyed in 1970 and 1971, rather than districts.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1971, Compared with Data for 1970

States	1970		1971		Comparable Districts or Counties	
	:No. of Districts : Surveyed	:Average No. of Borer : Per 100 Plants	:No. of Counties : Surveyed	:No. of Borer : Per 100 Plants	:No. of Counties : Surveyed	:Average No. of Borer : Per 100 Plants
<u>Eastern</u>						
Delaware	1	283	3	358	1	283
Maryland	3	134	16	102	3	134
Total	4		19			
Average $\bar{x}$						209
<u>North Central</u>						
Illinois	7	76	39	128	7	76
Indiana	12	47	92	100	12	47
Iowa	12	241	99	321	12	241
Kansas	3	96	30	54	3	96
Minnesota	7	130	34	99	7	130
Missouri	7	130	38	133	7	130
Nebraska	5	396	25	401	5	396
North Dakota	1	57	5	130	1	57
Ohio	5	99	33	73	5	99
South Dakota	6	214	35	204	6	214
Wisconsin	9	102	52	275	9	102
Total	74		482			
Average $\bar{x}$						145
<u>Southern</u>						
Kentucky		2/		35	1	
<u>Other</u>						
Michigan	1	148	14	104	5	148

1/ Weighted average based on districts surveyed.

2/ Not included in the 1970 status report.

170

35

104

22

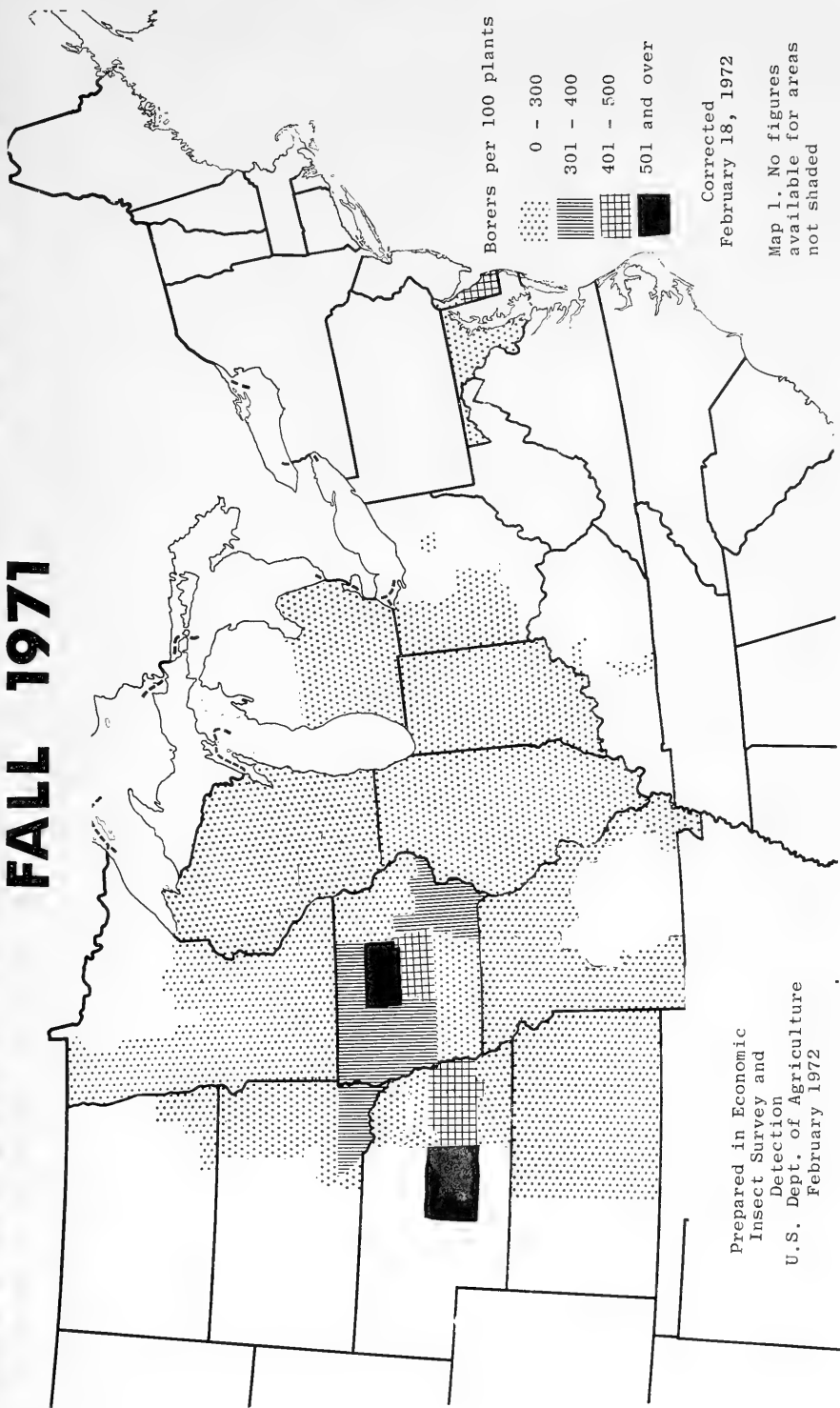
148

170

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
	1970	1971:	:1970 1971
<u>Minnesota</u> (State Dept. Agr.)		<u>South Dakota</u> (Agr. Expt. Sta., Ext. Ser.)	
Southwest	246	102	North Central 235 171
South Central	222	171	Northeast 150 189
Southeast	131	95	Central 100 67
West Central	105	179	East Central 279 221
Central	57	61	Southeast 457 342
East Central	89	40	South Central 62 232
Northwest	57	44	
Average	130	99	Average 214 204
<u>Missouri</u> (Ext. Ser., Ins. Sur.)		<u>Wisconsin</u> (State Dept. Agr.)	
District I	122	151	Northwest 104 59
District II	187	165	North Central 110 39
District III	189	147	West Central 187 129
District IV	94	123	Central 102 16
District V	138	129	Southwest 118 105
District VI	4/	98	South Central 125 42
District VII	93	78	Southeast 77 83
District IX	88	157	East Central 58 26
Average	130	133	Northeast 35 15
<u>Nebraska</u> (Agr. Expt. Sta.; Ext. Ser., Ins. Sur.)		Average 102 57*	
Northeast	600	215	4/ Not included in the 1970 status report.
East	522	459	5/ Average based on counties surveyed.
Southeast	336	297	
Central	260	527	
South	261	509	
Average	396	401	*Corrected February 18, 1972.
<u>North Dakota</u> (State Dept. Agr.)			
Southeast	57	130	
<u>Ohio</u> (Ext. Ser.; ARS, USDA)			
Northwestern	132	117	
West Central	96	55	
Central	57	28	
Southwestern	59	51	
Northeastern	198	77	
Average	108	67	
	99 5/	73 5/	

# EUROPEAN CORN BORER ABUNDANCE FALL 1971

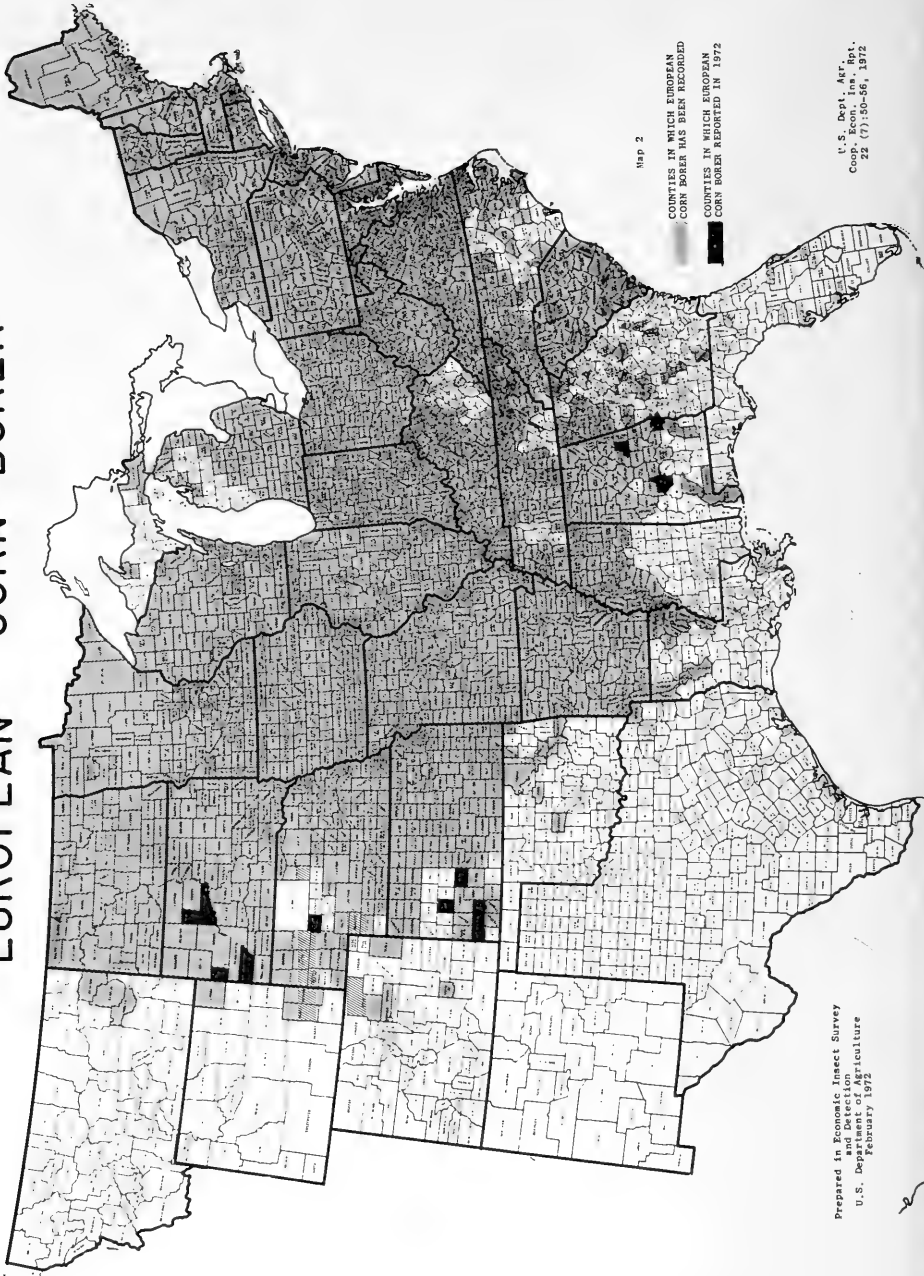


Corrected  
February 18, 1972

Map 1. No figures  
available for areas  
not shaded

Prepared in Economic  
Insect Survey and  
Detection  
U.S. Dept. of Agriculture  
February 1972

# EUROPEAN CORN BORER



Map 2

COUNTIES IN WHICH EUROPEAN  
CORN BORER HAS BEEN RECORDED  
COUNTIES IN WHICH EUROPEAN  
CORN BORER REPORTED IN 1972

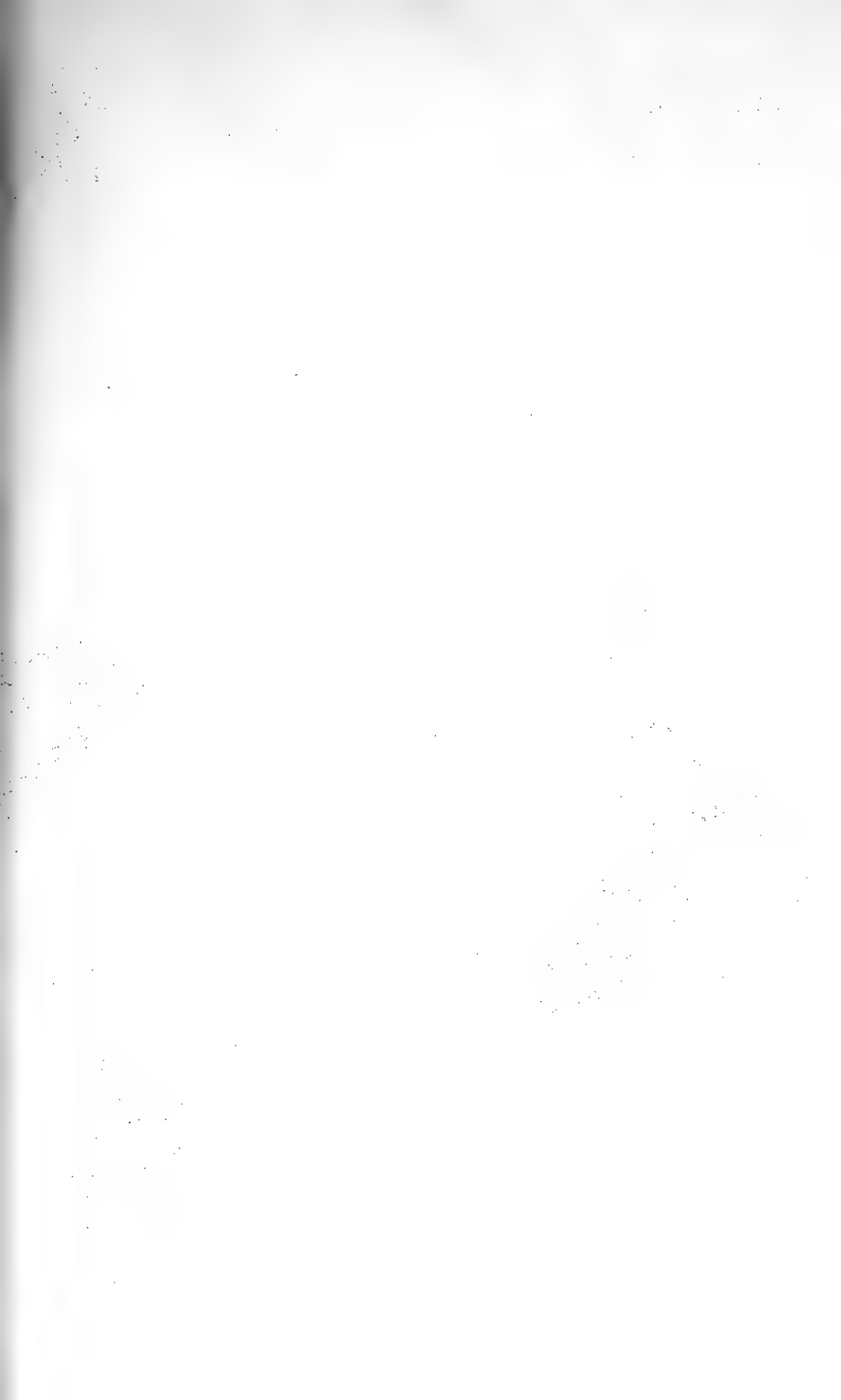
Prepared in Economic Insect Survey  
and Detection  
U.S. Department of Agriculture  
February 1972

U.S. Dept. of Agr.  
Com. Serv. Div.  
22 (7) 50-56, 1972









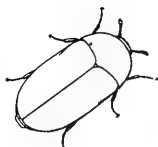
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

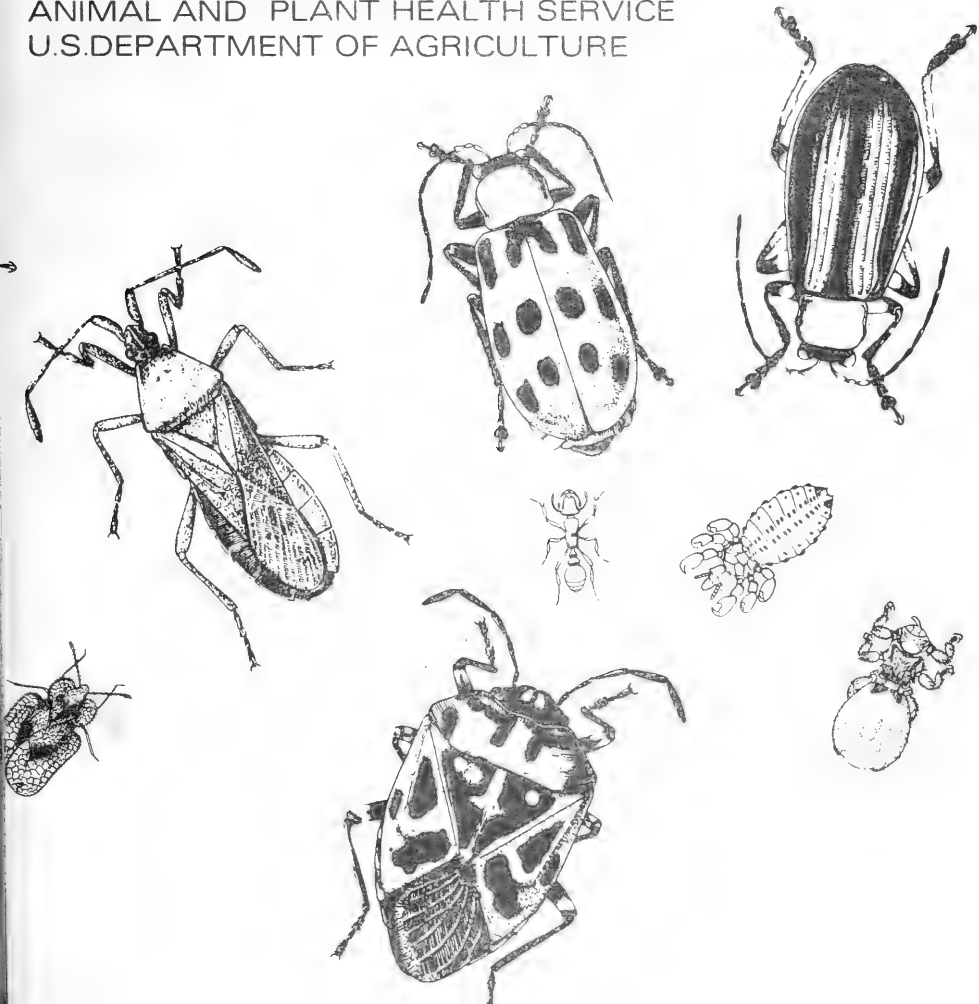


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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

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

ARMYWORM larvae appearing in small grains in Texas. (p. 59).

ALFALFA WEEVIL larvae still heavy on alfalfa in limited area of Texas. (p. 59).

Larvae of NOCTUID MOTHS heavy on celery in Florida. (p. 60).

Detection

HOLLYHOCK WEEVIL reported in Oklahoma for a new State record. (p. 60).

Special Reports

Summary of Insect Conditions in the United States - 1971.

Introduction (p. 63).

Federal and State Plant Protection Programs (pp. 63-67).

State Survey Coordinators (pp. 68-71).

Cooperative Survey Entomologists (pp. 72-74).

Reports in this issue are for week ending February 18 unless otherwise indicated.

## CONTENTS

Special Insects of Regional Significance.....	59
Insects Affecting	
Corn, Sorghum, Sugarcane.....	59
Forage Legumes.....	59
Potatoes, Tomatoes, Peppers..	59
General Vegetables.....	60
Deciduous Fruits and Nuts....	60
Citrus.....	60
Ornamentals.....	60
Man and Animals.....	60
Stored Products.....	60
Federal and State Plant Protection Programs.....	61
Hawaii Insect Report.....	61
Detection.....	61
Summary of Insect Conditions in the United States - 1971	
Introduction.....	63
Federal and State Plant Production Programs.....	63
State Survey Coordinators.....	68
Cooperative Survey Entomologists.....	72

### WEATHER OF THE WEEK ENDING FEBRUARY 21

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

**HIGHLIGHTS:** One of the most severe winter storms in recent years caused much distress over the eastern third of the Nation.

**PRECIPITATION:** A low, which was centered over the Northeast early in the week and which had brought some miserable weather the previous weekend, weakened and moved out in the Atlantic. Another low which caused rain and scattered thundershowers in the Southeast Wednesday, intensified and brought soaking rains to the Middle Atlantic Coastal States and snow in the southern Appalachians Thursday forenoon, and from West Virginia to eastern Pennsylvania Thursday afternoon. Three inches of snow fell at Washington, D.C. and Baltimore, Maryland, Thursday before weakening and moving over the Atlantic Ocean. A high brought a brief period of sunny mild weather to mid-America early in the week. Meanwhile, a storm off the coast of British Columbia moved inland, crossed British Columbia and Southern Alberta, and by midnight Wednesday was centered over western North Dakota. Rain fell along the Pacific coast which was already too wet and snow fell in the Cascades, Northern Rocky Mountains, and the northern Great Plains. Strong gusty winds blew along the Pacific coast and other parts of the Northwest. Gusts reached 62 m.p.h. at Astoria, Oregon, and varied from 75 to 90 m.p.h. at Rattlesnake Ridge in eastern Washington. Early Thursday, a front trailed from the storm center southward across the Great Plains. The front marched eastward at about 25 m.p.h. About Friday noon, the front extended from the Great Lakes to South Carolina. A wave developed in South Carolina, intensified, and moved northward along the coast and became one of the worst storms in recent years. It increased in severity as it moved northward. The giant storm brought miserable weather to much of the eastern third of the Nation. Large waves pounded the coast. One to 2 feet of snow fell in the northern and central Appalachians. Blizzards raged in many areas. Winds gusted 50 to 60 m.p.h. or more. Block Island, Rhode Island,

For continuation of weather of the week and 30-day forecast see page 62.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Spotted infestations reported on small grains in Bastrop and Bell Counties during past 14 days. (Cole, Decker).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light to medium, ranged 2-50 per linear foot, in wheat in Curry and Roosevelt Counties. (Mathews). TEXAS - Light on wheat, rye, barley, triticale, and oats in Wilbarger, Motley, and Clay Counties. Ranged 0-15 per foot; heaviest infestations in wheat and rye in Motley County. Infestations spotted but heavy on small grains in Knox County. (Boring, Pallmeyer). OKLAHOMA - Ranged 15-20 per linear foot of wheat in 4 fields in Cotton and Tillman Counties. (Okla. Coop. Sur.). ARKANSAS - Survey still negative in northwest areas. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Counts of 450 per 100 sweeps of alfalfa in Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Light on alfalfa in Curry and Roosevelt Counties. (Mathews).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Larvae averaged 30 per 100 stalks in fields with standing stalks (25 fields sampled) in Wayne, Sampson, Johnston, and Wilson Counties. Negative in 10 fields with satisfactory stalk destruction. (Hunt).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - Larvae ranged 100-300 per square foot in fields examined in Burleson County and eggs up to 160 per square foot. (Latham). OKLAHOMA - Larvae ranged 1-6 per terminal in 68 percent of terminals in alfalfa in Stephens County and 1-3 per terminal in 48 percent of terminals in Grady County. Most larvae newly hatched. Adult counts light in these areas and some mating noted. Empty cocoons and occasional pupa found in Stephens County. Eggs averaged 164 per square foot in one field at Chickasha, Grady County. (Okla. Coop. Sur.). MISSOURI - Comparative egg counts from central area for November and December show increase in 4 of 5 counties sampled. (Huggans). ARKANSAS - Survey still negative in northwest and east-central areas. (Boyer, Sterling).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Isolated medium to heavy infestations on alfalfa in Chaves County. Some controls applied. (N.M. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Averaged 30 per square foot in alfalfa in Grady County and 5 per square foot in Stephens County. (Okla. Coop. Sur.). NEW MEXICO - Generally light on alfalfa in Curry and Roosevelt Counties. (Mathews).

## POTATOES, TOMATOES, PEPPERS

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - This species and Pseudoplusia includens (soybean looper) light on commercial bell peppers in Delray Beach area, Palm Beach County; heavy on nightshade around borders of fields. (Genung).

## GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Mostly this species and Pseudoplusia includens (soybean looper) heavy on 80 acres of inadequately treated commercial celery at Belle Glade, Palm Beach County. (Genung).

## DECIDUOUS FRUITS AND NUTS

EUROPEAN RED MITE (Panonychus ulmi) - KENTUCKY - Averaged 4 eggs per twig tip (40 mm long) sampled from 5 acres of apples in Jessamine County. (Barnett).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - CALIFORNIA - Moderate on prune trees at Gridley, Butte County. Increasing. (Cal. Coop. Rpt.).

## CITRUS

COTTONCUSHION SCALE (Icerya purchasi) - CALIFORNIA - Counts of 50 per twig on tangerine trees locally at La Mesa, San Diego County. Infestation parasitized by Cryptochaetum iceryae (a cryptochetid fly). (Cal. Coop. Rpt.).

LONGTAILED MEALYBUG (Pseudococcus longispinus) - CALIFORNIA - Adults 2 per leaf on citrus at Leucadia, San Diego County. (Cal. Coop. Rpt.).

## ORNAMENTALS

HOLLYHOCK WEEVIL (Apion longirostre) - OKLAHOMA - Specimens collected from hollyhock seed at Locust Grove, Mayes County, on July 31, 1971 by D.C. Arnold. Determined by R.E. Warner. This is a new State record. (Okla. Coop. Sur.).

A GEOMETRID MOTH - ALABAMA - Unspecified larvae ranged 1-5 per camellia plant at Auburn, Lee County during December and January. Feeding on blossoms and buds. No determination made by specialist or were comparative specimens available. Similar feeding noted prior to this occurrence, usually March or later. (McQueen).

## MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - No cases reported in U.S. February 13-19. Total of 156 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 58, Chihuahua 2, Coahuila 7, Nuevo Leon 10, Tamaulipas 79. Total of 27 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 screwworm flies released: Texas 7,678,000; Mexico 95,094,000. (Anim. Health).

## STORED PRODUCTS

TOBACCO MOTH (Ephestia elutella) - NORTH CAROLINA - About 31 percent of growers storing tobacco in 1971 had damaging infestations. Total pounds infested of 1970 crop plus 1971 crop ranged from 0 in Scotland County to 6.5 million pounds in Wilson County. Wilson County growers had heavy damage prior to winter storage. (Hunt).



## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - This species and other Solenopsis spp. increased in most south-central counties. Heavy activity in Austin County near Bellville. Also heavy in Fort Bend and Brazoria Counties. (Green, Cole).

---

### HAWAII INSECT REPORT

General Vegetables - GREEN PEACH APHID (Myzus persicae) heavy, as many as 50+ adults and nymphs per square inch on older leaves in 0.1 acre of eggplant at Pearl City, Oahu. About 2 percent of aphids mummified. Parasitism 100 percent by Opius spp. (braconids) of BEAN FLY (Melanagromyza phaseoli) from infested snap bean and cowpea material collected from various areas on Kauai during January. (Sugawa, Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) light in small planting of banana at Pearl City, Oahu. About 15 percent of leaves (mostly older) with moderate colonies, infested 25-30 percent of lower leaf surfaces. Nymphs and adults of lady beetles, Telsimia nitida and Lindorus lophanthae moderate amid colonies. Adults of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) noted from windward Oahu during first two weeks of February. (Kawamura).

Beneficial Insects - A CERAMBYCID LANTANA (Plagiohammus spinipennis) increased at Panaewa Forest, Hawaii; girdled lantana stems noted. As many as 14 larvae from 3.5 foot long stem. P. spinipennis introduced from Mexico in 1959 to aid in control of Lantana camara. (Yoshioka).

Miscellaneous Pests - Collected and destroyed 104 specimens of GIANT AFRICAN SNAIL (Achatina fulica) during January at Poipu, Kauai. During same period 3 large snails picked up at Wahiawa, where in December single snail collected following 6 months of negative activity. Poison bait applications continue at both areas. (Sugawa, Yoshioka). Larvae of a GEOMETRID MOTH (Semiothisa santaremaria) light in areas of lush koa-haole growth throughout Kauai. Specimens of apparently diseased larvae submitted, found infected viral disease. Possible factor in noticeable decline in larval population on this island. (Sugawa).

---

### DETECTION

New State Record - HOLLYHOCK WEEVIL (Apion longirostre) - OKLAHOMA - Mayes County. (p. 60).

Weather of the week continued from page 58.

clocked gusts up to 75 m.p.h. Deep snow drifts blocked highways and byways and stranded hundreds of motorists. The wet snow froze to wires and trees. Many localities were without power or communication. Helicopters were used to reach some isolated communities to carry in food and fuel and evacuate some persons who needed hospitalization. By late Sunday, the skies were mostly clear over much of the Northeast but brisk northerly winds continued. Rainfall exceeded 4 inches along part of the Washington Coast, 1 inch along much of the Atlantic Coast, and .5 inch near the Great Lakes and in the Appalachians. Most of the western two-thirds of the Nation received less than .25 inch and a large area from California to Nebraska and southward to the Mexican border received no rain or only widely scattered sprinkles or snow flurries.

TEMPERATURE: Southerly breezes warmed mid-America early in the week. St. Louis, Missouri, registered 72 degrees Monday, February 14. This was warmer than most Florida stations and only 1 degree cooler than Phoenix, Arizona. A surge of cold air plunged into the north-central border States early Tuesday dropping temperature at Bemidji, Minnesota, to 15 degrees below zero. Temperatures rose gradually and by midweek were near normal over most of the Nation. By Thursday afternoon, only the Dakotas and higher elevations in the Northeast remained below freezing. Temperatures exceeded 80 degrees along the lower Colorado River. Over the southern Rio Grande Valley, and in southern Florida. In mid-America Thursday, maximums ranged from the 40's in Nebraska to the 60's in Oklahoma. An intense storm moved northward along the Atlantic coast over the weekend. Northerly winds on the western side of the storm brought subfreezing weather to the Deep South. New Orleans, Louisiana, registered 31 degrees Sunday morning, southerly winds warmed the Great Plains. The mercury at Burwell, Nebraska, climbed to 74 degrees Sunday afternoon. Most of the area east of the Mississippi River and south of the Ohio River averaged cooler than normal. Most other areas averaged warmer than normal. Much of the West averaged 6 degrees to 12 degrees warmer than normal.

---

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK  
MID-FEBRUARY TO MID-MARCH 1972

The National Weather Service's 30-day outlook for mid-February to mid-March is for temperatures to average below seasonal normals over the eastern half of the Nation. Above normal temperatures are indicated west of the Divide and in western portions of the northern and central Plains. In unspecified areas near normal temperatures are in prospect.

Precipitation is expected to exceed normal along the gulf and south Atlantic coasts, as well as over the northern Plains and the north Pacific coast. Subnormal totals are indicated for central and southern portions of the Pacific coast and the intermountain region as well as portions of the central and southern Plains. Elsewhere near normal precipitation is in prospect.

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

INTRODUCTION

The summary of insect conditions, beginning in this issue, will be continued in several succeeding issues of the Cooperative Economic Insect Report. This summary was compiled by the Economic Insect Survey and Detection Staff from annual summaries submitted by various State and Federal cooperators. A list of the individuals who assisted in assembling data will appear after the last section of this summary is published. The Economic Insect Survey and Detection Staff appreciates the assistance of all individuals who have participated in the preparation of material for the 1971 summary.

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BROWNTAIL MOTH (Nygmia phaeorrhoea) larvae were observed feeding on islands in the Casco Bay area east of Portland, MAINE. Sampling for winter webs in early spring 1971 showed the distribution east along the coast to Brunswick and on the peninsulas to the south and east. Larvae were not reported east of Brunswick.

CEREAL LEAF BEETLE (Oulema melanopus) adults were detected for the first time in 15 VIRGINIA counties. Followup surveys in two previously infested counties detected no economic damage but the potential damage to oats and other small grain remains high. The first observation of larval infestation on oats in PENNSYLVANIA was on May 28. Larval counts were 50 per 100 sweeps in the eastern counties. Some controls had been applied by May 28. A heavy infestation of third instar larvae was observed June 10 on oats in Beaver and Lawrence Counties. A few isolated fields in Venango and Armstrong Counties showed "white frosting" of the upper foliage of oats, and light infestations were reported in virtually all fields in Indiana and Centre Counties. Some fields in 4 western counties were treated by June 23. About 19,000 Anaphes flavipes (a mymarid wasp), were released on June 3 for containment of this insect at all sites in 8 counties.

Cereal leaf beetle egg laying in INDIANA had peaked by June 11 and larvae were mostly third and fourth instars. Larvae had disappeared by June 27. The annual survey indicated that larvae averaged 11.1 per 100 stems statewide, a decrease from 20.5 in 1970. Continues to expand its range in ILLINOIS. Currently found in 57 counties, 27 were reported in 1971. Damage to small grains and corn are expected to be minor in Illinois in 1972. Intensive surveys in WISCONSIN revealed larvae in Walworth County for the first recovery in the State. No other infestations were found. Cereal leaf beetle damage was affected by dry weather in MICHIGAN. Oats were generally planted early because the soil was dry, and the plants were up shortly after the adults emerged in the spring. The adults bypassed the winter grains and almost all of the damage was to oats during 1971. Spraying to protect oats from this pest was general and widespread. There were 5,271 acres inspected at 325 locations in eastern MISSOURI; all surveys were negative.

EUROPEAN CHAFER (Amphimallon majalis) the first emergence in PENNSYLVANIA was observed by blacklight trap collections in Lackawanna County and Luzerne County June 20. Heavy flights were observed in Erie, Lackawanna, and Lehigh Counties June 21. Adult flights passed their seasonal peak and began to taper off in all

areas of the State by July 13. The first observable damage was reported July 13 in Scranton, Lackawanna County.

Adult emergence of EUROPEAN CRANE FLY (Tipula paludosa) in WASHINGTON was light this year as compared to emergence in 1970. The first adult was recorded from Whatcom County on August 23. Adults were collected from San Juan County for the first time this year. The infestation in Whatcom County has spread on basis of larval survey about 4 miles south of the finds of 1970.

Rangeland and cropland in WASHINGTON was heavily damaged by GRASSHOPPERS; the dominant species were Melanoplus sanguinipes, M. packardii, Oedaleonotus enigma, M. femurrubrum, Aulocara ellioti, Amphitornus coloradus, Camnula pellucida. A cold wet spring followed by hot dry weather provided ideal conditions for grasshopper populations buildups in eastern OREGON rangeland and cropland. A total of 1,140,000 acres of private, State and Federal lands was infested with economic populations. Dominant species were Melanoplus sanguinipes, M. bivittatus and Oedaleonotus enigma. Heavy populations of Aulocara ellioti and M. packardii were evident in some dry rangeland areas; Camnula pellucida was very heavy in meadow environs and M. bivittatus in cropland areas. About 700,000 acres of rangeland were treated in IDAHO and the dominant grasshopper species was Melanoplus sanguinipes. Fall surveys indicate that about 1,700,000 potential acres of the 2.5 million infested acres will probably require treatment in 1972.

Grasshopper populations have been heavy in MONTANA the past 2 years. Economic infestations were found on about 142,000 acres of rangeland in 1971. Heavily damaged rangeland was more evident than the previous 5 years, with some damage to cropland. Grasshoppers hatched by May 7 in the lighter soil areas of NORTH DAKOTA; this was 2-3 weeks earlier than in 1970. By mid-June, crop damage was evident on soybeans and sunflowers, with populations up to 40 per square yard. Damage increased in July with 90 percent of the leaves stripped on barley and wheat. Controls were started early and continued into late August. The adult survey during August in North Dakota showed an increase in economic infestations in parts of Morton, Cass, Ransom, and Richland Counties. Melanoplus bivittatus, M. sanguinipes, and M. femurrubrum were the dominant species. Infestations are expected to increase again during 1972.

Egg hatch of Melanoplus sanguinipes and M. packardii started in early May. The predominant species in MINNESOTA, M. femurrubrum, began to hatch the second week in June. Damage to forage crops, primarily alfalfa, was quite spotty and rated moderate. Populations in 1971 decreased; an estimated 252,000 acres of forage crops had economic populations. Moderate to very abundant infestations lie in small areas of east-central, central, west-central, and south-central Minnesota. Infestations in 1972 are expected to be dispersed throughout these areas. Alfalfa and other forage crops will have widely scattered problems in some fields. Weather conditions could modify this outlook. Grasshopper infestations were heavy and scattered in NEBRASKA. An estimated 740,000 acres of cropland were infested. Dominant species in crop areas were Melanoplus differentialis, M. bivittatus, and M. femurrubrum. Rangeland populations were lower on an area basis, infestations being confined to small pockets. An estimated 50,000 acres of rangeland had economic populations. Dominant species infesting

rangeland were Ageneotettix deorum, Aulocara ellioti, Trachyrhachys kiowa, and Phlibostroma quadrimaculatum. Due to an extended period of favorable temperatures, grasshopper activity and egg laying continued well into the last week in October. Heavy infestations are possible in 1972.

Survey in COLORADO shows about 900,000 acres of private, State, and Forest Service rangeland in the southeastern area infested. Damage in 1971 was light, but expect a buildup in 1972. Survey was conducted in 15 northwest MISSOURI counties late in the adult season. Only moderate numbers were present in 2 counties (Clinton and De Kalb). Light populations occurred elsewhere. Three species predominated in the northwest area: Melanoplus sanguinipes, M. differentialis, M. femurrubrum. Grasshopper egg hatch began in south-central and southwest OKLAHOMA in mid-April and continued through May. Rangeland, crops, lawns, and home gardens were damaged. During July, 73,355 acres of rangeland were treated in cooperative control programs in Carter, Jefferson, Love, and Ellis Counties. Fall surveys showed 1,900,000 acres of rangeland in 32 counties to be economically infested. Dominant species were Phlibostroma quadrimaculatum, Ageneotettix deorum, and Drepanopterna femoratum. Grasshoppers killed by the fungus, Empusa grylli, were noted in Payne County in September. Several thousand acres infested with Melanoplus aridus south of Flagstaff, ARIZONA, were threatened. Growers treated 1,250 acres. Young pine seedlings threatened by M. franciscanus at Sitgrowers National Forest near Pagson were saved when rains produced new growth to preferred host plants. Over 59,000 acres of rangeland were reported economically infested in Arizona.

GRASS BUGS were damaging to grasses in several western States. Damage was reported in WASHINGTON on wheat and crested wheatgrass by Irbisia pacifica, I. fuscipubescens, I. shulli, and Labops hesperius. Late infestations on small grain by L. hesperius caused light damage in MONTANA. Thousands of acres of rangeland in Powder River County were infested with counts of 20 per sweep. Damage was heavy on crested wheatgrass and other grasses in UTAH by Labops spp. and Irbisia spp. Several thousand acres were involved in Kane and Garfield Counties. About 4,000 acres of rangeland were sprayed in Kane County and smaller acreages were treated elsewhere in Utah. Populations of I. pacifica were damaging on 10,000 acres of crested wheatgrass in Elko and Eureka Counties, NEVADA, during June and July.

GYPSY MOTH (Porthetria dispar) surveys were conducted in 33 States. In the eastern region egg mass surveys in the fall of 1970 revealed no egg masses in VIRGINIA, MARYLAND, and DELAWARE. Trapping in 1971 showed infestations in several cities and counties in these States. Male moths were trapped in several States with no previous history of moth collections. These were ALABAMA, NORTH CAROLINA, SOUTH CAROLINA, and WISCONSIN. An ENCYRTID WASP (Ooencyrtus kuwanai) a larval parasite of gypsy moth, was released at or near the trap catches as a precautionary measure. There was no biological evidence of established infestations in these areas. Moths were trapped in 2 counties in OHIO; however, specimens had not been collected in this State since 1914. Surveys showed a spread of gypsy moth in several counties in PENNSYLVANIA and NEW YORK during 1971. Defoliation, to some degree, was observed on 2 million acres of forest throughout the northeastern United States. Egg mass surveys during the fall of 1971 indicated heavy populations can be expected in several north-eastern areas for 1972.

IMPORTED FIRE ANT (Solenopsis saevissima richteri) spread to several new counties in SOUTH CAROLINA, GEORGIA, FLORIDA, ARKANSAS, and TEXAS. Surveys indicated slight spread in other infested States. Over 8 million acres were surveyed and 1.2 million acres were found to be infested. Controls were applied to about 6.5 million acres in 6 southern States.

JAPANESE BEETLE (Popillia japonica) adults were reported July 6 in Providence and Washington Counties. Heavy adult populations continued through August throughout RHODE ISLAND. The adult population during the first two weeks of July was at the highest level in over a decade in PENNSYLVANIA. The problem appeared to be statewide with moderate to heavy damage to roses, grapes, peaches, sweet cherries, lilacs, and other plants. Populations were spotty during July and August on Concord grapes. In Franklin County, a first year planting of wine grapes sustained 50-60 percent leaf injury by October 12.

Japanese beetle populations and damage were above 1970's levels in MARYLAND. A few moderate to heavy infestations were found in Frederick, Montgomery, Harford, Baltimore, Carroll, Howard, Prince Georges, and Anne Arundel Counties. Mid-summer adult populations were the heaviest within the past several years. Infestations in VIRGINIA were generally less severe than in 1970, but in a few areas corn was heavily damaged. Heavy damage for the fourth consecutive year was noted in Prince Edward County. Corn silk damage was 10 percent or less in most counties. Generally Japanese beetle activity was lower in SOUTH CAROLINA than in 1970. Survey was conducted in 20 counties in MISSOURI with 1,935 traps set. Adults were discovered only in the St. Louis metropolitan area. Populations remain very light and scattered.

MORMON CRICKET (Anabrus simplex) populations averaged 4 per square yard on 400 acres of rangeland in northern Wallowa County, OREGON. Also commonly found in the Flora and Troy areas but no significant damage was seen. Observed in considerable numbers on 200 acres of private land in Gilliam County. After many years of finding only solitary crickets in UTAH, a definite infestation was found north of Tintic, Juab County. About 2,000 acres were infested. Plans were made for control in the spring of 1972.

Blacklight trap collections of PINK BOLLWORM (Pectinophora gossypiella) moths in TEXAS were heavy in McLennan and Falls Counties by August 12. Moth collections in this area remained heavy and by September 9, recovered 13,000 moths in one week. Larvae averaged 2.2 per boll in north-central area, and 73 percent of the samples taken were infested in Collin County. Populations were heavy in scattered sites in this area. Boll infestations ranged 15-35 percent in Pecos County, but averaged less than 4 percent in nearby counties. In this area by October 1 boll infestations averaged less than 10 percent of the fields examined. Some infestations in west Texas had as high as 95 percent of the bolls infested. Green boll infestations increased over 1970 in south-central OKLAHOMA; ranged 23-54 percent in many counties. Generally, infestations were not heavy in other areas of Oklahoma. Surveys in CALIFORNIA were intensive for pink bollworm. Moths were recovered from hexalure traps in Tulare and Fresno Counties. These are new distribution records. During the trapping year 8 nonsterile moths were trapped in the San Joaquin Valley. Larval surveys were negative in this area. Sterile moths released in this area totalled 108 million. First-generation larvae in ARIZONA were found in Graham, Maricopa, Pinal, and Yuma Counties in mid-June. Many

growers were on a 6-day spray schedule beginning mid-May. Infestations ranged 70-100 percent on Pima cotton in Graham County. Some growers who stopped sprays and gambled on increased top yield lost. Those growers who maintained a spray schedule had infestations of 4 percent.

RANGE CATERPILLAR (Hemileuca oliviae) infestations in NEW MEXICO were heavy. Range grasses were damaged in Union, Colfax, and Harding Counties. Number of acres and degree of infestation was decreased by spray programs carried out by ranchers in 1970. Many eggs failed to hatch, possibly due to drought. Eggs did not appear to be parasitized. Approximately 300,000 acres were generally infested in Lincoln County. Many of the larvae starved when drought conditions caused grass to dry.

SOYBEAN CYST NEMATODE (Heterodera glycines) cysts were recovered from 8 counties in 8 States. These were ILLINOIS, VIRGINIA, NORTH CAROLINA, TENNESSEE, SOUTH CAROLINA, FLORIDA, LOUISIANA, and MISSISSIPPI. Reported for a new State record from South Carolina. Surveys were conducted on 42,357 acres during 1971. Some stunting of soybeans was noted late June in west Tennessee; however, the moisture supply was enough to reduce most damage. Two new properties were found infested in MISSOURI, and surveys were negative in ALABAMA.

Small infestations of WEST INDIAN SUGARCANE ROOT BORER (Diaprepes abbreviatus) were reported on citrus between Apopka and Plymouth, Orange County, FLORIDA. The regulated area has increased but the total population of Diaprepes has not changed much from 1970. Tetrastichus haitiensis (a eulophid wasp), an egg parasite, has not become established in this area, although one or two have been recovered.

WHITEFRINGED BEETLES (Graphognathus spp.) damaged soybeans in west TENNESSEE. Losses in ALABAMA were estimated at \$1,127,000 to cotton, corn, soybeans, peanuts, and vegetables. Additional \$277,300 was spent by growers for control. New county distribution records were established in these States: ARKANSAS, LOUISIANA, MISSISSIPPI, GEORGIA, SOUTH CAROLINA, and NORTH CAROLINA.

## STATE SURVEY COORDINATORS

Alabama	Dr. F. S. Arant, Head, Department of Zoology-Entomology, Auburn University, Auburn 36830
Alaska	Dr. Richard H. Washburn, Entomology Department, Agricultural Experiment Station, Palmer 99645
Arizona	Dr. J. N. Roney, Extension Entomologist, University of Arizona, P.O. Box 751, Phoenix 85001
Arkansas	Dr. F. D. Miner, Head, Department of Entomology, Univeristy of Arkansas, Fayetteville 72701
California	Mr. Daniel W. Robinson, State Entomologist, Division of Plant Industry, Special Services, California Department of Agriculture, 1220 N Street, Sacramento 95814
Colorado	Dr. W. D. Fronk, Head, Department of Entomology, Colorado State University, Fort Collins 80521
Connecticut	Mr. George W. Schuessler, Deputy State Entomologist, Agricultural Experiment Station, Box 1106, New Haven 06504
Delaware	Dr. Dale F. Bray, Head, Department of Entomology and Applied Ecology, University of Delaware, Newark 19711
Florida	Mr. H. L. Jones, Director, Division of Plant Industry, Florida Department of Agriculture, P.O. Box 1269, Gainesville 32601
Georgia	Mr. Carl M. Scott, Jr., Director, Division of Entomology, Georgia Department of Agriculture, 19 Hunter Street, Atlanta 30334
Hawaii	Mr. Kenneth F. Kawamura, Hawaii State Department of Agriculture, P.O. Box 5425, Honolulu 96814
Idaho	Dr. A. R. Gittins, Head, Department of Entomology, University of Idaho, Moscow 83843
Illinois	Dr. H. B. Petty, Jr., Extension Entomologist, Illinois Agricultural Extension Service, 280 Natural Resources Building, Urbana 61801
Indiana	Dr. John V. Osmun, Head, Department of Entomology, Purdue University, Lafayette 47907
Iowa	Dr. Oscar E. Tauber, Acting Survey Coordinator, Chairman, Department of Zoology and Entomology, 253 Science Building, Iowa State University, Ames 50010
Kansas	Dr. Herbert Knutson, Head, Department of Entomology, Waters Hall, Kansas State University, Manhattan 66502



Kentucky Dr. Wesley W. Gregory, Department of Entomology,  
University of Kentucky, Lexington 40506

Louisiana Dr. L. D. Newsom, Head, Department of Entomology,  
Louisiana State University, Baton Rouge 70803

Maine Dr. G. W. Simpson, Head, Department of Entomology,  
University of Maine, Orono 04473

Maryland Dr. W. C. Harding, Jr., Extension Entomologist,  
Department of Entomology, University of Maryland,  
College Park 20742

Massachusetts Dr. Gary L. Jensen, Assistant Professor of  
Entomology, Department of Entomology, University  
of Massachusetts, Amherst 01002

Michigan Dr. Gordon E. Guyer, Head, Department of  
Entomology, Michigan State University, East  
Lansing 48823

Minnesota Mr. Clare D. Floyd, Director, Division of Plant  
Industry, Minnesota Department of Agriculture,  
State Office Building, St. Paul 55101

Mississippi Dr. F. G. Maxwell, Head, Department of Entomology,  
Mississippi State University, State College 39762

Missouri Dr. W. S. Craig, Extension Entomologist, Depart-  
ment of Entomology, 1-87 Agriculture Building,  
University of Missouri, Columbia 65201

Montana Mr. Ellsworth B. Hastings, State Entomologist,  
Department of Zoology and Entomology, Montana  
State University, Bozeman 59715

Nebraska Dr. Elvis A. Dickason, Head, Department of  
Entomology, University of Nebraska, Lincoln  
68503

Nevada Mr. Harry E. Gallaway, Director, Division of Plant  
Industry, Nevada Department of Agriculture, P.O.  
Box 1209, Reno 89504

New Hampshire Dr. R. L. Blickle, Chairman, Department of  
Entomology, University of New Hampshire, Nesmith  
Hall, Durham 03824

New Jersey Dr. Billy R. Wilson, Chairman, Department of  
Entomology and Economic Zoology, College of  
Agriculture and Environmental Science, Rutgers  
University, New Brunswick 08903

New Mexico Dr. G. L. Nielsen, Chief, Division of Plant  
Industry, State Department of Agriculture, New  
Mexico State University, University Park Box  
3189, Las Cruces 88001

New York Dr. A. A. Muka, Extension Entomologist, Department of Entomology and Limnology, College of Agriculture, Cornell University, Ithaca 14850

North Carolina Dr. Gerald T. Weekman, Extension Entomologist, North Carolina State University, P.O. Box 5215, State College Station, Raleigh 27607

North Dakota Mr. Wayne J. Colberg, Extension Entomologist, North Dakota State University, Fargo 58102

Ohio Dr. Roy W. Rings, Ohio Agricultural Research and Development Center, Wooster 44691

Oklahoma Dr. D. C. Peters, Head, Department of Entomology, Oklahoma State University, Stillwater 74074

Oregon Mr. William Kosesan, Assistant Chief, Plant Division, Oregon State Department of Agriculture, Agriculture Building, 635 Capital, N.E., Salem 97301

Pennsylvania Dr. Ke Chung Kim, Department of Entomology, The Pennsylvania State University, 208 Patterson Building, University Park 16802

Puerto Rico Agricultural Experiment Station, University of Puerto Rico, Rio Piedras 00928

Rhode Island Dr. Gordon Field, Chairman, Department of Plant Pathology and Entomology, University of Rhode Island, Kingston 02881

South Carolina Mr. W. C. Nettles, Leader, Extension Entomology and Plant Disease Work, Clemson University, Clemson 29631

South Dakota Dr. R. J. Walstrom, Head, Department of Entomology and Zoology, South Dakota State University, Brookings 57006

Tennessee Mr. H. L. Bruer, Director, Division of Plant Industry, State Department of Agriculture, P.O. Box 40627, Nashville 37204

Texas Dr. P. L. Adkisson, Head, Department of Entomology, Texas A&M University, College Station 77843

Utah Mr. R. S. Roberts, Extension Entomologist, Utah State University, Logan 84321

Vermont Mr. John W. Scott, Director, Division of Plant Pest Control, Vermont Department of Agriculture, Montpelier 05602

Virginia Dr. J. M. Grayson, Head, Department of Entomology, Virginia Polytechnic Institute, Blacksburg 24061

Washington Dr. Robert F. Harwood, Chairman, Department of Entomology, Washington State University, Pullman 99163

West Virginia Mr. Albert E. Cole, Director, Plant Pest Control  
Division, West Virginia Department of Agriculture,  
Charleston 25305

Wisconsin Mr. Philip W. Smith, WDA-Plant Industry Division,  
801 West Badger Road, Madison 53713

Wyoming Dr. C. C. Burkhardt, Professor of Entomology,  
Department of Entomology, University of Wyoming,  
Laramie 82070

Revised February 25, 1972

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(8):68-71, 1972

COOPERATIVE SURVEY ENTOMOLOGISTS

Alabama	Mr. H. Frank McQueen, Cooperative Extension Service, Auburn University, Auburn 36830
Arizona	Mr. Judson May, State Capitol Annex, P.O. Box 6189 Phoenix 85005
Arkansas	Mr. W. P. Boyer, Department of Entomology, University of Arkansas, Fayetteville 72701
California	Mr. Ronald M. Hawthorne, California Department of Agriculture, 1220 N Street, Sacramento 95814
Colorado	Modified Agreement
Delaware	Modified Agreement
Florida	Mr. Frank W. Mead, Division of Plant Industry, Florida Department of Agriculture, P.O. Box 1269, Gainesville 32601
Hawaii	Mr. Kenneth F. Kawamura, Hawaii State Department of Agriculture, P.O. Box 5425, Honolulu 96814
Idaho	Modified Agreement
Illinois	Mr. Tim A. Cooley, Illinois Natural History Survey, 280 Natural Resources Building, Urbana 61801
Indiana	Mr. Robert W. Meyer, Department of Entomology, Purdue University, Lafayette 47907
Iowa	Modified Agreement
Kansas	Dr. K. O. Bell, Department of Entomology, Kansas State University, Manhattan 66502
Kentucky	Mr. Douglas E. Barnett, Department of Entomology, University of Kentucky, Lexington 40506
Maine	Mr. Arthur Gall, Department of Entomology, University of Maine, Orono 04102
Maryland	Mr. John L. Hellman, Department of Entomology, University of Maryland, College Park 20742
Massachusetts	Modified Agreement
Michigan	Dr. Richard Sauer, Department of Entomology, Michigan State University, East Lansing 48823
Minnesota	Mr. Robert Flaskerd, Division of Plant Industry, Minnesota Department of Agriculture, 670 State Office Building, St. Paul 55101
Mississippi	Mr. James V. Robinson, P.O. Drawer EM, State College 39762

Missouri	Dr. Ralph E. Munson, Department of Entomology, 1-87 Agriculture Building, University of Missouri, Columbia 65201
Montana	Modified Agreement
Nebraska	Mr. David L. Keith, Extension-Survey Entomologist, Plant Industry 201-A, East Campus, University of Nebraska, Lincoln 68503
Nevada	Modified Agreement
New Hampshire	Modified Agreement
New Mexico	Modified Agreement
North Carolina	Mr. Thomas N. Hunt, Survey Entomologist, North Carolina State University, P.O. Box 5215, State College Station, Raleigh 27607
North Dakota	Mr. William J. Brandvik, Associate State Entomologist, Office of State Entomologist, North Dakota State University, Fargo 58102
Ohio	Modified Agreement
Oklahoma	Mr. Don C. Arnold, Department of Entomology, Oklahoma State University, Stillwater 74074
Oregon	Mr. Richard L. Penrose, Plant Division, Oregon State Department of Agriculture, Agriculture Building, Salem 97310
Pennsylvania	Dr. Ke Chung Kim, Department of Entomology, The Pennsylvania State University, 208 Patterson Building, University Park 16802
Rhode Island	Modified Agreement
South Carolina	Mr. V. H. McCaskill, Plant Pest Regulatory Service, Clemson University, Clemson 29631
South Dakota	Dr. Philip A. Jones, Entomology-Zoology Department, South Dakota State University, Brookings 57006
Tennessee	Mr. Chester D. Gordon, Division of Plant Industries, Department of Agriculture, P.O. Box 40627, Nashville 37204
Texas	Mr. Lambert R. Green, Department of Entomology, Texas A&M University, College Station 77843
Utah	Modified Agreement
Virginia	Mr. William Allen, Department of Entomology, Virginia Polytechnic Institute, Blacksburg 24061
Washington	Modified Agreement
West Virginia	Mr. J. D. Hacker, Plant Pest Control Division, West Virginia Department of Agriculture, Charleston 25305

Wisconsin

Mr. Marlin S. Conrad, WDA-Plant Industry Division,  
801 West Badger Road, Madison 53713

Wyoming

Modified Agreement

Revised February 25, 1972

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(8):72-74, 1972









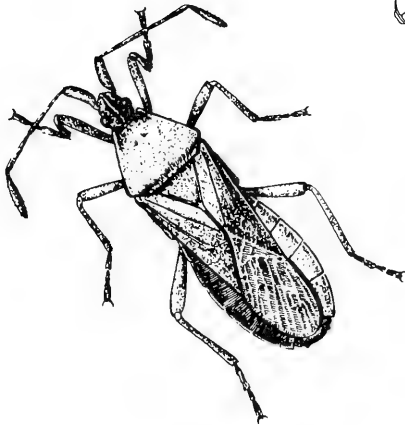
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



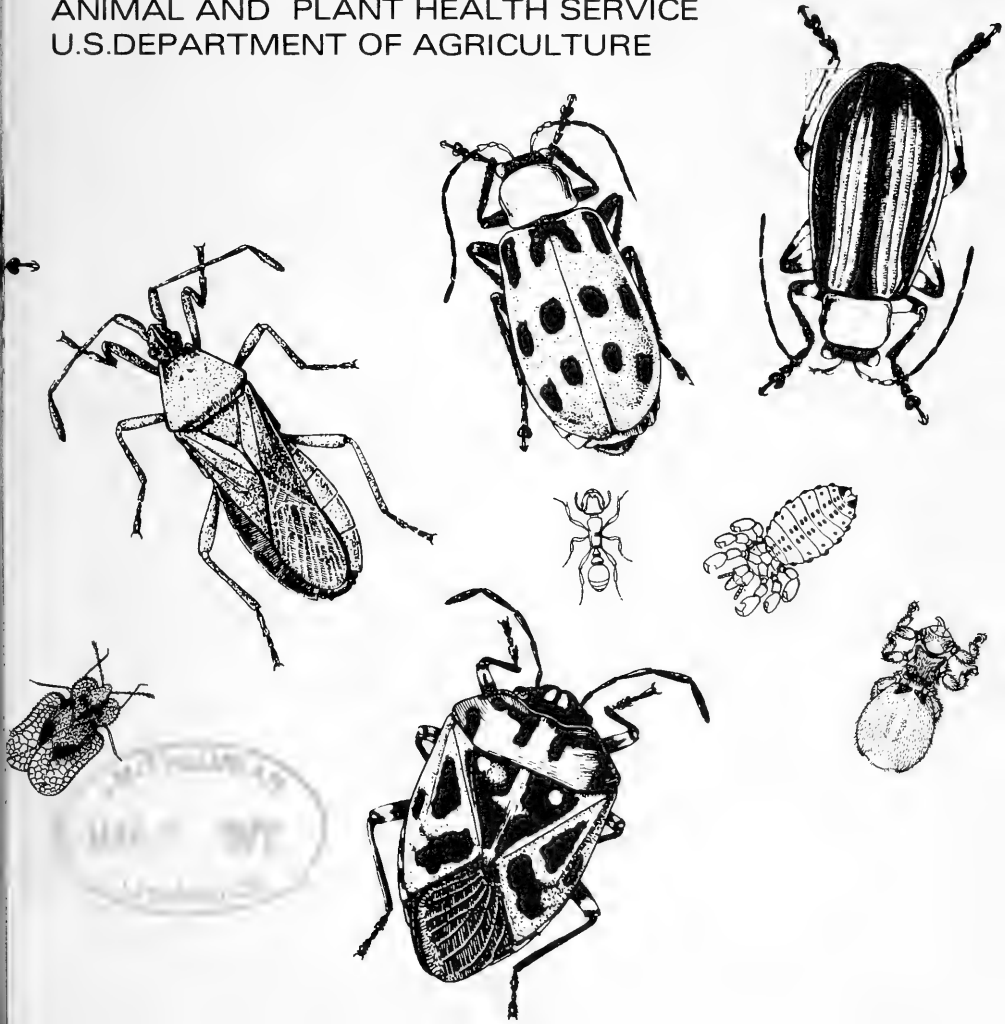
0104 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



B  
823  
C77  
nt,

# Cooperative Economic Insect Report

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



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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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

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

ARMY CUTWORM larvae appeared on alfalfa in Oklahoma. (p. 77).

ALFALFA WEEVIL in 1972 expected to be economic in northwest Arkansas. (p. 78). EGYPTIAN ALFALFA WEEVIL heavy on alfalfa in Arizona. (p. 78).

GREEN PEACH APHID troublesome on lettuce in Arizona. (p. 78).

CITRUS RED MITE building up on citrus in Arizona and TEXAS CITRUS MITE appearing in lemon groves. (p. 79).

Detection

For new island record see page 80.

Special Reports

Summary of Insect Conditions in the United States - 1970.

Special Insects of Regional Significance (pp. 81-88).

Corn, Sorghum, Sugarcane (pp. 89-96).

Small Grains (pp. 96-98).

Turf, Pastures, Rangeland (pp. 98-99).

Distribution of Brown Wheat Mite. Map. (p. 100).

Report of the Committee on Insect Surveys and Losses - 1972.  
(pp. 101-102).

Two Species of Imported Fire Ants in the United States.  
(pp. 103-104).

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

## CONTENTS

Special Insects of Regional Significance.....	77
Insects Affecting	
Small Grains.....	77
Forage Legumes.....	77
Soybeans.....	78
Tobacco.....	78
Miscellaneous Field Crops...	78
Potatoes, Tomatoes, Peppers.	78
General Vegetables.....	78
Citrus.....	78
Man and Animals.....	79
Households and Structures..	79
Stored Products.....	80
Beneficial Insects.....	80
Hawaii Insect Report.....	80
Detection.....	80
Summary of Insect Conditions in the United States - 1971	
Special Insects of Regional Significance.....	81
Corn, Sorghum, Sugarcane.....	89
Small Grains.....	96
Turf, Pasture, Rangeland.....	98
Distribution of Brown Wheat Mite. Map.....	100
Report of the Committee on Insect Surveys and Losses - 1972...	101
Two Species of Imported Fire Ants in the United States.....	103

### WEATHER OF THE WEEK ENDING FEBRUARY 28

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

**HIGHLIGHTS:** Heavy rains and melting snow caused a dam to fall in West Virginia with heavy loss of life and property. The Southwest continues very dry. Springlike temperatures were common over much of the West and South.

**PRECIPITATION:** The storm that had battered the Northeast so severely late last week tapered off, and by Monday morning, February 21, skies were becoming clear again. A few snow flurries continued in the vicinity of the Great Lakes. A series of winter storms paraded across the northern States during the week, bringing typical wintry precipitation, accompanied in some places by strong winds. Rains occurred along the Pacific coast from Washington to northern California, with snow from the Cascades and northern Sierras, eastward across the northern Rocky Mountains to the northern Great Plains. Snow at Stampede Pass accumulated to 16 feet. Stampede Pass is almost 4,000 feet above sea level. Snow fell in the northern Great Plains, but in parts of the central Plains the precipitation occurred as a slippery mixture of snow and freezing rain, due to a southerly flow from the Gulf of Mexico. A mixture of sleet, snow, and rain fell in parts of the Pacific Northwest. These mixtures of snow and freezing rain bordering the Snow Belt caused hazardous driving conditions. More winter weather came to the East after midweek, snow in the North, rain in Kentucky, Tennessee, and eastward to the middle Atlantic coast; and an area of freezing rain and freezing drizzle sandwiched between the snow and the rain, producing a dangerous glaze on the highways and byways. A few thunderstorms occurred Thursday in southern Missouri, northern Arkansas, and eastward to the mountainous areas of Virginia, and North Carolina. Weekend precipitation included the continuation of rains along the northern

Weather of the week continued on page 104.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMY CUTWORM (*Euxoa auxiliaris*)** - OKLAHOMA - Ranged 1-6 per square yard in alfalfa in Stillwater area, Payne County. Larvae ranged up to half grown. (Okla. Coop. Sur.).

**GREENBUG (*Schizaphis graminum*)** - ARIZONA - Trace in barley and wheat in Salt River Valley of Maricopa County. Light in same crops in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light to medium, 4 to 12 per linear foot, of barley in Roosevelt, Chaves County. (Mathews). TEXAS - Generally light throughout Panhandle on small grains. OKLAHOMA - Ranged 30-35 per linear foot of wheat in Washita County and 1-10 per linear foot in several areas of Payne County. Averaged 1 per linear foot in Coyle area, Logan County. (Okla. Coop. Sur.).

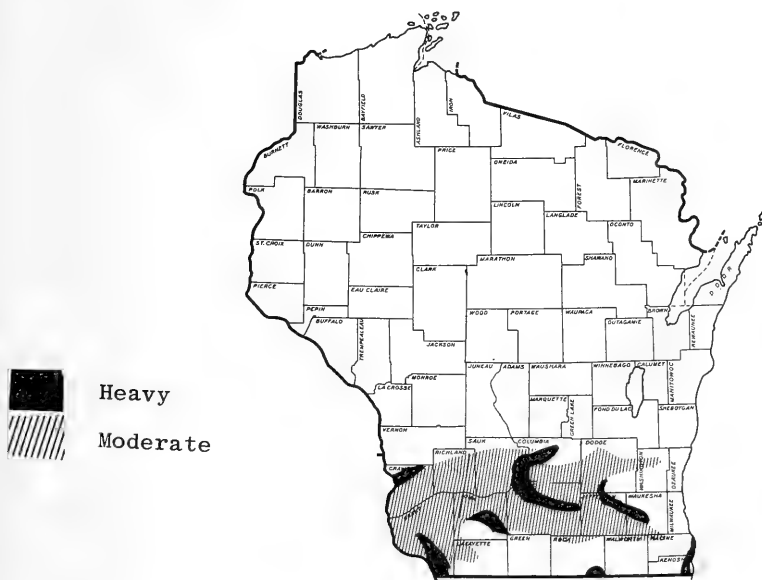
**SPOTTED ALFALFA APHID (*Therioaphis maculata*)** - ARIZONA - Ranged 100-200 per 100 sweeps of alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Very light in new alfalfa fields near Roswell, Chaves County. (Mathews).

## SMALL GRAINS

**AN APHID (*Rhopalosiphum padi*)** - OKLAHOMA - Ranged up to 50 per linear foot in favorable areas on wheat in Lake Carl Blackwell area, Payne County. (Okla. Coop. Sur.).

## FORAGE LEGUMES

**ALFALFA WEEVIL (*Hypera postica*)** - WISCONSIN - Zone of high hazard expected in 1972 based on egg survey in fall of 1971.



**KENTUCKY** - Eggs averaged 111 per square foot in several Fayette County fields and 19 per square foot in Marion County field. (Barnett). **MISSOURI** - Egg counts completed for November and December. Most counts heavier in December. (Huggans, Munson).

ARKANSAS - Larvae noted in alfalfa since late January in Lafayette County. Early instars noted in Logan County. Three adults and some eggs noted in Washington County. Expect economic populations again in 1972 in northwest area. (Boyer). OKLAHOMA - Alfalfa weevil larvae ranged 1-5 per terminal in 16 percent of terminals in alfalfa in Payne County. Of 245 dead stems checked, 31 contained 245 eggs. (Okla. Coop. Sur.). TEXAS - Larvae ranged 100-300 per square foot in alfalfa in Burleson County. First-generation adults beginning to emerge in central areas. (Latham).

EGYPTIAN ALFALFA WEEVIL (Hypera bruneipennis) - ARIZONA - Ranged 400-600 per 100 sweeps of alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Ranged 40-50 per 100 sweeps of alfalfa in Yuma Valley, Yuma County and 650 in Maricopa County. (Ariz. Coop. Sur.).

### SOYBEANS

A CERAMBYCID BEETLE (Dectes texanus texanus) - NORTH CAROLINA - Economic damage reported for first time from 20-acre Bladen County field and 10-acre Johnston County field. Damage previously restricted mostly to Washington, Beaufort, Hyde, and Tyrrell Counties. (Hunt, Clapp).

### TOBACCO

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - FLORIDA - Troublesome in untreated seed beds of flue-cured tobacco in northern areas. (Whitty, Driggers). Light to moderate in untreated seed beds of shade-grown tobacco in Gadsden County. (Tappan).

### MISCELLANEOUS FIELD CROPS

A GELECHIID MOTH (Leucogonia californica) - CALIFORNIA - Larvae 3 per linear foot on safflower seed at Knights Landing, Yolo County. (Cal. Coop. Rpt.).

### POTATOES, TOMATOES, PEPPERS

A LEAFMINER FLY (Liriomyza sp.) - ARKANSAS - Probably L. brassica with counts of 3-4 per leaf on tomato plants in greenhouse in Butler County. Controls planned. (Smith, Morgan).

### GENERAL VEGETABLES

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Major problem of lettuce in Yuma County, controls needed. (Ariz. Coop. Sur.).

### CITRUS

Citrus Insect Situation in Florida - Mid-February - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 76 (norm 61) percent of groves; economic in 49 (norm 42) percent. Population again decreased and will decline further. Still above normal and in high range. Highest districts south, west, and central. CITRUS RED MITE (Panonychus citri) infested 25 (norm 36) percent of groves; economic in 2 (norm 14) percent. Population lowest for February in 21 years of record. Little change expected. Highest district west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 22 (norm 31) percent



of groves; economic in 6 (norm 11) percent. Also much below normal and at lowest February level since 1963. Little change expected. Highest district east. SIXSPOTTED MITE (Eotetranychus sexmaculatus) expected to appear on new inside foliage in scattered groves. GLOVER SCALE (Lepidosaphes gloverii) infested 75 (norm 78) percent of groves; economic in 2 (norm 13) percent. Population below normal and in moderate range. Slight increase expected. Highest districts west and south. PURPLE SCALE (L. beckii) infested 67 (norm 73) percent of groves; economic in 2 (norm 7) percent. Population below normal and low; slight increase expected. Highest district north. CHAFF SCALE (Parlatoria pergandii) infested 47 (norm 57) percent of groves; none economic (norm 6 percent). This scale will remain at low level in all districts. YELLOW SCALE (Aonidiella citrina) infested 29 (norm 58) percent of groves; economic in 1 (norm 10) percent. Population will remain below normal and low. Slight increase probable. Highest district east. BLACK SCALE (Saissetia oleae) infested 49 (norm 31) percent of groves; economic in 23 (norm 12) percent. Population higher than in any February in 21 years of record. Currently at moderate level but expected to drop to low level. Highest districts east and central and lowest south. An ARMORED SCALE (Unaspis citri) infested 30 percent of groves and 21 percent economic. Population higher than in any prior month. Slight increase expected. Whitefly larvae more abundant than usual for February. Adults will become numerous early in March. APHIDS expected to increase rapidly early in March. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Heaviest count 22.14 per leaf on February 15. Buildup occurring faster than expected. Eutetranychus banksi (Texas citrus mite) appearing in lemon groves in Yuma County. (Ariz. Coop. Sur.).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 2 cases reported in U.S. February 20-26, as follows: TEXAS - Duval and Zapata. Total of 86 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 40, Coahuila 7, Nuevo Leon 8, Tamaulipas 31. Total of 77 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 screwworm flies released: Texas 5,618,000; Mexico 94,376,000. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Larvae averaged 5 per animal on backs of dairy cows in Fayette County. Larvae averaged 25 per animal on untreated yearling steers and 20 per animal on untreated beef cattle. (Knapp et al.). OKLAHOMA - First adults of season reported annoying cattle in Payne County. (Okla. Coop. Sur.).

SHORTNOSED CATTLE LOUSE (Haematopinus eurysternus) - OKLAHOMA - Averaged 11 per hair part on steers in Payne and Noble Counties. Moderate to heavy in Woodward County and moderate in Seminole County. (Okla. Coop. Sur.).

## HOUSEHOLDS AND STRUCTURES

CARPENTER ANT (Camponotus caryae discolor) - TEXAS - This species and C. pennsylvanicus caused numerous infestations in Limestone and Brazos Counties. (Green, Brown).

## STORED PRODUCTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - KENTUCKY - Adults averaged 73 per bushel of stored wheat in Washington County. (Barnett).

SOUTHERN FIRE ANT (Solenopsis xyloni) - OKLAHOMA - Adults infesting bulk grain storage areas in feed and milling establishment at Calxico, Imperial County. (Okla. Coop. Sur.).

## BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Adults in aphid infested wheat in Payne County. (Okla. Coop. Sur.).

---

## HAWAII INSECT REPORT

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) larvae 3 per square yard, caused light spotty damage to Kikuyu grass at Haiku, Maui. Field collected larvae revealed 8 percent parasitism by Casinarina infesta (an ichneumon) and Eucelatoria armigera (a tachina fly). Light trap collections on Oahu show relatively static adult populations during past months (January 140, December 133, November 211, October 115). (Miyahira).

General Vegetables - A MEMBRACID BUG (Antianthe expansa) heavy and widespread in backyard plantings of solanaceous crops at Ewa, Oahu. No infestations in commercial plantings of sweet peppers and tomatoes. CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate on 50 percent of leaves (mostly older) in 0.25 acre of mature snap beans; light in young adjacent planting of the same crop at Waianae, Oahu. All stages of LEAFMINER FLIES (Liriomyza spp.) light in both fields. (Kawamura).

Forest and Shade Trees - GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) heavy on 20 Pinus spp. trees at Kula, Maui; severe on older needles. (Miyahira). A BARK BEETLE (Xylosandrus compactus) moderate in several acres of Eucalyptus sideroxylon and E. pilularis trees at Waimanalo, Oahu; about 25 percent of trees infested by adults and brood galleries. Many trees show varying degrees of dieback. (Kashiwai).

Miscellaneous Insects - A MEALYBUG (Geococcus coffeae) specimens found infesting undetermined tree roots in caves at Kokoa, Kauai and Hana, Maui for new island records. G. coffeae was previously reported only from the islands of Oahu and Hawaii. (Howarth).

---

## DETECTION

New Island Record - A MEALYBUG (Geococcus coffeae) HAWAII - Kauai, Maui (p. 80).

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Highlights:

Armyworm treatment was ineffective in Nebraska. CORN EARWORM was heavy in Idaho, Kansas, Oklahoma, Mississippi, and Alabama. Control was needed on a million acres of sorghum in Kansas for GREENBUG. POTATO LEAFHOPPER damaged peanuts and alfalfa in Virginia. Heavy numbers of SPOTTED ALFALFA APHID and dry weather destroyed alfalfa in Oklahoma.

---

ARMY CUTWORM (*Euxoa auxiliaris*) heavily damaged some winter wheat in MONTANA. Damage was less in the 10,000 to 15,000 acres north and south of Joliet. Damage was heavy on smaller acreage of alfalfa in Cascade and Broadwater Counties. Controls were applied to 20,000 acres of grain in Chouteau County, 3,000 in Hill County, and 3,000 in Liberty County. Sweet Grass and Stillwater Counties had 4,000 acres infested. in COLORADO, larvae fed on winter wheat in Weld and Larimer Counties, late March. By mid-April, larvae could be found in wheat throughout most of northeastern Colorado. Most populations were noneconomic and few controls were applied. Larvae caused scattered damage to fields of sugar beets in Pembina County, NORTH DAKOTA, from May through June. Controls were necessary. Larvae in MINNESOTA damaged scattered fields of flax and sunflowers in mid-June in Stevens and Grant Counties. One isolated report was received from Becker County. Counts of 10-18 larvae per square foot were found in some fields; some fields were destroyed or seriously damaged. Damaged fields were in the diverted acres program in 1970 and were apparently weedy in 1971. Some controls or replanting was necessary.

ARMYWORM (*Pseudaletia unipuncta*) infestations were light in NORTH DAKOTA this season. Light traps did not indicate any problem areas. One hailed-out field of oats was damaged in Ward County. Moth flights in NEBRASKA were noted from May 10 to September 30 at Concord, Dixon County, with a peak on July 8 and September 9. First-generation larvae on June 15 ranged up to 5 per square foot in Lancaster County wheat, but little damage was noted. A relatively high first-generation moth flight in central Nebraska led to scattered heavy infestations on corn, particularly grassy and weedy fields. Damage was noted to corn in York, Seward, Platte, Phelps, Gosper, Hall, and Polk Counties. In Seward County on August 5, larvae ranged 1-2 per ear on about 20 percent of the corn ears. Most fields examined did not suffer significant economic losses. Controls were almost universally ineffective. Some locally heavy damage occurred to millet and brome-wheatgrass pastures in Cheyenne, Kimball, and Banner Counties in the panhandle, where up to 7 larvae per square foot were reported in late August. Armyworm was a minor problem in KANSAS during 1971. Up to 35 larvae per square foot were found in brome and fescue grasses in Riley County about mid-May, and up to 8 per square foot were found in localized areas on wheat in Riley and Pottawatomie Counties.

Armyworm adults were trapped in MISSOURI during the first week of April in Pemiscot and Platte Counties. Light larval counts (0-7 per square foot) were observed in the southern area in early May.

Counts remained light in the southeastern area, but in the southwestern area counts increased to 14-26 larvae per square foot. Controls were applied to some wheat and barley in the southwestern area. Armyworms caused no damage to wheat and barley in the northwestern area because of a high incidence of parasites and disease. Populations were light in orchard grass and fescue in the southwestern area in early May and increased to 5-28 larvae per square foot by late May. A few fields were treated, but generally the population in Missouri was light.

Some armyworm counts in ARKANSAS were up to 10 per square foot in wheat. Not more than 5 percent of the total crop was treated. It was also troublesome in orchard grass and fescue in some areas. Larvae in ALABAMA infested several hundred acres of wheat in Monroe County; controls were needed. Damage first occurred on May 5.

Armyworm in KENTUCKY was first reported from Ballard and Caldwell Counties on May 25. Damage was heaviest in Ballard, Caldwell, Rockcastle, Larue, Pulaski, and Hopkins Counties. Damage was lighter than in the previous 2 years, except in isolated fields. Controls were applied at several locations in Pulaski County. Armyworm was usually noneconomic on wheat, although an occasional field in south-central ILLINOIS had sufficient numbers to warrant treatment. Approximately 38,000 acres of wheat treated in 1971. Larvae in INDIANA were economic in one southwestern area field in July. The first moth emergence in OHIO occurred on April 11, 12 days earlier than in 1970 and 21 days earlier than in 1969. Moth numbers during May 14 to 20 were nearly 3 times higher than during a similar period in 1970 and nearly 5 times higher than in 1969. Larvae in Wayne County destroyed 200 acres of no-till field corn. In MICHIGAN the first adult collection of the season was at the Livingston County blacklight station on May 8. Cool night temperatures reduced activity. The weekly total for the Lenawee County station ending May 10 was 24 moths. Adult blacklight counts were heavier at the Allegan and Ottawa County stations with totals for 3 nights near 100. Armyworm problems were at an all-time low throughout Michigan.

Armyworm from first to third instar larvae was abundant in Montgomery, Pulaski, Lee, Rockingham, and Lancaster Counties on no-till corn June 3 in VIRGINIA. Of the corn surveyed, 70 percent showed damage with a few fields in Lee County completely destroyed. By June 18 the following counties were infested: Washington, Smyth, Shenandoah, Franklin, and Caroline. In general, the infestation appeared to be more spotty than in 1970. Adults peaked between June 6 and 30, with a total of 702 adults taken in this interval in the blacklight trap at Blacksburg, Montgomery County. Infestations in MARYLAND were above normal on small grain in Dorchester, Queen Annes, and Talbot Counties with about 3,000 acres requiring controls. Infestations outside these counties were light to moderate. During the first week in June, infestations in Washington, Frederick, Montgomery, Carroll, and Harford Counties reached economic levels; controls were applied to about 6,000 acres of corn. No-till corn planted after rye showed the greatest damage. Second and third instars were common during the first two weeks in June. Damage levels dropped below economic thresholds by June 25. Corn growers in the central counties can expect moderate to heavy spring infestations to occur again in no-till corn planted after rye.

First armyworm adults in DELAWARE were present in light trap collections on April 25. Injury to corn occurred in late May and early June but was generally light in most areas. In NEW HAMPSHIRE, adult collections peaked in late July and October.

ASTER LEAFHOPPER (Macrosteles fascifrons) was detected in late July and early August in COLORADO. Populations were as high as 15 per sweep, and some controls were applied. Lettuce was damaged in Pueblo and Otero Counties, with aster yellows at 15 percent. Infestations in NORTH DAKOTA were widespread by the end of May in Richland, Ransom, and Sargent Counties. Populations ranged up to 80 per 100 sweeps in barley and wheat and up to 160 per 100 sweeps in rye. Populations in Barnes, La Moure, and Dickey Counties ranged up to 70 per 100 sweeps by June 4.

BEEF LEAFHOPPER (Circulifer tenellus) adults averaged 0.11 per square foot in mid-April on overwintering host plants in eastern Malheur County, OREGON. Adult surveys in March and April in IDAHO indicated heavier than normal populations in the rangeland areas of Canyon County southeast to Twin Falls County. The density of host plants was below normal. Surveys in late April and May indicated that intermittent cold, wet weather had materially reduced the spring brood of leafhoppers. Curly top injury in UTAH was lighter than normal--15 percent loss of tomato plants in Washington County and less than 2 percent loss in northern and central areas. Beet leafhopper appeared in COLORADO sugar beets the week of June 12-18. Counts remained light with very little incidence of leafhopper damage or curly top disease.

CORN EARWORM (Heliothis zea) was a problem in the corn seed producing area of Canyon County and the remainder of southwestern IDAHO. Larvae damaged 5 percent of the tassels in 5 Canyon County seed fields by mid-July. Damage was about 5-10 percent in mid-September, while at harvest in late September almost 100 percent of the ears were damaged. Control was excellent in 5-10 percent of the treated acreage. Larvae in ARIZONA ranged 70-280 per 100 sweeps of alfalfa in Gila and Yuma Valleys from mid-March through April. Larvae in field corn ranged 1-3 per ear in Cochise, Maricopa, Yavapai, and Yuma Counties from mid-July to the end of the season.

Corn earworm moths were first trapped at black lights in late May in western KANSAS and in eastern areas in early June. A heavy flight occurred in Barton County in early July and in eastern Kansas by mid-July. Another heavy flight in Barton County peaked about late August and peaked in Brown County in early September. A final heavy flight occurred in Barton County in late September and early October, but no similar flight followed in eastern Kansas. Results of a statewide fall corn earworm loss survey in field corn showed that the average percent of ears infested ranged from 24 percent in the northeast crop district to 94 percent in the south-central district. About 76,000 acres of corn and 1,600 acres of sorghum were treated in Kansas during 1971. Infestations were found the last week of May in OKLAHOMA. On corn, heavy infestations occurred in many areas in late June and early July. On sorghum heads, scattered moderate to heavy infestations were reported from late July to early October. Infestations on alfalfa and peanuts were generally not heavy. Surveys in ARKANSAS have shown that corn earworm does not damage sorghum as much as formerly thought due in part to the use of wide-open heads of sorghum. Only 12,890 acres were treated for this pest and

losses amounted to 0.7 percent of the total crop. Limited first collections of corn earworm were made in MICHIGAN at the Monroe station on August 21 and 22. Adult collections at all blacklight stations did not increase until the week of September 3-10. On September 17 the population throughout Michigan was considered much lighter than normal. At no time did nightly blacklight collections exceed 10 adults; the average for mid-September would be closer to 45-50. Two shipments of late-harvested sweet cherry peppers in Monroe County were infested with corn earworms. In INDIANA, damage to corn grown for grain was negligible compared with damage in 1970. The corn insect damage survey showed an average infestation of 1.975 percent and a percent loss figure of 0.119. One factor in the decreased importance was early planting. Moths peaked during August 23-29 in the southwest and central districts, and September 6-12 in the northwest, and south-central.

Larvae first appeared in KENTUCKY in late July and peaked in late August. The heaviest damage was to late-planted corn. Corn earworm infested about 80 percent of the corn ears in fields throughout MISSISSIPPI, but larvae were not a problem on sorghum.

Corn earworm larvae in ALABAMA were widespread and damaging to pretassel corn and sorghum and to corn in the milk and dough stages. First-generation larvae appeared in March and April on crimson clover, vetch, and other winter legumes. Corn and grain sorghum supported generations which produced later generations on peanuts, soybeans, cotton, tomatoes, and other crops. Larvae of corn earworm and *Celama* spp. were heavy in southern and central Alabama in grain sorghum and required intensive control efforts. In FLORIDA damaged 51 percent of the early planted, unsprayed sweet corn at Belle Glade, Palm Beach County. In the fall, larvae appeared too late to establish a significant population.

A survey of several soybean fields in SOUTH CAROLINA on August 17 revealed eggs on growing tips and up to one larva for every 3 feet of row. By late August, populations were increasing in most counties, especially in the middle and lower part of the State. Populations became economic in many areas. Heavy infestations continued where controls had not been applied throughout September. In NORTH CAROLINA, soybean pod damage was light; however, scattered fields throughout the Coastal Plain received heavy damage. Damage was concentrated in some northeastern counties. Most damaged fields were of the late maturing upright varieties. Eggs and early instar larvae appeared in soybeans in Columbus and Johnston Counties about August 9. *Spicaria* fungus limited the larval population during the growing season. Wet weather and bushy soybean varieties seem to favor this disease.

The first corn earworm injury in VIRGINIA to corn was reported on June 28 from Lancaster, Fluvanna, and Carroll Counties where 30 percent of the whorls were infested. In Westmoreland, Richmond, and King and Queen Counties, ear damage appeared as early as July 22, but severe infestations were not detected until the following week. Surveys of 1,300 ears of dent corn showed a 29-percent infestation in Virginia during late July and early August. The Tidewater region south of the Rappahannock River and east of the City of Richmond averaged 46.5 percent of the ears infested while corn in the mountain areas averaged only 12.2 percent. On peanuts, larvae were less than 4 per 25 sweeps on August 26 in Greenville, Sussex, Southampton, Isle of Wight, and Nansemond Counties. Populations increased in early September but were far

below 1970's populations. The weather in this region was wetter than in 1970 and may have been responsible for low egg production and/or higher mortality of young larvae. On soybeans, damage in the Tidewater region was heavier than in 1970, but infestations were spotty until late in the season. Larvae were present in subeconomic numbers in Nansemond, Sussex, Southampton, Isle of Wight, and Prince George Counties as early as August 21. This corresponded with peak catches of adults in the blacklight trap at Holland, Nansemond County. Larvae remained light in these and other Virginia counties until the third week in September when surveys revealed that 10-20 percent of the fields east of the City of Richmond and north of the James River were infested. Those fields most susceptible to infestation were those planted after July 1. Populations on the Eastern Shore developed slowly but increased rapidly in the fall and were more numerous than in 1970 but lighter than in 1969. About half of the soybeans on the Eastern Shore needed controls.

Corn earworm infestations were light to moderate in MARYLAND on corn, snap beans, and soybeans. On corn, infestations in mid-July ranged 1-4 percent in Talbot, Caroline, Wicomico, and Dorchester Counties. Damage levels stabilized and ranged 10 to 40 percent from July 30 through August 27. About 7-10 days later in Frederick, Harford, Montgomery, and Prince Georges Counties, populations peaked and damage ranged 5-30 percent. Controls were applied to 20,000 acres of processing corn. During late August and September, egg laying activities shifted from corn to snap beans and soybeans. About 6,000 acres of snap and lima beans in Caroline, Dorchester, Wicomico, and Somerset Counties received controls on a 3 to 4-day spray schedule. Damaged soybean pods rarely exceeded 5 percent during August and September. In DELAWARE the first adults were noted in blacklight traps on May 31 in Sussex County. By early July, last instar larvae were common, with counts of 1-2 per ear in early planted sweet corn. First-generation adults were present in blacklight trap collections by mid-July. Peak flights were light, averaging 30 per night in late August and mid-September.

CORN LEAF APHID (Rhopalosiphum maidis) and ENGLISH GRAIN APHID (Macrosiphum avenae) in NEVADA were heavy on small grains in Pershing County in late June and early July; about 2,000 acres received chemical treatments. In other areas these species were held at noneconomic levels primarily by lady beetles. Corn leaf aphid damaged barley in some UTAH fields in Millard, Washington, Cache, Sanpete, and Salt Lake Counties.

Corn leaf aphid in TEXAS ranged light to heavy on grain sorghum in Matagorda, Jackson, and Wharton Counties during late April. Populations increased throughout central and south-central Texas during April and early June, and throughout most of the South Plains and the panhandle during late June. Beneficial insects increased throughout the High Plains during late July. Infestations were present in sorghum from mid-May to late August in OKLAHOMA. Counts were heavy in several northeastern and panhandle counties between mid-June and mid-July and in the southwestern area the last half of August.

Corn leaf aphid infestations were moderate to heavy on sorghum throughout most of KANSAS during July. Corn leaf aphid was first found infesting whorls of seedling plants in southeast district during mid-May. In early July some heavy infestations appeared on sorghum in the northeast and east-central districts. In some fields reddening and some necrosis were seen in the terminal

leaves. Later, populations declined and sorghum almost completely recovered and showed little evidence of previous injury. About 60,000 acres of sorghum were treated in Kansas during 1971 compared with about 4,000 acres in 1970. On field corn, no serious infestations were seen; about 42,000 acres were treated in 1971. In NEBRASKA, corn leaf aphid caused no serious problems to corn or grain sorghum. Statewide populations generally were below those of 1970.

Corn leaf aphid populations on corn in ILLINOIS were light in 1971 as in the previous two years. About 28,100 acres of corn were treated. Mid-July populations in the whorls indicated a potentially serious problem, but before populations could build to damaging proportions, 80 percent of the corn was beyond the critical late-whorl and early tassel stage. In INDIANA 31 percent of the corn examined was infested compared with 20 percent in 1970.

Corn leaf aphid populations were lighter than in 1970 throughout ALABAMA, especially in the central and northern areas. Populations remained below economic thresholds throughout MARYLAND. Two wingless nymphs per plant were first observed on July 9 in Oxford County, MAINE. Almost all infestations were light statewide.

GREENBUG (Schizaphis graminum) populations were moderate in south-central WASHINGTON, mainly in Benton and Franklin Counties, on young wheat and barley during late 1970 and early 1971. Many fields were severely damaged. Populations were light throughout OREGON on wheat. Populations in NEVADA were light on small grains in Clark and Nye Counties, being held in check by predators.

Greenbug populations on grain sorghum in NEW MEXICO were lighter than in 1970. Controls were applied in the eastern and southern areas. Appearing in COLORADO on Mesa County sorghum during June 12-18, greenbug was found in many eastern and western areas by June 26, and was found in all sorghum areas by mid-July. By July 24, heavy populations in the northeastern and southeastern areas required controls. Late sorghum was heavily damaged before controls were applied. Sorghum loss was estimated at 2-3 percent.

The first migrant greenbugs in NEBRASKA were caught at the Lincoln, Lancaster County, suction trap on April 20. Populations remained light on wheat through harvest. On grain sorghum, infestations on seedlings had begun to increase by mid-June. In July, numbers suddenly began to increase. By July 16, aphids ranged up to 2,000 per lower leaf in the southeastern area. Parasitism by Lysiphlebus testaceipes (a braconid) was highly variable with up to 30 percent in some fields and almost zero in others. Predators, mainly lady beetles, particularly Hippodamia convergens (convergent lady beetle), were very abundant in heavily infested fields and appeared to be the primary natural control in some fields. By July 30, greenbugs ranged 500-5,000 per plant in the east district and were destroying forage sorghums in the northeast district. By August 5, greenbugs had begun to decline in the southeast, east, and south districts. By August 10, parasites and predators had nearly eliminated greenbugs in most areas. In November, greenbugs ranged 500-600 per row foot on winter wheat in Hamilton County. Scattered fields suffered 2-20 percent loss of stand.

Greenbug was a major problem in KANSAS in 1971. About 1,000,000 acres of sorghum were treated. During early July an outbreak



occurred in the northeast and east-central districts; predators and parasites were light. As high as 2,000 per plant were found in Jackson County and 1,500-1,600 in Shawnee and Douglas Counties. By mid-July, parasitic wasps, lady beetles in some fields, were controlling the greenbug in the east-central, northeast, and north-central districts. By late July, late-planted sorghum following wheat was often heavily infested in the northeast and east-central districts. Some fields were reinfested with winged greenbugs soon after treatment. Some seedling sorghum was destroyed in these districts. In early August, economic infestations were found only in the southwest district and the parasitic wasps were beginning to bring greenbug under control in the west-central district. Greenbug populations continued to decrease in eastern Kansas due primarily to the parasitic wasps. By mid-August, heavy parasitism by wasps was found in the northwest and southwest districts.

Scattered moderate to heavy infestations of greenbug were present on wheat in southwestern and west-central OKLAHOMA during January. By mid-January a few fields were sprayed. By early March, many fields were treated in these areas. Parasite activity began in mid-March. Heavy greenbug numbers and extremely dry weather destroyed many fields. During late March and early April, scattered heavy infestations occurred in a few south-central and central counties and in the southern edge of the northwestern area. By mid-April, populations declined in most areas due to heavy parasitism, plant death, or plant maturity. On sorghum, greenbugs appeared by mid-May, but did not become heavy until early July. During July, scattered heavy infestations occurred in the panhandle, north-central, and northeastern areas; some fields were treated. By the end of August, greenbug decreased to light populations in all areas. Infestations on wheat did not become common until late October.

Greenbug began to damage small grains in the Rolling Plains area of TEXAS during January. Damage was severe in this area due to the general drought conditions through early April. Controls were applied. In the South Plains and High Plains areas, the heaviest infestations were reported from Swisher, Briscoe, and Hall Counties in late March. Moderate to heavy infestations were noted on wheat near Denton beginning in late January and continuing through early March. During mid-April populations began to decrease statewide due to increasing populations of beneficial insects. During September and October greenbug populations were light on wheat in the panhandle. Some damage to small grains occurred in Cottle, Motley, and Dickens Counties in the Rolling Plains. On grain sorghum light infestations were first detected in south-central areas during mid-May. During June, populations increased in north-central Texas but declined in July due to pressure from beneficial insects. During late July populations began to build up in most panhandle counties. Controls were applied by many growers in the area. During August, greenbugs declined due to the activity of beneficial insects.

In ARKANSAS no acreage was treated for greenbug in 1971. Populations were light on sorghum in southwestern MISSOURI in early May. From mid to late July, moderate to heavy populations were reported on sorghum through the western area. The heaviest counts ranged 200-3,000+ per plant. Some chemical controls were applied in the west-central and northwestern areas. In IOWA greenbug infested grain and forage sorghum in July and August. Greenbug was first reported as serious on grain sorghum in Ringgold County on July 6. A total of 52,100 acres was treated by air and by

ground. On forage sorghum, 10,125 acres planted after July 1 were killed by greenbug and 1,700 acres were sprayed. A total of 42 counties was reported as new records in 1971.

POTATO LEAFHOPPER (Empoasca fabae) damage to alfalfa was light to moderate in MARYLAND. First infestations were noted July 9; counts ranged 4-30 per sweep in Frederick, Baltimore, and Howard Counties. By July 15 the heaviest counts ranged 30-100 per sweep. In Queen Annes, Talbot, Dorchester, and Caroline Counties, populations ranged 5-25 per sweep the week ending July 23. Counts in the central areas ranged 60-250 per sweep in the most heavily infested fields during August. About 20 percent of the alfalfa required treatment during late July and August. Potato leafhopper failed to reach economic levels on commercial limas and snap beans mainly due to the timely application of insecticides. Populations appeared in VIRGINIA in mid-June and heavily damaged peanut foliage. Heavily damaged fields may have experienced a loss of 200-300 pounds of peanuts per acre. On alfalfa, nymphs and adults were the heaviest in several years; economic damage occurred throughout most of the alfalfa areas. The heaviest infestation was detected in an Augusta County field where about 75 nymphs and adults per sweep were reported on July 15. Infestations were also reported from Montgomery, Rockbridge, Roanoke, and Charlotte Counties.

SPOTTED ALFALFA APHID (Therioaphis maculata) appeared in COLORADO the week of June 12-28 in Weld County. It was noted in late July in Pueblo, Otero, and Crowley Counties. Populations were non-economic and damage to alfalfa was negligible. In NEW MEXICO spotted alfalfa aphid and PEA APHID (Acyrtosiphon pisum) caused serious damage to untreated alfalfa during spring. Scattered, heavy spotted alfalfa aphid infestations were reported in southwestern OKLAHOMA in January and February. By mid-March, populations had increased until heavy infestations were widespread. From mid-April to early May, infestations of 10,000-30,000 per square foot were reported in the southwestern counties. Populations were heavy in some west-central, central, and south-central counties. Aphids and extremely dry weather destroyed many alfalfa fields in the southwestern and west-central areas. Predators increased rapidly, and this aphid declined in all areas by mid-May. Populations were scattered and moderate during summer and generally light during fall and winter. Found in Dakota County for the first time in 1971, this aphid had not been recorded for over 10 years in MINNESOTA.

TOBACCO BUDWORM (Heliothis virescens) and CORN EARWORM (H. zea) were the most serious tobacco pests in ALABAMA. Control efforts were satisfactory. In VIRGINIA tobacco budworm larvae were light, but less than 10 percent of the growers reported economic damage. Those tobacco growers who planted early reported the most damage.

TOBACCO HORNWORM (Manduca sexta) populations increased over the past 2 years in FLORIDA. Tobacco hornworm and TOMATO HORNWORM (M. quinquemaculata) were observed in all fields surveyed in TENNESSEE with light damage reported by July. Most controls were effective. By September 1, parasitism was apparent in middle and eastern areas, and very little unharvested tobacco was damaged. Manduca spp. in MARYLAND were slightly less than last year's light to moderate levels. Larvae averaged less than 1 per 50 plants in the southern area throughout the season. Second-generation larvae in July and August were parasitized 5-20 percent by Apanteles congregatus (a braconid).

## CORN, SORGHUM, SUGARCANE

### Highlights:

EUROPEAN CORN BORER increased in several corn-producing States; however, decreases were recorded from Minnesota, Ohio, and Maryland. FALL ARMYWORM was heavy on sorghum in Texas, Oklahoma, and Illinois. BLACK CUTWORM was economic on corn in Iowa and Illinois. CORN ROOTWORMS damaged corn in Colorado, Utah, Nebraska, Missouri, and Illinois. Minnesota expects some problems with this pest in 1972 in some districts. SPIDER MITES were serious on sorghum and corn in Kansas, corn in Colorado, and sorghum in Texas. SORGHUM MIDGE was serious in some States on sorghum.

---

EUROPEAN CORN BORER (*Ostrinia nubilalis*) winter survival in NORTH DAKOTA increased from 69 percent in 1970 to 79 percent in 1971. The fall survey showed an increase in borer populations in all 5 major corn producing counties. Infestations averaged 130 borers per 100 plants compared with 57 per 100 plants during 1970. Second-generation larvae did not contribute to the higher infestation in 1971.

Record high populations of European corn borer in the fall of 1970 in NEBRASKA resulted in heavy flights of gravid moths in June 1971. The first moths were trapped at blacklight traps at Fairbury, Jefferson County, on June 6, at Mead, Saunders County, on June 1 and at Concord, Dixon County, on May 30. Flights peaked on June 17 at Concord and Aurora, Hamilton County. First-generation infestations were generally lighter in the south and central districts. First-generation moth flights began about July 22 and peaked about August 12. No evidence of a second-generation of moths was detected this year. Average fall borer infestations increased slightly over levels of 1970 in the 5 districts surveyed. Borer numbers nearly doubled in the central and south districts where a few individual fields had as many as 19 borers per plant. Heavy overwintering populations in the south, central, and east districts could indicate another heavy first brood in 1972.

A fall survey for European corn borer showed about the same percentage of infested stalks in 1971 as in 1970 in KANSAS in the east-central, and north-central districts. The number of borers decreased going into the winter in 1971 in the northeast and north-central districts and increased in the east-central districts. Catches of overwintered moths peaked at blacklight traps in Brown County during late May and early June and about mid-June in Republic County. About 54,000 acres of corn were treated during 1971, about twice the acreage treated in 1970. Nearly all treating was confined to the north-central, east-central, and northeast districts.

MINNESOTA had the heaviest overwintering European corn borer population in 10 years in 1970. A larval survival of 75 percent did not reduce the potential of heavy populations in 1971. Moth emergence and egg laying started about June 10. Surveys at the end of June indicated serious, heavy infestations developing in southern counties. Damaging numbers could also be found in the west-central, central, and east-central districts. Early planted cornfields, where corn was tallest at egg laying time, had the heaviest first-generation populations. Most of the controls

applied were effective. Eggs of the second-generation were laid from the last week of July into September. Populations were heavy, but not so heavy as 1970's second generation. The heaviest shank feeding occurred in the southwest and south-central districts, averaging 40 percent and 45 percent respectively. Overwintering populations for 1971 are lighter than 1970's record number. The potential for heavy populations continues for 1972 in Minnesota.

The first European corn borer adults in MICHIGAN were collected at the Lenawee blacklight station on June 1. Field checks indicated that winter survival was high. Egg masses were found as far north as Montcalm County about June 14. Moth emergence peaked on June 15 in Lenawee County with a smaller peak June 19-20. By this date, some larvae were found on corn, snap beans, and potatoes. First-generation moth emergence started early, on July 16, due to an unusual period of hot and humid weather. On July 30 a peak of 249 was sampled at the Lenawee station. This generation was exceptionally heavy and late summer collections numbered 100+ weekly during August and into mid-September.

European corn borer averaged 321 per 100 plants in the fall survey compared with 241 in 1970 in IOWA. About 525,130 acres were treated for first-generation borers and 313,360 acres were treated for the second. The first pupa of the season was found in Boone County April 28, the earliest in 22 years. At Ankeny, Polk County, first-generation moth flight began June 3; the second-generation began July 18 and peaked August 9. There was a small flight of third-generation brood moths beginning September 6. Control cost \$3,353,960. Loss due to dropped ears in Iowa was 80,500,000 bushels. Infested plants statewide increased from 65.93 percent in 1970 to 70.16 percent in 1971. Number of borers per 100 plants statewide increased from 119.50 in 1970 to 133.04 in 1971.

European corn borer survival in ILLINOIS was 67.3 percent compared with 91.1 percent in 1970 and with a normal 10-year average of 80-85 percent. This below-normal average was attributed to extended periods of cold weather with very little snow cover. The west district had the highest survival rate with 92.6 percent and the southwest and southeast had a survival rate of 62.9 percent. There was no concentrated damage to corn by first-generation borers. Second-generation populations statewide averaged 130 borers per 100 stalks, almost 50 percent higher than in 1970 and 30 percent higher than a 10-year average of 101 borers per 100 stalks. The heaviest areas of infestation in Illinois were the southern one-third and the northwestern corner, and the lightest areas were the northeastern corner and the east-central area. About 95,500 acres were treated.

European corn borer adults in INDIANA were observed in unpicked fields in Porter County June 1. The first blacklight trap catches were taken in the west-central and central districts during June 7-13. Peak flight activity occurred August 2-8 statewide, except for a second peak August 23-29 in the southwest district. Overwintering larvae averaged 99.94 per 100 stalks, more than twice that of 1970. A heavy first-generation population is expected for 1972.

European corn borer adults in OHIO emerged June 1 with a peak the last week of June, about 2 weeks later than in 1970. The number of moths caught in blacklight traps June 11-17 was 50 percent lower than in 1970. Larval damage was first reported from Adams County

on June 23. Seventy-five percent or more of no-till corn showed feeding damage in Harrison County on July 15. First-generation moths were first caught in blacklight traps on July 23. In September, infestations ranged 13-34 percent. The State average was 73.2 borers per 100 plants, the lowest in 4 years.

Second-generation larvae in NEW HAMPSHIRE reached the overwintering stage, due to the longer growing period in the fall of 1971. Normally this generation does not overwinter successfully in New Hampshire. The infestation level in untreated sweet corn was 100 percent.

European corn borer moths first appeared in PENNSYLVANIA in the Hershey, Dauphin County area, on June 7 when the plants were about 6-inches tall. Larvae heavily infested corn in Centre County by October 3.

European corn borer pupation began about April 14 and by May 7 averaged 48 percent in Sussex County, DELAWARE. Adults averaged 10 per night in trap collections by May 24 and the first egg masses were noted on weeds. Adults peaked about June 11 at 20 per night in light trap collections. First-generation moth flights peaked at 150 per night the last of July. Second-generation moths peaked at 135 per night about August 23. The State average was 358 borers per 100 plants, an increase from 283 per 100 plants in 1970.

Infestation levels of European corn borer remained moderate to heavy in MARYLAND. Pupation peaked May 14-22 on the Eastern Shore. The first adult flights and egg laying began May 28 and June 4 in Kent, Queen Annes, Dorchester, and Talbot Counties. First and second instar larvae were active statewide during the week ending June 11. Damage levels ranged 10-40 percent June 25 in 10 percent of the acreage in Wicomico, Somerset, Dorchester, and Caroline Counties. Damage during the same period ranged 1-5 percent in Frederick, Baltimore, Harford, and Montgomery Counties. The heaviest damage ranged 80-100 percent in several fields throughout the State by July 9. First-generation pupation peaked July 19-26 on the Eastern Shore and July 26 to August 2 in central Maryland. Infestations stabilized during August with damage ranging 20-100 percent. Overwintering fall populations were the lowest in the past 4 years.

European corn borer adults began to appear in VIRGINIA on June 28 in Accomack County. Infestations of 5-20 percent were observed in Prince Edward, Prince George, Southampton, Greensville, Brunswick, Mecklenburg, Pittsylvania, and Henry Counties on July 7. In Carroll and Orange Counties 60 percent of the stalks in several fields were infested. In some eastern counties infestations were about 50 percent the last week of August. Adult counts at the blacklight trap at Holland, Nansemond County, increased sharply between August 3 and 23.

European corn borer egg masses on corn were first observed on June 6 in KENTUCKY. Hatch peaked on June 18 in the western areas. Larval activity peaked in the first half of July. Fall surveys indicated a moderate infestation of European corn borer in central and north-central Kentucky and a heavy infestation in the south-central area. Borers averaged 28.4 per 100 plants in the central area and 67.2 in the south-central area.

A fall survey in NORTH CAROLINA indicated that every county was infested with European corn borer. The Coastal Plain had the heaviest infestation with 47 percent of the plants infested. European corn borer continues to increase in all counties of SOUTH CAROLINA, with economic infestations observed in several areas. Some infestations of first generation borers began to appear the first week in July. A survey of 25-30 fields on July 29 indicated that as high as 10 percent of the corn crop in the State had damage.

European corn borer populations were found throughout northern ALABAMA, but were lighter than during 1970 in late corn. Clay County was reported as a new county this year. European corn borer and SOUTHWESTERN CORN BORER (Diatraea grandiosella) limited corn production in MISSISSIPPI. Damage was moderate to late-planted corn in Marshall and Oktibbeha Counties.

SOUTHWESTERN CORN BORER (Diatraea grandiosella) in MISSOURI was first caught in a light trap May 29. Pupation of first-brood larvae was observed June 2 and the first emergence noted June 10. In the southeast district the percent of plants infested decreased from 36.05 percent in 1970 to 33.7 percent in 1971, and the percent of plants girdled increased from 5.85 in 1970 to 6.90 in 1971. Corn lodging in central TENNESSEE ranged 1-80 percent in the 12 newly infested counties. Southwestern corn borer was serious on corn in northern ALABAMA.

SUGARCANE BORER (Diatraea saccharalis) was treated on less than 7,000 acres out of 200,000 acres of sugarcane grown in FLORIDA. About 5 percent of the joints were bored, resulting in a sugar loss of about 4 percent.

FALL ARMYWORM (Spodoptera frugiperda) infestations were heavy throughout TEXAS on grain sorghum. Infestations were detected early in July in the Trans-Pecos area, by mid-July, on the gulf coast and throughout the High Plains, and in early August, throughout the Rolling Plains and south-central area. Larvae damaged sorghum from mid-July to early October in OKLAHOMA. Moderate to heavy infestations occurred in most areas, but were more common in western Oklahoma where sorghum was late due to dry weather in the spring and early summer. Fall armyworm was the most troublesome pest on sorghum in southern ILLINOIS. Many late-maturing fields were infested; about 21,500 acres were treated.

Fall armyworm damage was moderate to heavy on corn, milo, and sorghum in north-central, central, south-central, and southwestern areas of INDIANA. Damage was first noted in MARYLAND in Wicomico County July 30. Damage in the central area ranged 8-30 percent in late-planted corn by August 12. Damage to corn ears ranged 2-50 percent with the heavy infestations being spotty throughout Frederick, Howard, Montgomery, and Prince Georges Counties during September. During the same period on the Eastern Shore, infested corn ranged 2-10 percent.

BLACK CUTWORM (Agrotis ipsilon) larvae reduced corn and grain sorghum stands in NEBRASKA 5-100 percent in scattered fields in Richardson, Lancaster, and Dodge Counties. Larvae damaged 86,915 acres of field corn in IOWA. Loss on this acreage was estimated at 25 percent of the stand or a yield loss of 2,172,875 bushels. Controls on this acreage cost \$304,202. A few fields of corn

showed severe damage in ILLINOIS, mostly on bottomland in the western area. About 51,850 acres of corn were replanted and 57,400 acres received emergency control treatments.

SORGHUM WEBWORM (Celama sorghiella) damage in ARKANSAS was less than in 1970 due to earlier planting. Only 15,060 acres were treated and estimated losses amounted to 1.2 percent of the total crop. In MISSISSIPPI this species was the second most important pest of sorghum while SORGHUM MIDGE (Contarinia sorghicola) is number one. Damaging infestations of sorghum webworm appeared in early August in Noxubee and Oktibbeha Counties. Infestations continued in late-planted sorghum throughout October. Larvae damaged grain sorghum throughout southern and central ALABAMA in late August and later. The first larvae were reported in Greene and Sumter Counties August 4.

STALK BORER (Papaipema nebris) larvae in KENTUCKY damaged corn in Todd, Hickman, Christian, Warren, Ballard, and Livingston Counties. Infestations were uniform throughout many no-till fields but were usually only around the periphery in conventionally tilled fields.

WESTERN BEAN CUTWORM (Loxagrotis albicosta) adults were taken in light traps in mid-July in northeastern COLORADO. By July 24, egg masses and some hatched ones were found in many cornfields. Damage was less in 1971 than in 1970. A few fields in the northeastern area required control.

CORN ROOTWORMS (Diabrotica spp.) damaged several hundred acres of field and sweet corn in Cache, Box Elder, and Weber Counties in UTAH. Some of this acreage had 50 percent yield reduction. Larval damage to corn appeared in eastern COLORADO the first week of July. By mid-July, pupation was about 30 percent completed and some adults had emerged. Larval damage was heavy in nonrotated and untreated corn. Larvae and adults cost growers an estimated \$1,520,000, excluding control costs.

Corn rootworm damage was noted on corn by July 9 in Richland County, NORTH DAKOTA. First adults appeared on July 17 in Cass County. Infestations and damage in 7 southeastern counties were not so severe as in 1970. Populations in NEBRASKA remained near the levels of 1970. Eggs hatched June 12-14 in Saunders County. The first pupae were noted July 2, and newly emerged adults were observed July 8. Root damage and lodging were reported from scattered locations in northeast, central, east, and south districts. Adults in central, eastern, and southern Nebraska averaged 1-3 per plant. Silk clipping and reduced pollination were negligible in most cornfields. In KANSAS about 820,000 acres of corn or about 65 percent of the crop was given a soil treatment to control corn rootworms. An additional 100,000 acres was treated for adults.

Corn rootworms first hatched during the week of June 14 in MINNESOTA. Most eggs hatched by June 28. Lodging appeared in early July. First adults were observed July 20 in the southern counties. August surveys showed that populations had declined in all surveyed districts except the east-central. Although numbers were lighter in 1971, damage to corn was still serious in some areas and populations were heavy enough in some districts to cause problems in 1972, especially in the southeast and south-central districts and to a lesser extent in the southwest and east-central districts. In IOWA corn rootworms were more abundant

in corn-following-corn this year than they were in 1970. Of the 3,503,151 acres treated, 3,122,750 acres were treated at planting time. Stalk lodging was 5 percent in 1971 compared with 7.6 percent in 1970. Controls cost \$10,565,000.

The first adult of WESTERN CORN ROOTWORM (Diabrotica virgifera) in MISSOURI was collected on June 24 at Irwin, Barton County. This field had high larval populations that caused severe lodging. On July 10, adults averaged 1,000 per 100 plants and larvae and pupae were still present in the field. Counts were low in surrounding fields. Adult corn rootworms ranged 10-500 per 100 plants in the north-central and northeastern areas. One field in Lincoln County averaged 760 NORTHERN CORN ROOTWORM (D. longicornis) adults per 100 plants. Western corn rootworm adults in the northwestern area averaged 100 per 100 plants in early August.

Corn rootworm larval populations were the heaviest in 4 years in some cornfields in ILLINOIS. Hatch was about 10 days later than in 1970, and newly hatched larvae were not seen until mid-June. Adults were heaviest in Boone and McDonough Counties with averages of 195.0 and 138.0 per 100 plants, respectively. Adults declined slightly in the northwest district (64.1 per 100 plants), were heaviest in the northeast (105.8 per 100 plants), and increased slightly in the west (64.4 per 100 plants), central (55.4 per 100 plants), and east (54.9 per 100 plants) districts. D. virgifera adults were found for the first time in 1971 in De Witt, Macon, Menard, Christian, Morgan, Sangamon, and Shelby Counties. Western corn rootworm is gradually displacing D. longicornis in the northwest, northeast, and west districts. Overall combined populations have declined. Northern corn rootworm adults were in the northeast district. Populations increased over those of 1970 in the northeast, west, central, and east districts and declined slightly in the northwest. About 29,600 acres were treated in Illinois for control of adults.

Western corn rootworm was found for the first time in MICHIGAN. Adults were found in sufficient numbers in Allegan and Cass Counties to indicate that this pest is established. It is probably generally distributed in small numbers in the southwestern area.

SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi) damage in SOUTH CAROLINA was less than in 1970. Economic infestations were reported in Berkeley, Orangeburg, Williamsburg, Sumter, Bamberg, Hampton, and Lexington Counties.

MAIZE BILLBUG (Sphenophorus maidis) and S. callosus continued to show damaging populations in most SOUTH CAROLINA coastal counties. Activity peaked during May and June, with infestations of up to 10 per foot reported in June from Darlington County. Chemical controls were ineffective. In NORTH CAROLINA, Sphenophorus spp. adults damaged seedling corn in the Coastal Plain area during June. The most heavily infested fields have a long history, 10+ years, of corn.

WIREWORMS, primarily SOUTHERN POTATO WIREWORM (Conoderus falli) and Melanotus communis were the most important insect problem on FLORIDA sugarcane. Much of the sugarcane acreage was treated with soil insecticides, including flood-treated fields. Both species were widespread in corn and caused losses up to 15-20 percent of stand in inadequately treated or untreated corn in Palm Beach County. In properly treated corn, about 1-4 percent loss occurred.



**SORGHUM MIDGE** (Contarinia sorghicola) infestations were generally light throughout TEXAS. The heaviest infestations were on late-planted grain sorghum. Heaviest damage occurred during mid-July on late-planted grain sorghum in De Witt, Jackson, Refugio, Brazos, Burleson, Robertson, Collin, and Fannin Counties. During late July, populations increased throughout the Rolling Plains. Populations in the South Plains were generally light. Infestations occurred only in scattered late sorghum fields in the eastern half of OKLAHOMA in August and September.

Sorghum midge infestations were light, 2-4 adults per head, in southeastern MISSOURI in early July. These infestations increased until September counts of 50+ per head were observed in late-planted sorghum. Some of the very late-planted fields were completely destroyed. This species was the major pest of sorghum in ARKANSAS. Damage was reduced by early planting and by treating late-planted fields. Of 300,000 acres of sorghum, only 23,700 acres were treated. Losses amounted to 2.4 percent of the total crop.

Sorghum midge counts of 15+ per head infested late milo and sorghum in western TENNESSEE. This midge and SORGHUM WEBWORM (Celama sorghiella) severely damaged milo and sorghum in many fields. The former caused about 80 percent of this damage in most cases. In ALABAMA the first-generation was light on early grain sorghum. Third and later generations were heavy and caused heavy damage in isolated fields where blooming and high emergence of adults occurred on similar dates. First adults were reported July 7 in Dallas, Perry, and Montgomery Counties. Sorghum midge was abundant from mid-July until November in FLORIDA and caused much grain loss in Gadsden County. Samples during late August showed only 10-percent normal seeds.

**CHINCH BUG** (Blissus leucopterus leucopterus) survey in KANSAS showed overwintering populations to be slightly higher in 1971 than in 1970. Estimates indicated that about 2,000 acres of corn and 14,000 acres of sorghum were treated, and mostly in the central and southeast districts.

**BANKS GRASS MITE** (Oligonychus pratensis) populations on silage corn began increasing in Churchill County, NEVADA, in mid-July. By early August after 80 percent of the 2,300 acres had received chemical treatments, damage was held to a minimum. Banks grass mite could be found in many cornfields in eastern COLORADO by the week of July 30. Unseasonably cool weather and occasional showers following this period kept infestations down in many areas. In late August when heavy populations and damage appeared in the Arkansas Valley, controls were applied in many fields. Populations declined the week of September 17. Losses were estimated at one million dollars, excluding costs of control.

Banks grass mite on grain sorghum in TEXAS began to increase during early July in the Trans-Pecos area and continued to increase during July until cool, wet weather helped to decrease populations. In El Paso County, many fields were damaged, and 75 percent or more of the leaves in some fields were desiccated. No buildup occurred in the panhandle due to the wet, cool weather during late July, August, and September. On corn by July 16, populations were heavy in El Paso County building up in Reeves County, and were heavy and isolated in the Texas Panhandle. Heavy activity and desiccated leaves were noted in August in

El Paso and Hudspeth Counties. Damage to corn in the High Plains was light due to the cool, wet weather. Banks grass mite damaged corn in the panhandle of OKLAHOMA from mid-August to mid-September.

At least 3 spider mites, TWOSPOTTED SPIDER MITE (Tetranychus urticae), Oligonychus pratensis, and CARMINE SPIDER MITE (T. cinnabarinus) infested corn in KANSAS. Spider mites were a much more serious problem this year to sorghum and corn growers in the western area. Spider mites have been serious pests on corn in this area for the past 2 years. Significant infestations in corn occurred 2 weeks earlier than in 1970. Some workers observed that serious infestations developed faster when corn was drought-stressed. T. urticae and O. pratensis damaged several thousand acres of field and sweet corn in UTAH. Controls were applied in Weber, Utah, and Emery Counties. Late summer injury was above normal.

## SMALL GRAINS

### Highlights:

FALL ARMYWORM infestations were heavy in small grains in Texas and Oklahoma. HESSIAN FLY damage was heavy in Kansas, Nebraska, Illinois, Maryland, and Kentucky.

---

Larvae of FALL ARMYWORM (Spodoptera frugiperda) and YELLOWSTRIPED ARMYWORM (S. ornithogalli) damaged fall wheat and oats in Tipton County, TENNESSEE. Larval counts were as high as 12 per square foot. Controls were applied in many cases. In TEXAS, S. frugiperda was on small grains in Wilbarger, Wichita, Dickens, Shackelford, Throckmorton, Young, and Baylor Counties in mid-September. Damage was also reported from scattered areas in north-central and south-central Texas. S. frugiperda infestations were found in all areas of OKLAHOMA on small grains, except in the panhandle, from late September to early November. Larvae ranged up to 20 per linear foot in some areas. Some scattered wheat, oat, and rye fields were destroyed. Populations declined by the end of October in most areas.

HESSIAN FLY (Mayetiola destructor) losses in KANSAS were estimated at about 3,031,000 bushels, 4 times the loss incurred in 1970, or \$3,910,000. Districts incurring the heaviest losses were the central, north-central, south-central, west-central, and southwest. Surveys also showed that resistant wheat varieties had an average of 0.6 percent infested culms but susceptible varieties had an average of 8.1 percent statewide. In NEBRASKA, wheat had an average of 3.01 percent of the wheat culms infested with 3.96 puparia per 100 culms. Heaviest infestations occurred in the south, east, and central districts, which averaged 5.81, 5.16, and 4.94 percent infested, respectively. Losses for Nebraska were estimated at 227,757 bushels.

Hessian fly populations in wheat remained light in ILLINOIS. The infestation statewide was the same as in 1965, 1968, and 1969 when a record low of 2 puparia per 100 tillers was reached. The 10-year State average is 5 puparia per 100 tillers. The east-southeast district had the heaviest population of 6 puparia per 100 tillers. During late October and early November hessian fly damaged wheat in the west-southwest and east-southeast districts.

Many early planted fields in this area, planted before the "fly-free date" in susceptible varieties showed severe damage. Some fields were replanted and some were left standing. The extent of the damage will be seen in 1972. Puparia were found in 64 percent of the 212 wheatfields sampled in 1971 compared with 22 percent in 1970 in INDIANA. Less than 1 percent of the surveyed wheat carried resistance to Race B, the prevailing race in Indiana. Activity in the southern districts extended to mid-November because of the unusually warm weather.

In PENNSYLVANIA a race of hessian fly was suspected of thriving on a resistant variety of wheat in Lancaster County (30 percent infestation) and in Franklin County. Infestation was the heaviest of the past 4 years in MARYLAND. Hessian fly destroyed 70 percent of a 55-acre planting of small grain in Montgomery County. It also heavily damaged wheat planted in mid-September in central KENTUCKY.

WHEAT STEM SAWFLY (Cephus cinctus) increased stem cutting in Hard Red spring wheat from 0.7 percent in 1970 to 0.8 percent in 1971 in NORTH DAKOTA. Cutting was evident in 54 percent of the fields. The heaviest cutting was found in McLean, Sheridan, Pierce, and McHenry Counties.

BROWN WHEAT MITE (Petrobia latens) began increasing in NEVADA on small grains in late March and had developed heavy infestations by mid-April on 2,500 acres in Pershing County and 500 acres in Clark and Lyon Counties. Irrigation and/or heavy rains controlled these infestations except for 400 acres, which were treated chemically in Pershing County. In UTAH brown wheat mite damaged a few fields of dryland wheat at Monticello, San Juan County, and spring grains in Washington County. Brown wheat mite was noted in wheat in northeastern COLORADO during early April. Kept in check by rains, the light populations did not damage wheat. Brown wheat mite infested wheat in southwestern and west-central OKLAHOMA from late February through mid-April. By early April, populations were heavy in the northwestern and panhandle areas and in a few counties in the central and north-central areas. Infestations in the panhandle continued into early May. Very dry weather during winter and spring was an important factor in the increase in numbers.

WINTER GRAIN MITE (Penthaleus major) infestations were first reported as damaging small grains in TEXAS on February 12 in Foard and Hardeman Counties. Damage continued in the Rolling Plains area until early April.

ENGLISH GRAIN APHID (Macrosiphum avenae) populations on July 9 ranged up to 10 per head of wheat in Kootenai County, IDAHO. By July 22 these populations had been reduced to 1 per 10 heads, primarily by Hippodamia convergens (convergent lady beetle). Damaging populations failed to develop in Idaho because of the predators. Wingless adults and immatures in NORTH DAKOTA infested rye in Richland, Ransom, and Sargent Counties by the end of May. Widespread by June 4, infestations by August 6 ranged up to 30 per head in late fields in north-central counties. Infestations did not warrant control and did not cause appreciable damage due to the early harvest in most areas.

BARLEY THRIPS (Limothrips denticornis) adults were in rye in NORTH DAKOTA by the end of May in Richland, Ransom, and Sargent Counties. Economic infestations appeared in a few late-seeded fields of barley in Cavalier County by August 6. Infestations and damage were not widespread.

#### TURF, PASTURES, RANGELAND

##### Highlights:

CHINCH BUG was a serious lawn pest in Rhode Island and Maine.

---

GRASSHOPPER populations threatened to reach damaging numbers in IOWA during May but were sharply reduced by a fungus disease encouraged by wet weather in June. Fall grasshopper populations were generally noneconomic to light. DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis) and REDLEGGED GRASSHOPPER (M. femurrubrum) reached levels of 40-50 per square yard in Washington and surrounding counties in northwestern ARKANSAS. Controls were applied to 1,500 acres of pasture in Washington County in August. In ALABAMA, the most important grasshopper species were M. femurrubrum, M. differentialis, and AMERICAN GRASSHOPPER (Schistocerca americana). The more serious damage was to clover seedlings during the fall in pastures and re-seeding clover-grass sod.

GRASSWORMS, mostly Mocis latipes, caused heavy damage in some pastures in the Belle Glades area of FLORIDA. During late October and early November an undiagnosed disease resulted in 95-percent mortality in some populations. Parasitism by tachina flies was also noted in collected Mocis pupae. In localized southeastern areas grassworms caused moderate to heavy damage on untreated St. Augustine grass and Bahia grass.

A SCARAB (Phyllophaga fimbripes) caused considerable damage to rangelands in Bent County, COLORADO. Larval infestations on 2,000 acres of rangeland resulted in up to 40 percent loss of grass.

BLUEGRASS BILLBUG (Sphenophorus parvulus) larval counts were 4 per 6-inch square of bluegrass July 1 in Pottawattamie County, IOWA. This was reported as a new county record. In eastern NEBRASKA, larval populations of 10 per square foot damaged bluegrass lawns and golf course fairways in July and August.

TWOLINED SPITTLEBUG (Prosapia bicincta) was primarily a pest of Coastal Bermuda grass in central and southern ALABAMA and of lawn grasses in isolated southeastern and southwestern areas.

MEADOW PLANT BUG (Leptopterna dolabrata) infested orchard grass and fescue in southwestern and south-central MISSOURI during May. Infestations on bluegrass were reported from the northern area in June.

CHINCH BUG (Blissus leucopterus leucopterus) surveys did not reveal any economic infestations in INDIANA. Early results from the fall survey indicate heavy populations can be expected in 1972. Infestations were first reported July 15, in Kent and Washington Counties in RHODE ISLAND. By July 26, widespread infestations of lawns were present in Providence, Kent, and Washington Counties. On August 2, lawns were damaged in Newport County. Complaints continued numerous into September. Chinch bug was the major insect problem in lawns, and much more than in 1970.

SOUTHERN CHINCH BUG (Blissus insularis) continued to be a severe pest of St. Augustine grass lawns in FLORIDA. This pest was also a serious problem on the turf farms in the Everglades area.

Two species of CHALCID WASPS were reported as new State records in PENNSYLVANIA. A Eurytoma gigantea female emerged from a goldenrod gall in Dauphin County during May and E. obtusiventris emerged from the same host in York County during July.

BROWN WHEAT MITE (Petrobia latens) in UTAH injured range grasses extensively in Washington County. Spring populations were sometimes heavy in Utah, Juab, and Box Elder Counties.

BANKS GRASS MITE (Oligonychus pratensis) infestations were heavy in NEVADA on experimental seed plots of bluegrass in Washoe County in February and June and on timothy hay in Douglas and Lyon Counties in April. Irrigation and chemicals were used as controls.

---

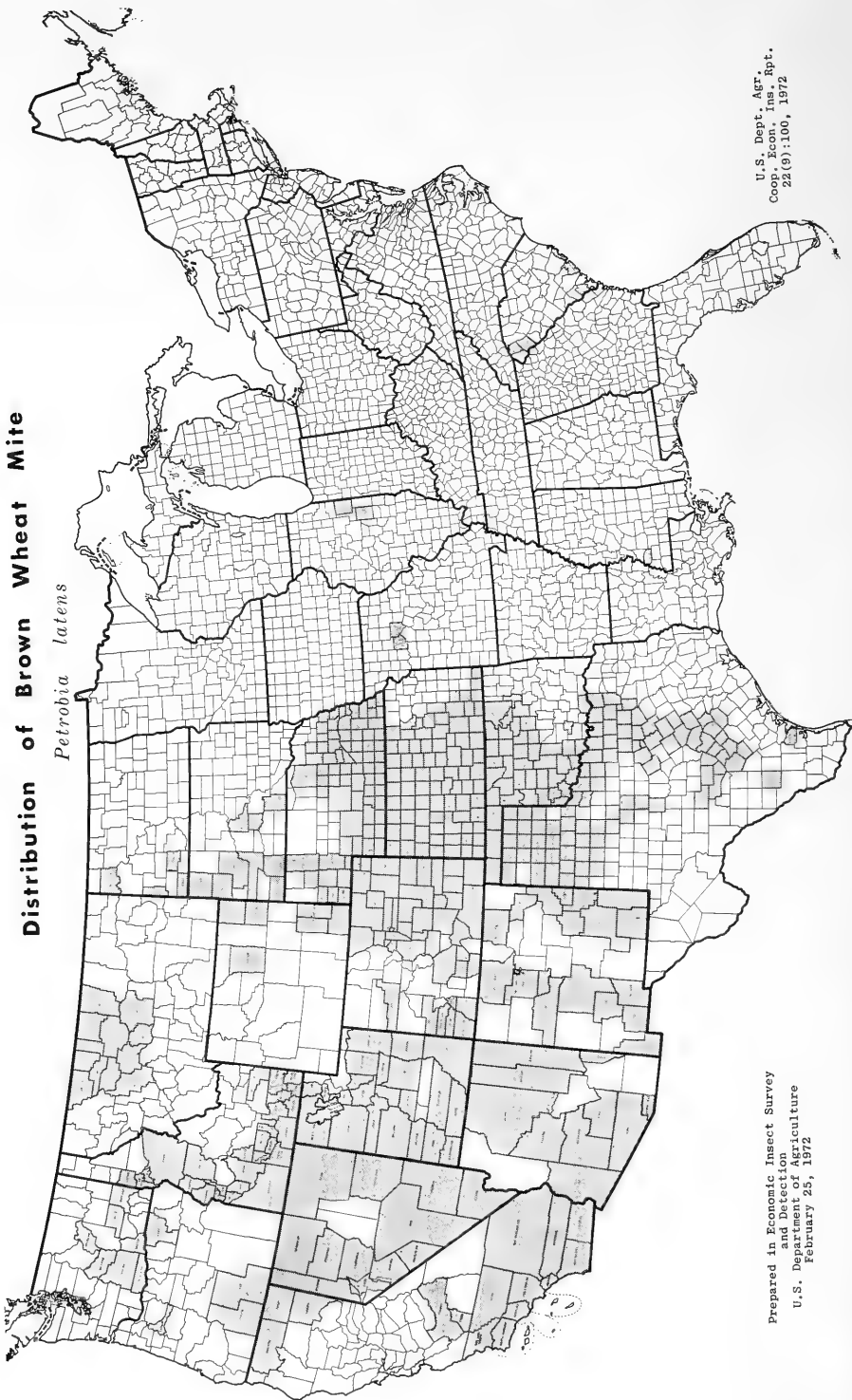
Weather of the week continued from page 76.

Pacific coast from Washington to northern California, with snow in the nearby mountains and eastward to New England. The snow over the Great Plains was mostly light flurries. The heavy rains along the coast were accompanied by winds, often exceeding gale force. The winds in the mountains drifted the snow badly. The winds gusted to 60 m.p.h. along the coast and over 90 m.p.h. over the higher Cascades. Several inches of snow fell in the northern Appalachians. Seven inches fell at Burlington, Vermont, and at Portsmouth, New Hampshire, and 6 inches at Worcester, Massachusetts. Several days of heavy rains in eastern Kentucky, western North Carolina, and southern West Virginia, along with melting snow resulting from the mild temperatures caused flash flooding along some streams and rivers. In Logan County, West Virginia, a coal-slag dam failed causing a disaster on Buffalo Creek. Dozens of persons were drowned, hundreds are still missing and other hundreds are without homes as the water rushed down the valley carrying away houses, automobiles, and people.

TEMPERATURE: Temperatures averaged below normal from the northern Great Plains to New England and south as far as Virginia, and above normal over the rest of the Nation. A large area from the Great Basin to the southern Great Plains averaged 6 degrees to 12 degrees warmer than normal.

# Distribution of Brown Wheat Mite

*Petrobia latens*



Prepared in Economic Insect Survey  
and Detection  
U.S. Department of Agriculture  
February 25, 1972

U. S. Dept. Agr.  
Coop. Econ. Inss. Rpt.  
22(9):100, 1972

REPORT OF THE COMMITTEE ON INSECT SURVEYS AND LOSSES - 1972

The Southeastern Branch Entomological Society of America, Committee on Insect Surveys and Losses held a one-day workshop in Mobile, Alabama, in January 1972. Survey and loss estimates were submitted by each State and total cost and loss estimates were compiled on the most economically important insects during 1970.

Twenty-seven species were rated in order of their importance. Several additional species of insects were considered and not included in the listing because the workshop participants did not have sufficient information on losses and control costs for these species for them to be properly rated. Some of the more important species not included were imported fire ant, ticks, and cattle lice.

The 27 species were subsequently grouped in order of their importance and listed alphabetically in each group as follows:

1970 Estimated Losses and Control Costs

Group I - Losses ranging from \$85,000,000 to \$105,000,000

Boll Weevil - Anthonomus grandis Boheman  
Corn Earworm - Heliothis zea (Boddie)  
Eastern Subterranean Termite - Reticulitermes flavipes (Kollar)

Group II - Losses ranging from \$40,000,000 to \$50,000,000

Carpenterworm - Prionoxystus robiniae (Peck)  
Horn fly - Haematobia irritans (Linnaeus)  
Mosquitoes

Group III - Losses ranging from \$30,000,000 to \$40,000,000

Citrus Rust Mite - Phyllocoptruta oleivora  
(Ashmead) Florida only  
Cockroaches

Group IV - Losses ranging from \$20,000,000 to \$30,000,000

Black Turpentine Beetle - Dendroctonus terebrans  
(Olivier)  
Cabbage Looper - Trichoplusia ni (Hübner)  
House Fly - Musca domestica Linnaeus  
Bark Beetles - Ips spp.  
Southern Pine Beetle - Dendroctonus frontalis  
Zimmerman

Group V - Losses ranging from \$10,000,000 to \$20,000,000

Citrus Snow Scale - Unaspis citri (Ashmead)  
Florida only  
A Cone Moth - Dioryctria amatella  
Fall Armyworm - Spodoptera frugiperda (J. E. Smith)  
Green Peach Aphid - Myzus persicae (Sulzer)  
Reproduction Weevils

Southern Chinch Bug - Blissus insularis Barker  
Stink Bugs  
Tobacco Budworm - Heliothis virescens (Barber)  
Wireworms

Group VI - Losses ranging from \$5,000,000 to \$10,000,000

Lesser Cornstalk Borer - Elasmopalpus lignosellus  
(Zeller)

Northern Fowl Mite - Ornithonyssus sylviarum  
(Canestrini and Fanzago)

Peachtree Borer - Sanninoidea exitiosa (Say)

Sugarcane Borer - Diatraea saccharalis (Fabricius)

Tobacco Thrips - Frankliniella fusca (Hinds)

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(9):101-102, 1972



Two Species of Imported Fire Ants in the United States

(Hymenoptera: Formicidae)

David R. Smith 1/

It is now necessary to adopt a new name for the imported fire ant prevalent in the southeastern United States. For some time there has been confusion concerning the identity of the imported fire ant, or ants, in this country. This stemmed from the presence of two forms, the red and black (or light and dark), and the poor taxonomic state of this complex in South America, the homeland of the North American populations.

A recent study by Buren (1972, Jour. Ga. Ent. Soc. 7(1):1-26) seems to have clarified the taxonomy of this group, the saevissima complex, at least to the standpoint of what does occur in the United States. What we have been calling Solenopsis saevissima richteri Forel with the ESA approved common name "imported fire ant," actually consists of two species, each independently introduced about 20 years apart, and each originating from widely separated points in South America. Buren identifies the two species as follows:

Solenopsis richteri Forel--Now given full species status, this is the species originally recorded by Creighton (1930, Proc. Amer. Acad. Arts and Sci. 66:88-89) from Mobile, Alabama. It was apparently introduced in the 1920's from Argentina or Uruguay. It has been referred to as the "dark form" in the United States and is now present in only several localities in northern Alabama and northern Mississippi.

Solenopsis invicta Buren.--This newly described species, according to Buren, originated from central South America, probably Mato Grosso, Brazil, and constituted the second introduction of a fire ant into the United States. The oldest series Buren examined was taken at Daphne, Alabama (near Mobile) in 1945. It is apparently a more vigorous species than richteri and met little competition, consequently spreading rapidly and pushing richteri into the few localities from which it is now known. This has been called the "red form" and is the dominant fire ant in the southeastern United States. Nearly the entire distribution of the "imported fire ant" in this country is this species.

The species name is spelled invicta throughout Buren's paper except for the species heading on pg. 9 where it is spelled "Solenopsis invica, n. sp." The name is derived from the Latin adjective "invictus" meaning unconquered or invincible, and Buren states on pg. 14, "As the name implies, ..... invicta seems more likely to be with us for some time to come."

1/ Systematic Entomology Laboratory, Agricultural Research Service, USDA

For further details, the reader is referred to Buren's paper. It is a significant step toward the classification of the saevisima complex of the New World and basic to further biological and control work on the fire ants. From now on, the imported fire ants in the United States should be called Solenopsis richteri Forel or Solenopsis invicta Buren. This will also necessitate a change of common names, and, I suggest that S. richteri be called the black imported fire ant and S. invicta be called the red imported fire ant.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(9):103-104, 1972







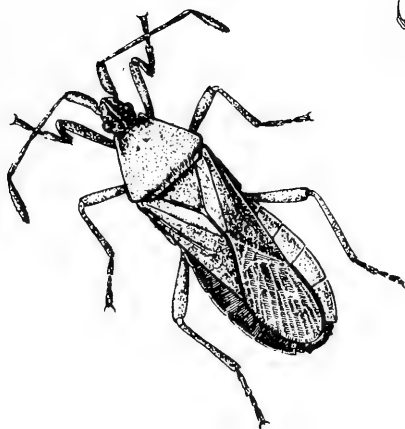
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

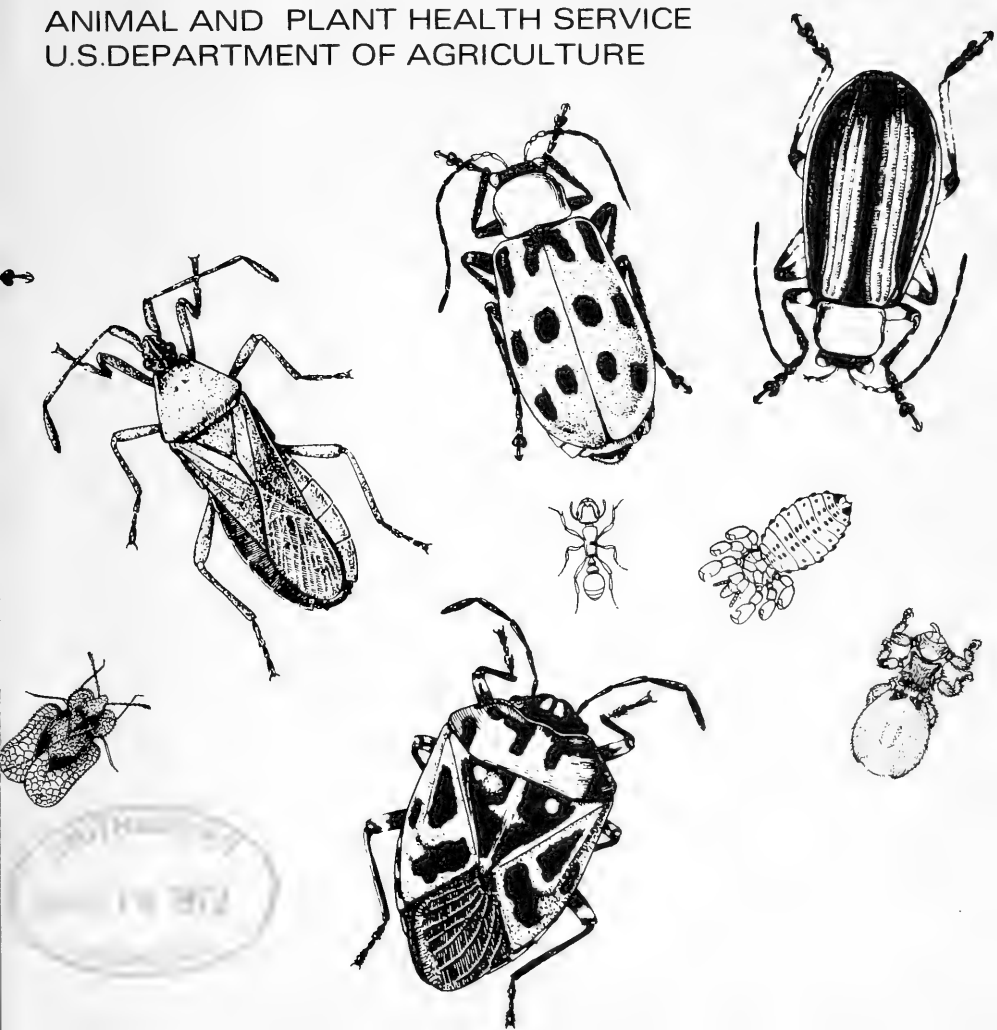


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

ARMY CUTWORM larvae appearing in grassland areas in Nebraska. (p. 107).

GREENBUG light in most States. In Oklahoma, some counts heavy but damage light. (p. 107).

ALFALFA WEEVIL eggs and larvae heavy in portions of Oklahoma. Larvae appearing in Arkansas, Missouri, Illinois, and Virginia. (pp. 107-108).

GREEN PEACH APHID appearing on peaches and PEAR PSYLLA males and females observed in Washington. (p. 108).

CITRUS RED MITE continues to buildup in lemon groves in Arizona. (p. 108).

Detection

A PHYTOSEIID MITE reported from Florida for first time. This is a new United States record. These mites usually predatory on other mites and small arthropods. (p. 108).

For new county and island records see page 111.

Special Reports

Summary of Insect Conditions in the United States - 1971

Forage Legumes (pp. 112-118).

Soybeans (pp. 118-120).

Peanuts (p. 120).

Cotton (pp. 120-122).

Tobacco (pp. 122-123).

Sugar Beets (pp. 123-124).

Miscellaneous Field Crops (p. 124).

General Distribution of Alfalfa Weevil. Map. (p. 113).

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

## CONTENTS

Special Insects of Regional Significance.....	107
Insects Affecting	
Corn, Sorghum, Sugarcane...107	Citrus.....108
Small Grains.....107	Ornamentals.....108
Forage Legumes.....107	Forest and Shade Trees.....109
Sugar Beets.....108	Man and Animals.....109
Deciduous Fruits and Nuts..108	Households and Structures...109
Beneficial Insects.....110	
Hawaii Insect Report.....	111
Detection.....	111
Light Trap Collections.....	111
Corrections.....	111
Summary of Insect Conditions in the United States - 1971	
Forage Legumes.....	112
Soybeans.....	118
Peanuts.....	120
Cotton.....	120
Tobacco.....	122
Sugar Beets.....	123
Miscellaneous Field Crops.....	124
General Distribution of Alfalfa Weevil. Map.....	113

---

### WEATHER OF THE WEEK ENDING MARCH 6

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

**PRECIPITATION:** Rains continued in the Pacific Northwest. Showers occurred in the intermountain region and eastward to the northern Rocky Mountains, with snow in higher elevations early in the week. Scattered snow flurries occurred over the northern Great Plains, moderate snow fell in the upper Mississippi River Valley, the Great Lakes region and the Northeast. Rain fell along the New England coast. Sunny, pleasant weather prevailed over much of the south. Late Tuesday, moderate showers soaked much of the gulf coast. A storm over the central Great Plains intensified about midweek, dumping several inches of snow across the northern Great Plains and Great Lakes region. A front stretched from the central Great Plains to New England early Tuesday. Thunderstorms occurred in the Ohio River Valley in the warm air south of the front. In some localities thunderstorms produced hail. The western portion of the front pushed southward. A few tornadoes were seen. One tornado wiped out a trailer park in Ozark, Alabama. Flash floods occurred along some streams in western New York, western Pennsylvania, extreme southeastern Ohio, West Virginia, and the eastern portion of Kentucky and Tennessee. Throughout the week, miserable mixtures of snow, sleet, freezing rain, fell along a band separating snow areas from rain areas. These mixtures slicked highways byways and made automobile travel dangerous. Moderate to heavy snow combined with strong winds occurred over upper Great Lakes Saturday. Rain and snow fell in the Middle Atlantic States Sunday. Snow fell in the Northeast. The southwestern quarter of the Nation continued dry last week. Much of this area has been dry since late December. Weather of the week continued on page 110.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - NEBRASKA - Increased in Dundy County alfalfa. Some activity also noted in grassland areas, ranged up to one-half inch in length. (Campbell). OKLAHOMA - Generally under two per linear foot in scattered wheatfields in Kiowa, Tillman, Jackson, and Harmon Counties. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - ARIZONA - Few found; no buildup observed in small grains in Maricopa and Cochise Counties. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 2-5 per linear foot of barley at Roswell, Chaves County. (Mathews). OKLAHOMA - Ranged 700-2,000 per linear foot in scattered wheatfields in Cotton and Jefferson Counties. Ranged 100-300 per linear foot in scattered fields in Tillman, Jackson, Harmon, and Greer Counties. Most ranged 25-70 per linear foot and few 2-17 per linear foot. Damage light, even in fields with heavier counts. Ranged 2-32 per linear foot in 5 fields in Kiowa County. Ranged up to 10 per linear foot in Payne County. (Okla. Coop. Sur.). ARKANSAS - Light in fescue in Washington County. (Tugwell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Counts per 100 sweeps of alfalfa, February 18-29, in Maricopa County: winged 560 and wingless 800. (Ariz. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - COLORADO - Trace in corn near Prospect and Roggen area of Weld County. (Marquardt). MARYLAND - No pupation to date on Eastern Shore. (U. Md., Ent. Dept.).

## SMALL GRAINS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Light and scattered in wheat in southwest area. Heaviest count 5 per linear foot in 2 Tillman County fields. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light in scattered wheatfields in Kiowa and Tillman Counties. (Okla. Coop. Sur.).

CUTWORMS - COLORADO - Unspecified larvae ranged 2-11 per linear foot on winter wheat in southern Weld County. (Marquardt).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Larvae ranged 1-7 per terminal in 88 percent of terminals in Tillman County alfalfa field. Ranged 1-2 per terminal in 32 percent of terminals in Jackson County and 1-2 per terminal in 20 percent of terminals in Kiowa County. Heavy in Bryan, Jefferson, and Cotton Counties. Light to moderate in Murray, Garvin, and Pontotoc Counties. Infested 25 percent of terminals in Tulsa County, with mating adults common. Samples collected in Chickasha area, Grady County, on February 25, averaged 1,011 eggs and 60 larvae per square foot. (Okla. Coop. Sur.). ARKANSAS - Larvae appearing in Washington County. (Miner). MISSOURI - Hatch observed in 3 fields in southwest area on February 28 and 29. Early instar larvae 1 per terminal on new growth. (Munson). ILLINOIS - Egg hatch early and unusual in Johnson County. Tip feeding noted on 40 percent of stems and

counts of 100 first or second instar larvae per 100 stems. County average 15.0 percent tip feeding and larvae 11.6 per 100 stems. (Ill. Ins. Sur.). KENTUCKY - Eggs averaged 105 per square foot in Fayette County. Eggs averaged 19 per square foot at one location in Shelby County and 51 per square foot at one location in Spencer County. (Barnett). VIRGINIA - Eggs hatched at Charlotte County site March 1; larvae ranged 5-7 per tip. Hatch about 3 weeks earlier than usual. (Allen).

CLOVER LEAF WEEVIL (Hypera punctata) - MISSOURI - Larvae 2-9 per square foot in Newton, Lawrence, and Christian Counties. (Munson). ILLINOIS - Larvae light in alfalfa in Johnson County; less than 1 per square foot. (Ill. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Ranged 70-100 per square foot in 8 alfalfa fields in Tillman, Jackson, and Kiowa Counties. (Okla. Coop. Sur.).

### SUGAR BEETS

AN ARMORED SCALE (Hemiberlesia lataniae) - CALIFORNIA - Immatures and adults 500 per stem at Bonita, San Diego County. This is a new host. (Cal. Coop. Rpt.).

### DECIDUOUS FRUITS AND NUTS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - First eggs hatched on peaches at Buena Heights, Yakima County February 21. (Johnson).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Males and females noted in flight February 15 collected in yellow pan traps February 27 at Yakima, Yakima County. (Landis). First eggs observed at Buena Heights, Yakima County and at Kiona, Benton County February 23 on bartlett pears, heavy carryover of overwintered adults, but heavy mortality of mature nymphs due to subzero temperature. (Johnson).

### CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Buildup continues on lemons on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Unaspis citri) - UTAH - Heavy on most trees in Temple orange scion grove at Vero Beach, Indian River County. (Kendrick).

BARNACLE SCALE (Ceroplastes cirripediformis) - CALIFORNIA - Adults 20 per leaf on citrus trees at Fresno, Fresno County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - No buildup in citrus groves surveyed on west side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

### ORNAMENTALS

A PHYTOSEIID MITE (Ricoseius lococheles) - FLORIDA - Nymphs and adults collected on seagrape, Coccoloba unifera, at nursery in Miami, Dade County, January 18, 1972, by F.J. McHenry. Determined by H.A. Denmark. This is a new United States Record. Previous records from Brasil and Puerto Rico. (Fla. Coop. Sur.).

AN ADELGID (Adelges tsugae) - VIRGINIA - Adults and eggs taken from hemlock in Northumberland County for a new county record. Determined by J.A. Weidhass. (Allen).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Eggs overwintering in bags on shrubs in 3 sites in Lee County in excellent condition. Surveys show 99 to 100 percent survival. (McQueen).

#### FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Pine twigs examined for overwintering forms indicate moth emergence will be sufficient for heavy first generation in southern areas. (Warren).

EUROPEAN ELM SCALE (Gossyparia spuria) - ARIZONA - Crawler stage noted on elm trees at Prescott, Yavapai County. (Ariz. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - INDIANA - Moths observed in wooded areas in Owen, Putnam, and Montgomery Counties. (Lawson).

#### MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - COLORADO - Grubs in cattle first week of February averaged 5 per head on untreated cows, 8 per head on untreated calves, and 6 per head on untreated yearlings in Weld County. (Hantsbarger). NEBRASKA - Infested 77 percent of yearlings in 3 herds in Cherry County; averaged 15 grubs per animal. (Campbell). OKLAHOMA - Still moderate to heavy on cattle in Wagoner County. Moderate in Pontotoc County and light in Cotton County. (Okla. Coop. Sur.). KENTUCKY - Larvae averaged 40.1 on backs of untreated Charolais yearlings and 12.0 on untreated Charolais cattle in Fayette County. (Herald). Larvae averaged 4.5 per animal on backs of Holstein dairy cows of various ages in Fayette County. (Barnett). FLORIDA - Infested 20 percent of check herd of dairy cows; averaged 8 grubs per animal at Gainesville, Alachua County. (Butler, Head).

CATTLE LICE (Haematopinus spp.) - FLORIDA - H. quadripertusus (cattle tail louse) adults averaged 2.5 (maximum 10) per tail on untreated dairy cows at Gainesville, Alachua County. Infested 90 percent of check herd. (Butler, Head). OKLAHOMA - Mainly Haematopinus eurysternus (shortnosed cattle louse) heavy on cattle in McCurtain, Atoka, and Cotton Counties, moderate to heavy in Pontotoc and Wagoner Counties, and light in Cleveland County. (Okla. Coop. Sur.).

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

#### HOUSEHOLDS AND STRUCTURES

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - First R. flavipes (eastern subterranean termite) swarms of season at Beltsville, Prince Georges County. Peak activity expected in 3-4 weeks. (U. Md., Ent. Dept.). DELAWARE - First Reticulitermes spp. swarm reported in New Castle County. (Burbutis). NEVADA - R. tibialis alates moderate at Las Vegas, Clark County. (Hoff, Zoller).

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Collected at Sioux City, Woodbury County, on February 24. This is a new county record. (Iowa Ins. Sur.).

## BENEFICIAL INSECTS

A BRACONID (Lysiphlebus testaceipes) - OKLAHOMA - Light in Schizaphis graminum (greenbug) infested wheat in Tillman, Jackson, Harmon, and Greer Counties. (Okla. Coop. Sur.).

HONEYBEE (Apis mellifera) - ARKANSAS - Overwintered successfully in northwest areas, and by February 29, first brood cycle completed. Pollen now available on maple and elm in northwest areas. (Warren).

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults in most wheatfields in Kiowa, Tillman, Jackson, Harmon, and Greer Counties. Averaged less than 1 per linear foot. Larvae and egg masses light in Harmon and Greer Counties. (Okla. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Found in most southwest area wheatfields. Averaged less than 1 per linear foot. (Okla. Coop. Sur.).

---

Weather of the week continued from page 106.

TEMPERATURE: Mild springlike weather prevailed over the southern two-thirds of the Nation early in the week. The central Great Plains were unseasonally warm. Most of Nebraska warmed to the 70's on Monday, and temperatures in the 80's were common from Kansas to Texas Monday and Tuesday. Hill City, Kansas, registered 86 degrees Tuesday afternoon. Migratory waterfowl were seen flying north along Continental Flyways. Warm humid weather extended from the central and southern Great Plains to the middle and southern Atlantic coast. Arctic air poured into the northern Great Plains and advanced southward. By noon Wednesday, Arctic air covered Nebraska, Iowa, and was marching into Kansas and Missouri. Balmy weather continued along the Gulf of Mexico, Atlantic coast, and in Florida. Baltimore, Maryland, warmed to 80 degrees Wednesday afternoon. Zero line pushed into Iowa, Thursday morning. Devils Lake, North Dakota, registered 28 degrees below zero Thursday. Subfreezing weather covered western Kentucky, 20 degrees was recorded at Bowling Green. Leading edge of the cold air mass continued southeastward, and by Monday morning, March 6, had reached the Atlantic coast. Jacksonville, Florida, registered 33 degrees Monday morning. Cold weather came to the east too late to offset unusually mild temperatures that occurred earlier in the week. Temperatures along the middle Atlantic coast averaged 9 to 12 degrees above normal. The Great Basin and southern Rocky Mountains averaged 6 to 12 degrees warmer than normal. In contrast, large areas across the north from Continental Divide to the Upper Mississippi River averaged 10 to 20 degrees colder than normal.

## HAWAII INSECT REPORT

General Vegetables - LEAFMINER FLIES (Liriomyza spp.) trace to light in most snap bean and tomato plantings at Kula, Maui; light to moderate in 6 acres of tomato at Kihei. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) trace on same crops and locations. WATERLILY APHID (Rhopalosiphum nymphaeae) heavy; as many as 200 nymphs and adults per leaf in acre of taro at Wailua, Maui. Larvae and adults of a lady beetle, Coelophora inaequalis, moderate to heavy amid infestations. (Miyahira). TOMATO PINWORM (Keiferia lycopersicella) larvae light in fruit in 6 acres of tomato at Kihei, Maui. About 3 percent of fruits affected; trace on terminal leaves. Sporadic infestations; ranged trace to moderate in most tomato and eggplant plantings at Kula, Maui. (Kawamura).

Fruits and Nuts - Adult of LARGE MANGO TIP BORER (Bombotelia jocosatrix) collected in carton of plant cuttings for export at Hilo, Hawaii. This is a new island record; previously reported from Oahu, Kauai, and Maui. (Yoshioka). Larvae of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) on citrus and adult sightings increased throughout most of Oahu past 14 days. P. xuthus eggs collected from citrus at Aina Haina parasitized. (Kahale).

Beneficial Insects - Parasitism by MELASTOMA BORER (Selca brunella) of Indian rhododendron (Melastoma malabathricum) fruits and terminals on Hawaii during January averaged 21 percent on flowers and fruits; 29 percent on terminals. (Yoshioka). Adults of SOUTH AFRICAN EMEX WEEVIL (Apion antiquum) moderate on roadside emex seedlings at Omaopio, Maui; larvae moderate in stems of older emex in fallow farmlands at same area. (Miyahira). LANTANA HISPID (Uroplata girardi) mines moderate on older leaves in 3 acres of lantana in pasture at Waihee, Maui. Light in same host situation at Ulupalakua. (Miyahira).

### DETECTION

New United States Record - A PHYTOSEIID MITE (Ricoseius lococheles) - FLORIDA - Dade County. (p. 108).

New County and Island Records - AN ADELGID (Adelges tsugae) - VIRGINIA - Northumberland (p. 109). BROWN SPIDER BEETLE (Ptinus clavipes) IOWA - Woodbury (p. 110). LARGE MANGO TIP BORER (Bombotelia jocosatrix) HAWAII - Hawaii (p. 111).

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/25-3/2, BL, Granulate Cutworm (Feltia subterranea) 9, armyworm (Pseudaletia unipuncta) 2. MISSISSIPPI - Stoneville, 2/25-3/2, 2BL, temp. 37-78 F., precip. 1.52, Armyworm 38, granulate cutworm 10, black cutworm (Agrotis ipsilon) 9. TEXAS - Waco, 2/25-3/2, BL, Armyworm 30, yellowstriped armyworm (Spodoptera ornithogalli) 39, variegated cutworm (Peridroma saucia) 34, granulate cutworm 53.

### CORRECTIONS

CEIR 22(9):80 - SOUTHERN FIRE ANT (Solenopsis xyloni) - OKLAHOMA - ... (Okla. Coop. Sur.). should read SOUTHERN FIRE ANT (Solenopsis xyloni) - CALIFORNIA - ... (Cal. Coop. Rpt.). (PP).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1971  
(Continued from page 99)

FORAGE LEGUMES

Highlights:

ALFALFA WEEVIL populations were heavy in several Western States. A parasitic wasp was noted in alfalfa fields in Oregon, but no significant control was observed. Alfalfa weevil continued to spread in Texas, Oklahoma, Missouri, Kansas, and Nebraska. Distribution statewide in Oklahoma and Missouri, and all but one county infested in Kansas. Economic populations were reported in several Northeastern States. Populations declined in Pennsylvania. In Kentucky, was the major pest of alfalfa. Heavy populations were observed in Virginia.

---

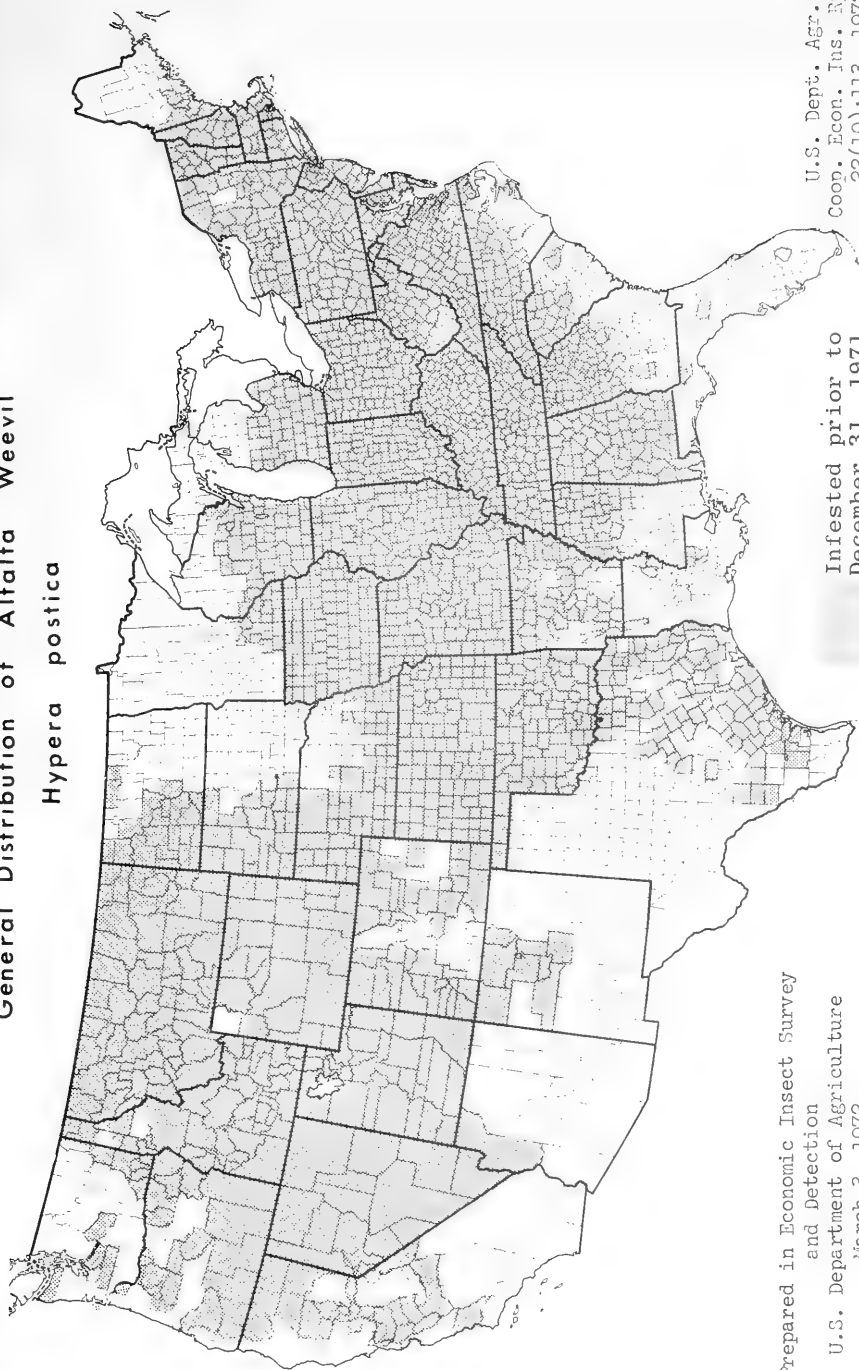
ALFALFA WEEVIL (Hypera postica) larvae were first found in eastern OREGON in mid-May. Early instar larvae averaged 10 per sweep in Crook and Klamath Counties. In Harney County, heavier than normal damage was reported. Although Bathyplectes curculionis (an ichneumon wasp) was found in all alfalfa areas surveyed, it did not seem to exercise any significant control. Larvae and adults in IDAHO ranged 3-5 per sweep of alfalfa in Canyon and Payette Counties. Controls were needed or had been applied to 60 percent of the alfalfa in parts of Owyhee County by May 19. Numerous fields were severely damaged in Ada and Canyon Counties by larvae June 23 and 24. Less than 30 percent of this acreage was treated. Alfalfa in early bud stage on May 27 showed 1-percent tip damage in Twin Falls County. By June 21, this area showed greater feeding damage than in 1970. First and second instar larvae damaged 15-40 percent of the terminals, while adults ranged 6-30 per 10 sweeps on June 22 in Camas County. Populations were heavier in MONTANA than in any previous year in Richland, Blaine, and Fallon Counties; damage was heavy. Elsewhere, populations declined, especially in Gallatin County.

In NEVADA, oviposition began in early April, however, most eggs were laid in May. Adverse weather retarded weevil and alfalfa development until after mid-May. Larvae peaked at 150+ per sweep and damage was heavy, due partly to weather conditions. Chemical controls began in mid-May and continued until mid-June in most central and northern areas. Alfalfa seed fields in Humboldt County were damaged due to a change of insecticides. Subsequent control measures were hampered by adverse weather and by the introduction and emergence of pollinators. Damage ranged from light to very heavy in UTAH. Stubble spraying reduced damage to the second crop of alfalfa on previously unsprayed acreage, but heavy damage did occur in Washington, Grand, Piute, Wayne, Sanpete, and Millard Counties.

Alfalfa weevil mated and laid eggs on alfalfa the first week of April in COLORADO. Generally active the first week of May, damaging levels were present by the last of May in Weld and Pueblo Counties. There was considerable loss to the first cutting and some loss on the second cutting. Losses in 1971 were estimated at \$1,250,000. In NEW MEXICO, larval damage was heavy on the second and third cuttings of alfalfa in Bernalillo and Sandoval Counties. Infestations were less severe in San Juan and Rio Arriba Counties this year.



General Distribution of Alfalfa Weevil  
*Hypera postica*



Prepared in Economic Insect Survey  
and Detection  
U.S. Department of Agriculture  
March 3, 1972

Infested prior to  
December 31, 1971

U.S. Dept., Agr.  
Coop. Econ. Ins. Rpt.  
22(10):113, 1972

Alfalfa weevil infestations were heavy throughout the eastern half of TEXAS during 1971. Populations were moderate to heavy in Ellis, Robertson, Falls, and Brazos Counties as early as January 15. Damage was severe in the last 3 counties; larvae averaged 175 per 20 sweeps. Light to heavy populations were reported throughout most of south-central Texas until mid-March. Alfalfa weevil larvae were found in southern OKLAHOMA the first week of March, and adults began to appear by mid-March. Heavy infestations in the southeastern area damaged the first and second crops of alfalfa during March, April, and May. Populations declined in the extreme southern area by mid-April, but continued heavy in the northeastern area until early June. Adults were collected from alfalfa and white and yellow sweetclover in 52 new counties. Distribution is now statewide. Adults and larvae were light to moderate in scattered areas in October and November.

Economic infestations of alfalfa weevil were found in a few KANSAS fields in Hamilton, Labette, Crawford, and Elk Counties. Found in Crawford County, the heaviest infestation had an average of 2 larvae per terminal and extensive foliar damage. Alfalfa weevil now occurs in every county except Phillips. Peak larval populations in NEBRASKA occurred 7-10 days later than in 1970. The heaviest counts were 1,620 larvae and 65 adults per 100 sweeps of alfalfa in Dawson County. Larval counts started to decline by June 22. Damage was heavy to regrowth alfalfa after the first cutting in Lincoln County. Problems are expected in central Nebraska if the trend continues in 1972. Active in irrigated alfalfa in McKenzie County, NORTH DAKOTA, by the end of May, adults ranged up to 80 (averaged 40) per 100 sweeps. By mid-June, larval counts were 200 per 100 sweeps. Damage was up to 5 percent. Larval counts in Oliver County averaged 40 per 100 sweeps. Larvae were collected in Burleigh County for a new county record. Seed producers reported that controls were not satisfactory.

Alfalfa weevil adults appeared in MINNESOTA the week of May 10 in Houston County. During June a total of 15 new counties were found infested. Counts were light, ranging from trace to 2 per 300 sweeps. No economic problems developed.

Overwintered alfalfa weevil eggs in MISSOURI ranged from 4 per square foot in the northeastern area to 395 in the east-central area during February. Egg counts throughout the southern area indicated that larval populations would be heavy. Hatch started late February in the southeastern and south-central areas. By March 20, larval populations were economic in the southeastern area. Economic damage and heavy larval populations were noted throughout the southern area by mid-April. Larvae ranged 35-1,650 per 10 sweeps in the central and northeastern areas by May 1. Pupation was observed in the southern area the last week of April. Adults in southern area ranged 5-100+ per 10 sweeps and damage to second-cutting alfalfa was reported throughout this area. Alfalfa weevil is now distributed statewide.

Alfalfa weevil infestations in ARKANSAS were the heaviest ever. A mild winter resulted in adults appearing earlier than usual and larvae becoming active in January in extreme southwestern Arkansas. Adults appeared in March in the central area and in early April in the extreme northwestern area. Egg survival was apparently high this year. Hatch of winter as well as spring eggs resulted in a long period of larval activity with counts up to 1,500 per 100 sweeps. Generally requiring one treatment, some

research plots required 3 treatments. Infestations declined in late May. The principal host noted in the 16 new counties in Arkansas was crimson clover.

Alfalfa weevil damage on alfalfa was first observed during the week of March 29 in southwestern ILLINOIS. By the week of April 12, larval populations had increased to as high as 370 per 100 sweeps in Pulaski County and 265 in Gallatin County. Larvae peaked at 4,800 per 100 sweeps in the southwest district and 5,400 in the southeast district. By May 7, economically damaging populations of 2,000 per 100 sweeps could be found throughout the southern half of the State. Larval parasitism by *Bathyplectes curculionis* (an ichneumon wasp), averaging 5.4 percent April 20-21, increased to 39.9 percent May 9-12 in the southern half of Illinois. Chemical controls were applied to more than 71,200 acres. In INDIANA, feeding was seldom seen north of U.S. Highway 40, and controls were seldom needed north of U.S. Highway 50.

First instar larvae and mating alfalfa weevils in southern WISCONSIN started the first week of May, indicated a prolonged period of hatching. Severe damage was noted in a Rock County field on May 26. Pupation was underway by May 28. Early in June several fields with 25 percent or more injured tips needed controls in sandy areas near the Wisconsin River. Up to 47 per sweep were noted during peak larval activity. Emergence of new adults began in Dane County by June 18. Gradually declining until late in October, adult and larval counts rapidly increased to 25 per sweep in lush alfalfa. Alfalfa weevil damage and control in MICHIGAN was erratic because of the dry weather. Where rains were sufficient a timely first cutting avoided damage. Where rains were unusually light, the delayed first cutting suffered some severe damage. In OHIO, larvae appeared on May 14. Populations were damaging in Washington, Brown, and Pickaway Counties. Egg laying stopped on June 25.

Alfalfa weevil infestations in ALABAMA were heavy on the declining alfalfa acreage. All of the 4,000 alfalfa acres received controls. Damage was noted on white clover, vetches, and other legumes. In TENNESSEE, first instar larvae appeared by mid-March in Haywood, Madison, and Tipton Counties. Although statewide by March 26, first and second instar larvae had caused very little damage. By mid-April, temperatures became high enough to allow needed controls to be applied in many areas. Control for adults continued until after the first cutting when daily temperatures repressed weevil activity.

Alfalfa weevil was the major pest of alfalfa in KENTUCKY. Egg counts for January 18 through April 15 ranged from 192 eggs per square foot to 274 on February 24 for 3 fields in Fayette County. Some first instar larvae were noted on January 15. In mid-May, larval counts peaked at 277 larvae per sweep, 4.5 times higher than in the previous 2 years. At this time, losses in untreated fields ranged 50-80 (averaged 60) percent statewide. The heaviest infestations were in the northern and northwestern areas. Treatment was required in almost every alfalfa field after growth was 8-12 inches long. One treatment was usually adequate.

Alfalfa weevil populations in VIRGINIA were heavier than in 1970. First instar larvae were reported in Charlotte County on March 24. In this area, the southern Piedmont, 80-100 percent of the alfalfa stems were infested by April 20. By April 27, pupation had begun in Charlotte County. In the northern Piedmont, 60-100 percent of the stems were being damaged by May 12. Populations ranged up to 1,600 larvae per 100 sweeps by May 26, but excellent growing conditions allowed many fields to withstand the heavier population. Larvae had pupated by June 8 in the northern Piedmont of Virginia. The light to moderate populations in MARYLAND, in Frederick, Washington, and Allegany Counties, were above the past 2 years' record low populations. Counts elsewhere were light. Larvae were first active April 5. First and second instar larvae predominated in Carroll, Frederick, and Howard Counties during the week ending May 7. Late May and early June infestations in northern Frederick and Washington Counties required stubble sprays on about 1,200 acres. Pupation peaked June 4-12 on the Eastern Shore and June 12-22 in the central and western counties of Maryland.

In DELAWARE, larvae appeared on alfalfa during late March, only light feeding injury occurred during most of the growing season. The highest larval count was 8 per 100 sweeps during late April and late May. The alfalfa weevil population has continued to decline in most of PENNSYLVANIA. Practically all central and southern localities had lower peak larval populations in 1971 than in 1970. The lowest populations were noted in the south-eastern counties where a mean of 10 larvae per sweep was collected during peak activity. The exception to this downward trend was in the southwestern area where populations continued to increase. The mean peak larval populations for this area were 100+ per sweep; as many as 500 per sweep were collected in some fields. Extensive surveys in MASSACHUSETTS were made in Berkshire County. On May 22, 10 adults and 35 larvae were collected in 100 sweeps. Adult numbers remained the same during the next 4 weeks, but larvae increased to a high of 1,207 on June 14, declining to 896 per 100 sweeps on June 22. On June 30, after the first cutting, numbers were very low and remained low for the rest of the season.

CLOVER LEAF WEEVIL (Hypera punctata) was a serious pest to seed production of crimson clover in central ALABAMA; a total of 1,500 acres received 1-2 applications of insecticides. First larvae were reported in Montgomery and Macon Counties in early April. Populations were higher in southeastern MINNESOTA. In early June, larval counts of 1-20 per square foot were found in Goodhue County alfalfa and red clover fields. Feeding damage was moderate in the heavily infested fields.

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) larvae and adults were heavy on alfalfa in ARIZONA from early January through mid-April on the Yuma Mesa in Yuma County. Several fields were treated at Yuma. In Maricopa County, counts were heavy in many fields in late February.

BEE T ARMYWORM (Spodoptera exigua) infested alfalfa in ARIZONA from mid-February through late November in Yuma County. Larval counts of 1,320 per 100 sweeps were taken at North Gila Valley in mid-September. Smaller peaks occurred during late February, early May, mid-July through September, and early November.

PEA APHID (Acyrtosiphon pisum) populations on seed alfalfa required the usual treatments in NEVADA in June. Treatments continued through August in Churchill, Humboldt, Lander, and Pershing Counties. Economic populations were on alfalfa for hay in southern Nye County in April and in Lyon County in May. Controls were needed in these counties. Spring and fall injury in UTAH occurred in parts of Uintah, Wayne, Duchesne, Beaver, Millard, Grand, San Juan, and Juab Counties, plus local infestations elsewhere. Several control programs were necessary. Moderate to heavy infestations on alfalfa in scattered areas of OKLAHOMA from late March to mid-May did not develop into general, widespread infestations. Numbers were declining in all areas by early June. Averaging 200 per 100 sweeps on irrigated alfalfa in McKenzie County, NORTH DAKOTA, by May 28, populations increased to 1,200 per 100 sweeps by June 11. First cutting was underway at this time. On dryland alfalfa in Burleigh and Emmons Counties, counts averaged 300 per 100 sweeps. Populations were up to 5,000 per 100 sweeps by July 9 on second-crop alfalfa in Cass County, and had increased to 20,000 per 100 sweeps by July 30 on Burleigh County alfalfa. In VIRGINIA pea aphid appeared on alfalfa on April 14 in Charlotte County; by April 20, 5-6 per 100 sweeps were present in Orange, Page, Frederick, and Fauquier Counties. On May 19, counts of 800 per 100 sweeps of red clover were noted. Populations were spotty statewide and generally of little economic concern.

Surveys for a LEAF BLOTCH MINER FLY (Agromyza sp.) in MASSACHUSETTS were made in Hampshire, Essex, and Berkshire Counties. Although 810 adults were taken in 100 sweeps in Hampshire County on May 19, and 1,310 adults were swept in Berkshire County on May 27, larval mines were very few. By mid-June, over 50 percent of the leaflets were infested in Berkshire County, and about 20 percent in Hampshire County. After the first cutting, near the end of June, the infestation levels remained light to moderate, less than 10 percent for the rest of the season. In Essex County, leaflets infested were less than 10 percent in June but over 30 percent in July.

GUAR MIDGE (Cecidomyia texana) damage was noted in several Rolling Plains counties in TEXAS. The heaviest damage to guar occurred along the Red River in Hardeman County.

LYGUS BUGS (Lygus spp.) populations on seed alfalfa were normal in most of NEVADA and required treatments from June through August in Churchill, Humboldt, Lander, and Pershing Counties. In Churchill County and 2 areas of Pershing County, counts of 8-35 nymphs and 9-20 adults per sweep remained after treatments.

GRASSHOPPERS (Melanoplus spp.) infested most alfalfa and clover fields throughout ILLINOIS. Damage appeared to be heaviest in fields where repeated mowing of nearby roadside grasses forced populations to migrate into the fields. About 71,300 acres of clover and alfalfa were treated in 1971. In MINNESOTA, hatch of MIGRATORY GRASSHOPPER (Melanoplus sanguinipes) and PACKARD GRASSHOPPER (M. packardii) started in early May. The predominant species, REDLEGGED GRASSHOPPER (M. femurrubrum), did not begin hatch until the second week in June. Damage to forage crops, primarily alfalfa, was spotty and moderate. Populations in 1971 decreased; 252,000 acres of forage crops had economic populations. An egg survey, confined to fields that had economic populations during the adult survey, showed that 56 percent had eggs present. Moderate to very abundant infestations lie in small areas of

east-central, central, west-central, south-central, and south-eastern Minnesota. Infestations in 1972 are expected to be dispersed throughout these areas.

PACIFIC SPIDER MITE (Tetranychus pacificus) populations in NEVADA began to increase on seed alfalfa in Humboldt County in June and became economic in July and August, when 1,800 acres were treated.

LESPEDEZA CYST NEMATODE (Heterodera lespedezae) cysts were collected from Haywood County, TENNESSEE, on January 8, 1971, for a new State record.

## SOYBEANS

### Highlights:

MEXICAN BEAN BEETLE appeared in numbers large enough to warrant control in Indiana, North Carolina, Virginia, and Maryland.

---

MEXICAN BEAN BEETLE (Epilachna varivestis) adults appeared earlier on soybeans and over a larger area of INDIANA in 1971 than in past years. By June 11, infested fields were seen in Jennings, Clark, Scott, Jefferson, and Ripley Counties in the southeast district (usually most heavily infested district) and in Harrison County (usually normally infested) and Jackson County (usually less frequently infested) in the south-central district. In June, adults ranged 0-3 per 10 feet of row with some feeding damage on nearly every plant in some fields. Mid-July numbers warranted controls in Dearborn, Jefferson, and Ripley Counties, and in 2 counties in the central district. This insect generated more inquiries than any other crop pest, partly because its depredations extended into areas where it had not previously been a problem, and partly because its attacks were locally severe.

Mexican bean beetle population in SOUTH CAROLINA was lower than normal and damage was very light. Significant damage to soybeans did not occur until October when 35 acres in Orangeburg County had 50 percent defoliation and 15 acres in Dillon County had 90 percent or more defoliation in 3 fields. In NORTH CAROLINA the buildup began on young soybeans in the central Coastal Plain in early June. Damage occurred in isolated fields over the entire Coastal Plain, but damage was more pronounced in the northeastern counties where 70+ percent defoliation occurred in some fields. Some northeastern fields received 3 spray treatments.

Mexican bean beetle was not much of a problem on soybeans on the Eastern Shore of VIRGINIA until tender foliage appeared following the late August rains. Probably 75 percent of the acreage on the Eastern Shore was treated. Mexican bean beetle adults emerged before July 28 at Holland, Nansemond County, and in other nearby counties. Egg hatch in Richmond County began as early as August 5. The first economic damage was detected August 21 in Nansemond County. Economic infestations were occurring in Surry and Middlesex Counties by September 9, and within 7 days many fields south of the Rappahannock River and east of the City of Richmond had to be treated. The rapid buildup in the Tidewater area continued until October 7 when beans were too mature to suffer much damage.

Mexican bean beetle damage in MARYLAND increased over 1970's moderate levels in Dorchester, Wicomico, Worcester, and Somerset Counties. Heavy defoliation began in late August and continued into October. About 60 percent of the 90,000 acres in these lower Eastern Shore counties were 30-90 percent defoliated by September 24. Because overwintering populations in this area were heavy, growers should expect heavy populations and damage early in 1972. About 20,000 acres were sprayed this season.

Feeding injury was heavy in Sussex County, DELAWARE, during late September.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) infestations were moderate to heavy in nearly all MISSISSIPPI counties except in the delta. Bean pod mottle disease was directly related to heavy infestations of this beetle. In Lee, Lowndes, Monroe, and Noxubee Counties, the disease infected from 0.4 to 95 percent of the plants inspected.

GRAPE COLASPIS (*Colaspis brunnea*) damaged, and in some cases killed, soybeans in Weakley and Decatur Counties, TENNESSEE. Damage was also observed in Madison and Henry Counties.

Adults of a CERAMBYCID BEETLE (*Dectes texanus texanus*) were collected from cocklebur in soybean fields in the following TENNESSEE counties: Madison, Haywood, Tipton, Crockett, Henry, Hardeman, McNairy, Chester, Henderson, Hardin, Decatur, Carroll, Gibson, Lake, Obion, Weakley, and Benton for new records. Although no adults were collected in soybean fields without cocklebur plants, the potential for economic damage to soybeans is indicated by the large number of adults found in some fields.

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) infestations were heavy in most soybean fields throughout Allendale County, SOUTH CAROLINA, on August 20. In Marion County, 3-4 larvae per linear yard caused 5 percent or more foliage loss to several fields in late August. Some damage occurred in scattered areas of the State in late September.

BLACK CUTWORM (*Agrotis ipsilon*) larvae infested about 2,000 acres of soybeans in central and western IOWA. Replanting was not necessary because loss of stand never reached 50 percent.

GREEN STINK BUG (*Acrosternum hilare*) and SOUTHERN GREEN STINK BUG (*Nezara viridula*) were heavy in the lower part of SOUTH CAROLINA during September. In Chesterfield County, 100 percent of the plants in 500 acres of soybeans were heavily infested on September 28. *A. hilare* adults and nymphs caused little economic damage in 1971 in VIRGINIA. Only Richmond and Dinwiddie Counties had economic infestations.

BANDEDWING WHITEFLY (*Trialeurodes abutilonea*) infestations in MISSISSIPPI appeared to be increasing in early September. In Hinds County, honeydew resulted in sooty mold production. At the same time, there were light to moderate infestations in Bolivar, Coahoma, Noxubee, Sharkey, Tallahatchie, Warren, and Yazoo Counties.

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) lodged young soybeans in Noxubee and Oktibbeha Counties in mid-July in MISSISSIPPI. By August and September, heavy populations were found in Bolivar, Clay, Leflore, Monroe, Noxubee, Oktibbeha, and Sunflower Counties. Plants withstood the attack and little lodging resulted.

GRASSHOPPERS (Melanopus spp.) were a common problem in marginal rows of soybeans throughout ILLINOIS. Damage could continue in 1972 in counties with threatening populations. The fall survey in 1971 on roadside grass indicated a uniform statewide distribution. District populations ranged from 1.5 grasshoppers per square yard (east) to 4.4 grasshoppers per square yard (central). About 68,000 acres of soybeans were treated in 1971.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) damage was widespread and persistent in some areas of ILLINOIS throughout the summer. Fields adjacent to clover were most often hit. About 14,300 acres were treated.

#### PEANUTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations in TEXAS were first detected on volunteer peanuts during late June in Proctor, Comanche, and Erath Counties. Continued to increase on irrigated peanuts in Eastland and Comanche Counties. Infestations ranged to 40 percent in dryland peanuts in central Texas.

TOBACCO THRIPS (Frankliniella fusca) and other thrips were the more important pests of peanuts in ALABAMA, and were found in all fields. Growers applied preplant systemic insecticides to about half of the 190,000 acres planted.

Populations of a BURROWING STINK BUG (Pangaeus bilineatus) began to increase in late June in Frio and Eastland Counties, TEXAS. Damage to peanuts was much lighter than during 1970.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) problems increased throughout the northeastern peanut-growing counties of NORTH CAROLINA, particularly in Northampton County where damage appeared in early August. Spot defoliation occurred during late August in many untreated fields. Peanuts growing near cotton are apparently more likely to have heavy populations. Control measures were essential to prevent loss in half of the Northampton County acreage.

#### COTTON

##### Highlights:

BOLLWORMS and BOLL WEEVIL continue to be the major pests of cotton in most cotton-producing States in 1971. BANDEDWING WHITEFLY was a problem on cotton for the first time in Alabama and Tennessee.

---

BOLLWORM (Heliothis zea) larvae appeared in early June in the larger cotton areas of ARIZONA. By mid-July, many fields were being treated in Yuma County. Controls started about mid-August in Pima, Pinal, Maricopa, Yuma, and Cochise Counties. H. zea



infested cotton from mid-July to early October in OKLAHOMA. Damage was light to moderate during August, and moderate or heavy during September. TOBACCO BUDWORM (H. virescens) comprised 11 percent of the bollworm population in early September and 30 percent in early October in Grady County, and 1-2 percent of the population in Tillman County in October. H. zea infestations in ARKANSAS were lighter than in 1970. Of 3,473 Heliothis spp. larvae determined, H. virescens numbered 71.

Heliothis spp. infestations were generally lighter than in 1970 in MISSISSIPPI. Eggs appeared on cotton in early June in De Soto, Jefferson Davis, and Washington Counties. In late July and early August, a moderate outbreak of second-generation larvae occurred throughout the State. Infestations peaked in the last half of August, with more H. virescens appearing than H. zea. H. virescens was troublesome on cotton throughout ALABAMA following a buildup of 2+ generations on clovers and vetch. Infestations were lighter than in 1969 and 1970.

The first H. zea eggs were found on cotton during early July in western TENNESSEE. Damage of small squares was below control levels. By mid-July, egg and larval counts ranged 1-9 per 100 terminals. With counts in late July up to 16 per 100 terminals, some fields were above control levels. By early August, many fields were above control levels, and the first bolls were injured. H. zea continued a serious threat to cotton during August. Counts as high as 75 larvae or eggs per 100 terminals were observed in some fields. During September, larval damage of late cotton did not require controls.

BOLL WEEVIL (Anthonomus grandis) infestations were light in southwestern and south-central OKLAHOMA in early July. Populations were light to moderate in most areas into early August. By late August, heavy counts were common in untreated cotton. Through October, counts increased while the number of squares and control operations decreased. Infestations in ARKANSAS were heavier than in 1970 due to a mild winter and heavy rains in late July and early August.

Boll weevil survival in MISSISSIPPI was much higher than expected due to a mild, dry winter. Infestations were heavier at an earlier date than in 1970. Overwintered weevils began appearing in fields in mid- to late-June in Jefferson Davis, Monroe, Rankin, Tishomingo, and Washington Counties. Because of economic populations, even in many diapause areas in early July, control programs were initiated earlier than in 1970. Late frosts extended diapause programs into late November in Covington, Jefferson Davis, Lawrence, and other southern Mississippi counties.

Overwintered boll weevils were heavier this year in ALABAMA than in 1970. First and second generations increased to damaging numbers early. Controls became general in southern and central areas by late June and July and in the northern areas by late July and August.

Spring counts of overwintered boll weevils in western TENNESSEE averaged 747 weevils per acre, a carryover of 64 percent from the 1,008 that entered hibernation. By early June, overwintered weevils were feeding in terminal buds of cotton in the southern tier of counties. By early July, general infestations were found

in the cotton-growing area, and punctured squares were found in all of the older cotton. Punctured square counts ranged 1-32 percent in fields infested the week ending July 9. First-generation weevils were observed July 16 and most had emerged by July 23. Punctured-square counts ranged 1-83 percent and many fields were above the 10-percent control level. By July 30, second-generation weevils were beginning to emerge. Favored by weather, populations increased until mid-August, weevils were migrating from infested southern counties to uninfested northern counties. By late August, some northern counties were reporting punctured-square counts of 60-80 percent. Controls were generally satisfactory.

The overwintered boll weevil population was much heavier than the record low of 1970 in NORTH CAROLINA except for the diapause areas in Northampton and Scotland Counties. About 75 percent of the overwintered weevils caught in Northampton County were from nondiapause control areas. Catches in sexlure traps peaked during the first week of June. Excellent control was accomplished where community insect control programs were implemented.

BANDEDWING WHITEFLY (Trialeurodes abutilonea) infestations increased on ARKANSAS cotton in 1971. Confined to the southwestern area in past years populations were also found this year in nearly all fields in the southeastern area. Populations are appearing farther north in eastern Arkansas each year although populations are lighter. Populations were heavy on cotton in Elmore, Autauga, Montgomery, and Macon Counties of ALABAMA. These were new county records and the first report on cotton in the field. Infestations were heavier than usual in western TENNESSEE. Damage occurred in one field in Fayette County. This is the first report of damage to cotton in the State.

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) infestations were heavy in southeastern OKLAHOMA by mid-June and in scattered south-central and southwestern counties by mid-July. Damage to late cotton in the southwestern and south-central areas continued into early August.

Thrips, mainly TOBACCO THRIPS (Frankliniella fusca) and FLOWER THRIPS (F. tritici), were found throughout ALABAMA especially on 2 to 6-leaf cotton. Control efforts, mostly preplant systemics, were general in northern Alabama and extended south into much of the central area.

#### TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) populations in MARYLAND on newly set plants ranged 2-8 per plant during May and June. Good growth conditons, similar to the 1970 season, minimized injury from June to August. Few growers applied controls. In VIRGINIA, overwintered adults were more numerous than in 1970. Adults ranged 4-8 per plant in some fields in Pittsylvania County on May 24. By August 10, fields in Dinwiddie County averaged 5-20 holes per leaf in small plantings, more damage than was generally seen over the tobacco belt. Little economic damage occurred, due to effective spray practice. Young tobacco plants in plant beds were damaged on May 14 in Pulaski County, KENTUCKY, by tobacco flea beetle. Populations were light early in the season and increased gradually. The highest count was 10 adults per plant in plant beds in Pulaski County on June 11. Some areas in Graves County had 10 percent defoliation the last of July. Statewide,

damage was light. By the first week of June, light to moderate infestations, 4-10 per plant, were common in all fields surveyed in TENNESSEE. Controls were applied in most cases, but were not always effective. Damage did not occur after the end of June.

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) was unusually heavy in KENTUCKY. Significant feeding damage by adults was noted on tobacco. Adults ranged 5-10 per plant in Breathitt, Perry, Owsley, and Wolfe Counties and 6-8 in Morgan, Elliott, Carter, and Magoffin Counties.

BLACK CUTWORM (Agrotis ipsilon) larval damage to newly set tobacco in MARYLAND was evident the first week of July. About 600 acres in Charles, Prince Georges, and St. Marys Counties required controls. Damage was heaviest near Huntington, Calvert County, where 25 percent of a 10-acre stand was damaged by third and fourth instar larvae by July 2.

GREEN PEACH APHID (Myzus persicae) appeared on MARYLAND tobacco in early July. Infested plants ranged 4-40 per 50 plants examined in Charles, St. Marys, Prince Georges, and Calvert Counties. Most fields averaged 3-10 percent infestation throughout the season. Damage levels were slightly lower than reported in 1970.

#### SUGAR BEETS

##### Highlights:

SUGARBEET ROOT MAGGOT caused noticeable damage in Minnesota. WEBWORMS required control in North Dakota beets.

---

SUGARBEET ROOT MAGGOT (Tetanops Myopaeiformis) infestations increased during recent years in MINNESOTA. Sugar beets grown in light soils had the most adult flies and eggs in June. Only trace numbers could be found in the heavier soils from northern Wilkin County northward through Kittson County. Two areas, both light soil types, had the heaviest fly counts; an oval area in southwestern Kittson County near Robbins, 4 miles long and 3 miles wide, and an area in Clay County from Glyndon northward to the Norman County line. Fly counts were heavy in both areas in June, with up to 1.4 flies per square foot in Kittson County. Egg counts were also heavy, but few eggs hatched. The reason for the non-viable eggs was not known. Larval counts were light. Only an occasional field in Kittson County had 6-20 percent infestations. In early July an average of 1.2 maggots per beet was found in the Kittson County area. Plants were stunted with roots 2-3 inches long and numerous root hairs.

In NORTH DAKOTA, sugarbeet root maggot was 95 percent pupated and 50 percent emerged in Walsh and Pembina Counties by June 11. Fly emergence peaked during a 5-day period before June 18. Peak counts were lighter than in 1970. By June 25, early eggs appeared to be nonviable and dry. By July 2, newly hatched maggots were feeding on new sugar beets in Walsh, Pembina, Grand Forks, and Traill Counties; in Richland County, plants were stunted and wilted.

Sugarbeet root maggot was the major insect pest of sugar beets in 1971 in Larimer and Weld Counties, COLORADO. Trapped on May 3, adult flies increased on May 8-14. Adults peaked the week of May 15-21. Second-generation adults emerged the later part of May. Populations and damage were much lower in 1971 than in 1970.

BEEET WEBWORM (Loxostege sticticalis) and ALFALFA WEBWORM (L. commixtalis) moth flights in NORTH DAKOTA were heavy June 11-21 at Bismarck, Burleigh County, and June 14-22 at Sentinel Butte, Golden Valley County. Moths, 4 per square yard, and eggs were present in beetfields in McKenzie County on June 11. By June 25, controls were underway on damaged beets in Oliver County. Control measures were undertaken in McKenzie, Oliver, Cass, and Traill Counties. Light trap collections during late July indicated a potentially heavy second generation. However, cool weather during the period apparently limited moth activity. The heavy numbers did not develop.

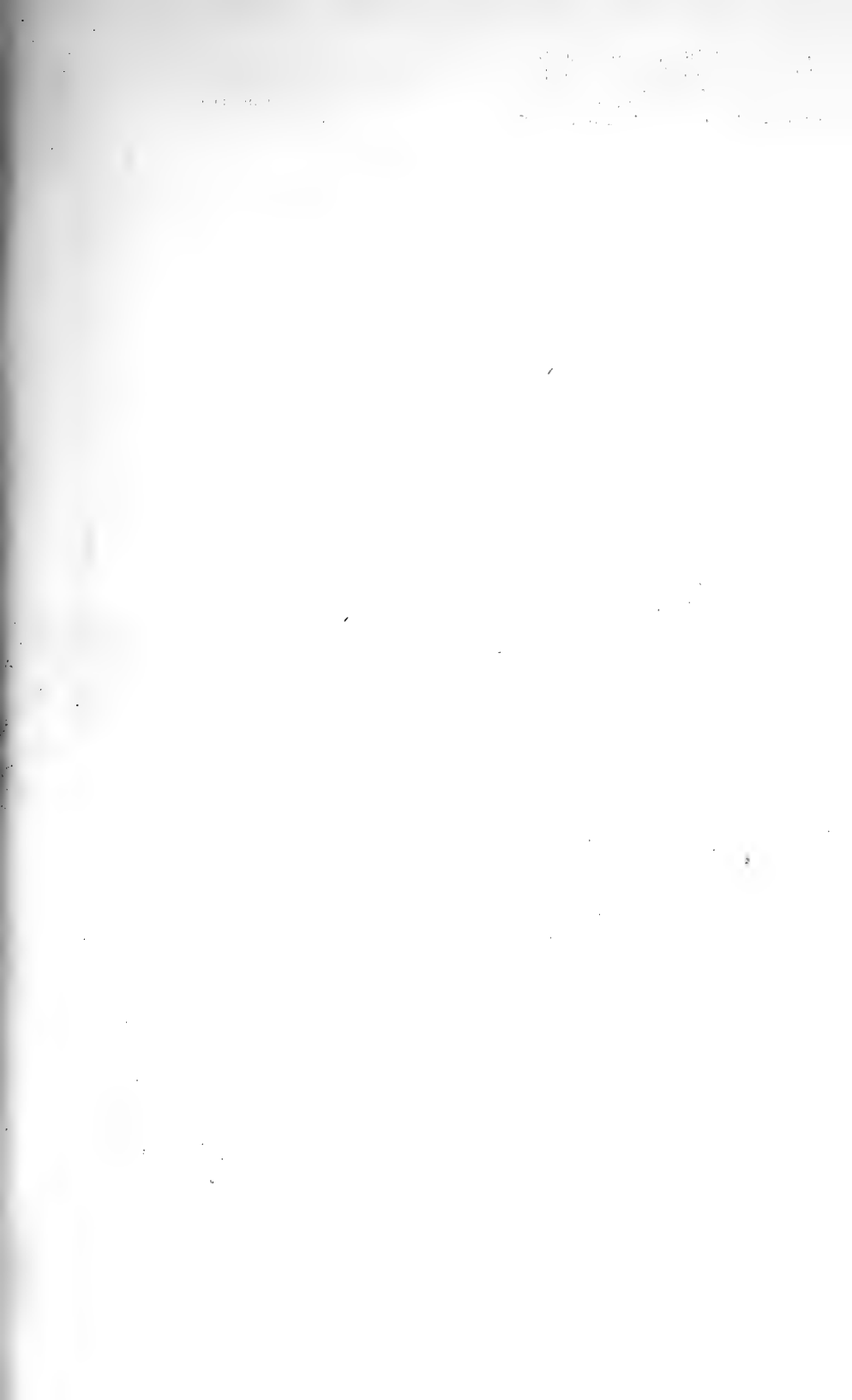
BEEET ARMYWORM (Spodoptera exigua) controls were needed in most fields of sugar beet seedlings in ARIZONA. Without controls of some type, from the cotyledon stage up to about four-inch leaf height, profit and yield would not be high.

#### MISCELLANEOUS FIELD CROPS

Infestations of PYRALID MOTHS were economic in two States. In the Trans-Pecos area of Texas, populations of SUNFLOWER MOTH (Homoeosoma electellum) was heavy during July. Some controls were applied in Reeves County, where larvae ranged 2-3 per head in some fields. This same species was also economic in 6 percent of the sunflower fields in Richland, Cass, and Traill Counties, NORTH DAKOTA. By August 13, larvae ranged up to 670 per 100 heads in these areas. At the same time, economic infestations of BANDED SUNFLOWER MOTH (Phalonia hospes) was not widespread. On August 20, the fields more heavily infested with this phaloniid moth showed 40 percent of the heads infested with larvae up to 20 per head.

A GALL MIDGE (Contarinia sp.) was damaging to sunflowers in NORTH DAKOTA and MINNESOTA. This species has not been described; however, the damage in these States was similar. Larval counts of 300 per head were noted by July 30 in North Dakota. Infestations and damage were heaviest in Traill County; where 89 percent of the sunflower fields were infested. Damage was lighter in Cass, Grand Forks, Steele, Walsh, and Pembina Counties. Pupation had occurred by August 20. In Minnesota, damage occurred in the Red River Valley late July and early August. The heaviest infestations were in southern Norman County. In some fields, infested heads range 70-90 percent. Little or no seed formed where populations were heavy, except for a ring of seed around the edge of the head. Control efforts were unsatisfactory.

Surveys in NORTH DAKOTA revealed SUNFLOWER MAGGOT (Strauzia longipennis) infestations in all the sunflower fields in Traill, Ransom, Steele, Walsh, Pembina, and Grand Forks Counties by August 13. Up to 100 percent of the stems were found infested in Traill, Pembina, and Grand Forks Counties. Gymnocarena diffusa (a tephritid fly) infested sunflower heads in Grand Forks County.



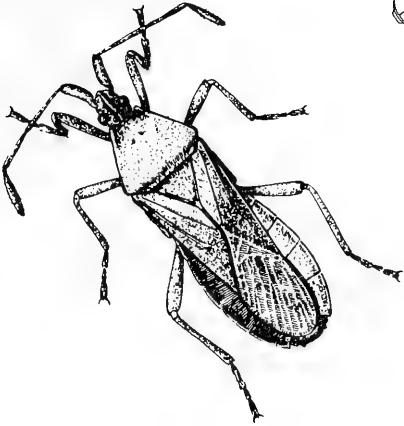
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

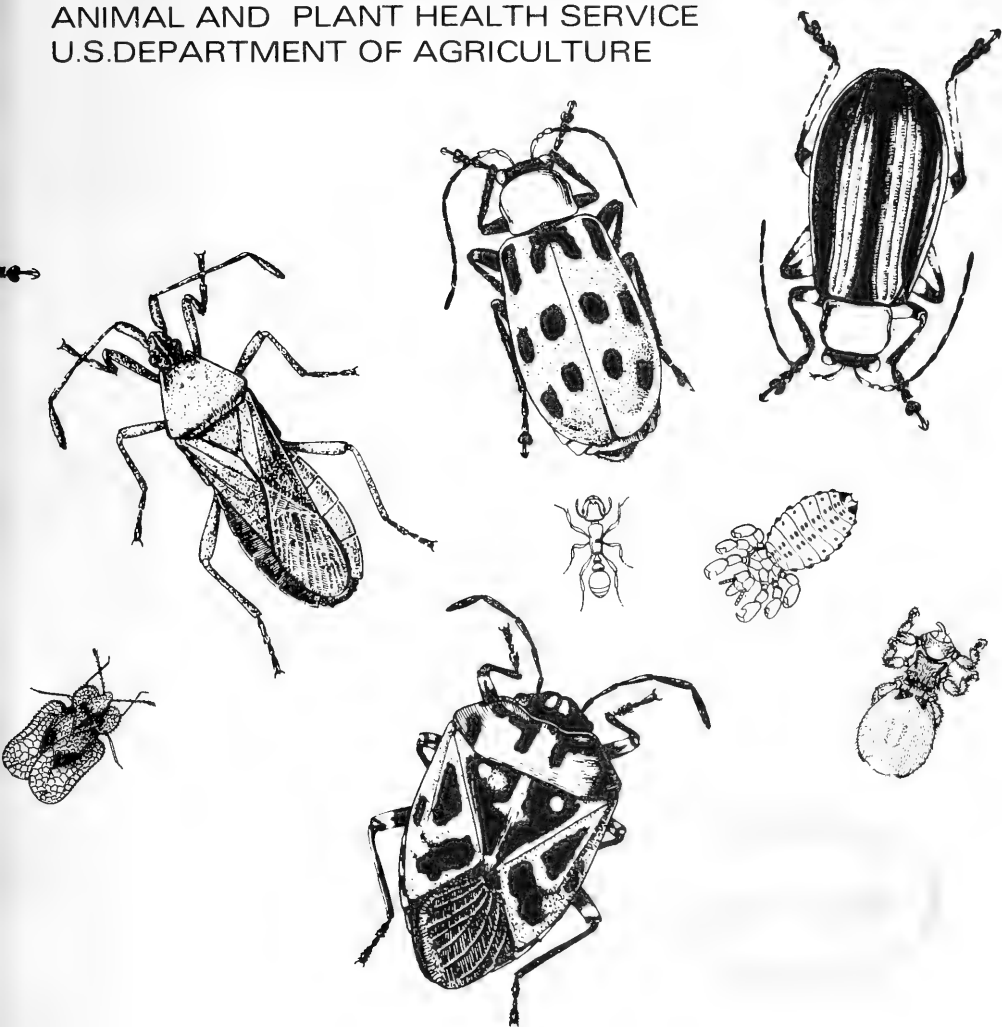


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

ARMY CUTWORM larvae appeared on wheat in Kansas and were economic on some wheat in Colorado. (p. 127).

ALFALFA WEEVIL larvae heavy on alfalfa in Texas and Oklahoma. (p. 128).

SPRING CANKERWORM expected to be serious on elms during 1972 in eastern Kansas. (p. 129).

Detection

For new county records see page 130.

Special Reports

Alfalfa Blotch-Miner Situation in Eastern United States (pp. 132-133).

Taxonomy of the Alfalfa Blotch-Miner. (pp. 134-137).

Summary of Insect Conditions in the United States - 1971  
Potatoes, Tomatoes, Peppers (pp. 138-140).  
Beans and Peas (p. 140).  
Cole Crops (p. 140).  
General Vegetables (p. 141).

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

## CONTENTS

Special Insects of Regional Significance.....	127
Insects Affecting	
Corn, Sorghum, Sugarcane...127	Forest and Shade Trees.....129
Small Grains.....127	Man and Animals.....129
Forage Legumes.....128	Households and Structures..130
Citrus.....128	Miscellaneous Wild Plants..130
Ornamentals.....129	
Federal and State Plant Protection Programs.....	130
Detection.....	130
Hawaii Insect Report.....	131
Corrections.....	131
Light Trap Collections.....	131
Alfalfa Blotch-Miner Situation in Eastern United States.....	132
Taxonomy of the Alfalfa Blotch-Miner.....	134
Summary of Insect Conditions in the United States - 1971	
Potatoes, Tomatoes, Peppers.....	138
Beans and Peas.....	140
Cole Crops.....	140
General Vegetables.....	141

---

### WEATHER OF THE WEEK ENDING MARCH 13

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

PRECIPITATION: A storm centered over southern Alberta Monday morning, March 6, caused 40 to 50 m.p.h. gusty winds in portions of the Rocky Mountains, Great Plains, Great Lakes region as it moved eastward and intensified. Gusts reached 100 m.p.h. at Lander, Wyoming, and one gust at Cheyenne, reached 107 m.p.h. Much of the City of Lander was without power Monday afternoon. A front draped southward and southwestward from the storm center. Southwesterly winds occurred ahead of the front, shifting to northwesterly with the frontal passage. Scattered snow flurries occurred near the Great Lakes. Freezing rain fell in the Milwaukee, Wisconsin, area late Monday. Windy weather continued Tuesday, causing some difficulty to motorists in northeastern North Dakota, where snow drifted and blowing snow reduced visibility. By midmorning Tuesday, the storm front extended from New York along the Appalachians to the gulf coast. Showers preceded, accompanied or followed the frontal passage. Amounts of precipitation ranged from 0.50 to 1.00 inches in the Deep South, but from 0.10 to 0.50 inch from the Ohio River northeastward to New England. The northern portion of the front was marked by snow flurries rather than rain showers. Little precipitation fell elsewhere over the Nation at midweek. Three precipitation areas began to shape up as the weekend approached. A storm in the Pacific Northwest brought occasional rain from Washington to northern California. A storm centered in West Virginia caused light snow from northern and central Ohio to central Pennsylvania. Light rain or drizzle also fell in extreme south Texas. Most of the southwestern quarter of the Nation received no rain or only light scattered sprinkles.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Moth collections increased from 30, the week ending March 3, to 225 this period in McLennan County blacklight trap. (Cowan).

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Larvae averaged 1 per row foot in 2 fields of wheat in Mead County and 1 per row foot in single field in Clark County period ending March 3. (Bell).  
COLORADO - Infestations scattered in winter wheat in Washington, Logan, Phillips, and Yuma Counties. Most larvae second and third instars and ranged 1-12 per linear foot; economic infestations mostly in Washington County. (Pilcher, Hantsbarger).

GREENBUG (Schizaphis graminum) - TEXAS - Continues light on small grains in most Rolling Plains counties; some scattered controls applied in Knox, Wilbarger, Wichita, and Baylor Counties period ending March 3. Increased this period throughout Rolling Plains area; some controls applied. Heavy infestations still scattered. Generally, populations light to medium throughout most of area. (Boring). OKLAHOMA - Ranged 200-300 per linear foot of wheat in Washita County. Continues heavy in scattered fields in Cotton, Stephens, and Jefferson Counties. Moderate in Garvin County and averaged 50 per linear foot in Garfield County. Light in Kingfisher and Noble Counties and ranged up to 10 per linear foot in Payne County. Ranged 0-9 per linear foot in few wheatfields in Rogers, Wagoner, Muskogee, Bryan, Marshall, and Carter Counties. (Okla. Coop. Sur.). ARIZONA - Light in barley and wheat in Cochise County and at Parker Valley, Yuma County. (Ariz. Coop. Sur.).  
NEW MEXICO - Light, up to 100 per linear foot of barley at Roswell, Chaves County. (Mathews).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Surveys negative at Albuquerque, Bernalillo County. (Heninger).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - INDIANA - Recovered 44 live and 10 dead larvae from 144 row foot of standing stalks in plowed field in Hancock County. (Meyer).

## SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light in scattered fields of wheat in eastern areas. Ranged up to 2 per linear foot in Rogers, Wagoner, Bryan, Carter, and Muskogee Counties. (Okla. Coop. Sur.). ARKANSAS - Counts variable, ranged as high as 500-600 per 100 sweeps of small grain in northwest area. About 90 percent parasitized. (Boyer). Light in wheat in east-central areas. (Sterling).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 5-40 per linear foot of wheat in Rogers, Wagoner, Bryan, and Marshall Counties. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Controls applied in some areas of Baylor County. Infestations light to moderate on small grains in Young County. (Boring).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - UTAH - Adults emerged from orchard duff at Manti, Sanpete County, and from moss in mouth of Blacksmith Fork Canyon of Cache County. (Knowlton, Judd). NEVADA - Adults observed in southern Washoe County alfalfa; no mating and no eggs found. (Bechtel). TEXAS - Infestations scattered and heavy on alfalfa period ending March 3 in Houston, Ft. Bend, and Robertson Counties. Some controls applied. (Gayle, Matthies). Larvae this period ranged 42-168 per square foot in Burleson County. First-generation adults appearing. OKLAHOMA - Infestations ranged up to 100 percent of terminals with up to 10 larvae per terminal in alfalfa in Choctaw, Bryan, and Marshall Counties. Damage moderate to heavy. Terminals infested ranged 68-96 percent in Wagoner, Muskogee, Johnston, Murray, and Garvin Counties. Damage light to moderate. Heavy in Cotton, Stephens, Jefferson, Grady, and Washita Counties. Larvae ranged 4-8 per terminal in many fields. Present in 68 percent of terminals in Mayes County field and 40 percent of terminals in Tulsa County field. Light in Kingfisher and Cleveland Counties and Garfield County. (Okla. Coop. Sur.). ARKANSAS - Eggs ranged 20-40 per 6-inch-square sample in Washington County. (Dumas). KENTUCKY - Eggs averaged 148 per square foot of alfalfa in Pendleton County, and 143 in several fields in Fayette County. (Barnett).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Ranged 200-1,000 per square foot of alfalfa in Garvin County and 120-130 in Murray County. Ranged 5-80 per square foot in fields in Tulsa, Mayes, Wagoner, Muskogee, Choctaw, Marshall, Bryan, and Johnston Counties. Light in Garfield County. (Okla. Coop. Sur.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Adults light in alfalfa in Muskogee, Choctaw, and Murray Counties. (Okla. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - First of season in alfalfa in Murray County. (Okla. Coop. Sur.).

## CITRUS

Citrus Insect Situation in Florida - End of February - CITRUS

RUST MITE (Phyllocoptruta oleivora) infested 71 (norm 65) percent of groves; economic in 46 (norm 43) percent. Population decreased but still above normal and in high range. Decrease on leaves will continue, increase expected on fruit. Highest districts south, west, and central. CITRUS RED MITE (Panonychus citri) infested 22 (norm 29) percent of groves; economic in 2 (norm 14) percent. Population lowest for February in 21 years of record. Little change expected. All districts will remain in low range. TEXAS CITRUS MITE (Eutetranychus banksi) infested 17 (norm 30) percent of groves; economic in 7 (norm 11) percent. February population lowest since 1962 and will go lower. Very low levels of infestation will continue in all districts. SIXSPOTTED MITE (Eotetranychus sexmaculatus) below normal and in few groves, but will gradually increase. GLOVER SCALE (Lepidosaphes gloverii) infested 69 (norm 78) percent of groves; economic in 2 (norm 13) percent. Will decrease and remain at low level through March. Highest district south. PURPLE SCALE (L. beckii) infested 74 (norm 74) percent of groves; economic in 2 (norm 8) percent. Population below normal and will remain of little importance despite temporary increase in March. Highest district west. CHAFF SCALE (Parlatoria pergandii)

infested 43 (norm 54) percent of groves; economic in 1 (norm 6) percent. YELLOW SCALE (Aonidiella citrina) infested 61 (norm 61) percent of groves; economic in 1 (norm 10) percent. These scales below normal abundance and will be unimportant in all districts. BLACK SCALE (Saissetia oleae) infested 46 (norm 28) percent of groves; economic in 21 (norm 11) percent. Will continue to decrease but still more abundant than in any prior February on record. High districts east and central; others low. AN ARMORED SCALE (Unaspis citri) infested 30 percent of groves; economic in 22 percent. Population higher than in any prior month. Slight increase expected. WHITEFLY larval and pupal stages will decrease; adults and eggs will increase to above normal numbers. Highest district east. APHIDS appearing in scattered groves. Strong increase expected. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

OMNIVOROUS LEAF ROLLER (Platynota stultana) - ARIZONA - Few larvae entered grapefruit and found feeding just under rind, on east side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### ORNAMENTALS

AN ADELGID (Adelges tsugae) - VIRGINIA - Adults collected on Hemlock at Rocky Mount, Franklin County, by C.C. Tucker on March 2. Determined by J.A. Weidaas. This is a new county record. (Allen).

BROWN GARDEN SNAIL (Helix aspersa) - OREGON - Single live specimen found in survey of 10 greenhouses and garden centers in Multnomah, Washington, and Clackamas Counties. (Larson).

#### FOREST AND SHADE TREES

TENT CATERPILLARS (Malacosoma spp.) - OKLAHOMA - M. americanum (eastern tent caterpillar) hatched on wild plum in southeast and south-central areas. Larvae about 0.50 inch long in Choctaw and Bryan Counties and about 0.25 inch long in Marshall and Johnston Counties. (Okla. Coop. Sur.). ARIZONA - Malacosoma spp. tents noted in several areas in Salt River Valley cottonwoods in Maricopa County. (Ariz. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Expected to be serious on elms in eastern areas in 1972. During late February, males noted in Shawnee and Riley Counties, and 2 gravid females noted in Riley County. (Bell).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEVADA - Numerous adults emerged from hibernation in Reno and Sparks area of Washoe County. (Nev. Coop. Rpt.).

#### MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 2 cases reported in U.S. February 27 to March 4, as follows: Hidalgo and Zapata. Total of 154 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 48, Chihuahua 22, Coahuila 8, Nuevo Leon 13, Tamaulipas 63. Total of 47 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. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Averaged 11.7 (ranged 0-30) on backs of untreated cattle in Jessamine and Fayette Counties. (Herald, Barnett). Grubs averaged 4.8 per animal on backs of dairy cows of various ages in Fayette County. (Barnett). ALABAMA - Occurring on cattle in Colbert County. Controls applied in Bullock County. (Rose et al.).

CATTLE LICE - OKLAHOMA - Mainly Haematopinus eurysternus (short-nosed cattle louse) heavy on cattle in Cimarron, Delaware, Creek, Lincoln, and Cotton Counties. (Okla. Coop. Sur.).

#### HOUSEHOLDS AND STRUCTURES

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - WASHINGTON - Winged forms noted March 6 in basement of home at Ephrata, Grant County. (Hunter, Retan).

#### MISCELLANEOUS WILD PLANTS

A MEALYBUG (Spilococcus ventralis) - CALIFORNIA - On roots of Encelia farinosa at Ocotillo, Imperial County. This is a new county and host record. (Cal. Coop. Rpt.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

OBSURE SCALE (Melanaspis obscura) - CALIFORNIA - Infestation in Capitol Park at Sacramento, Sacramento County. Eradication treatment underway by systemic injections. (Cal. Coop. Rpt.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Egg clusters scattered and very light in most areas March 8 and 9. Only one area showed high egg cluster count northeast of Encinosa, Lincoln County. Occasional egg cluster noted in rangeland areas treated in 1971. (Riddle, Nielsen).

A SATURNIID MOTH (Hemileuca hualapai) - ARIZONA - Adult male reared by R. Wielgus from larvae collected September 1971 at Empire Mountains, Pima County. Doubtful that any of remaining unhatched pupal cases will contain H. oliviae (range caterpillar) specimens. (Ariz. Coop. Sur.).

#### DETECTION

New County Records - AN ADELGID (Adelges tsugae) VIRGINIA - Franklin (p. 129). A MEALYBUG (Spilococcus ventralis) CALIFORNIA - Imperial (p. 130).

## HAWAII INSECT REPORT

General Vegetables - Larvae of IMPORTED CABBAGE WORM (Pieris rapae) trace in 0.25 acre of daikon (Raphanus sativus longipin-natus) at Koko Head, Oahu; less than 5 percent of plants infested. Adults moderate at large. BEET ARMYWORM (Spodoptera exigua) larvae light in 5,000 square feet of green onions at Waimanalo, Oahu; heavy in 0.2 acre of same crop at Koko Head, about 60 percent of leaves infested with 1+ larvae. CARMINE SPIDER MITE (Tetranychus cinnabarinus) moderate in 0.5 acre of eggplant at Punaluu, Oahu; as many as 250+ nymphs and adults per square inch on leaves. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) trace to light on 100+ coconut trees at Hawaii Kai, Oahu. About 15 percent of pinnae on 20 percent of older fronds with light colonies. Older fronds exhibit effects of previous infestation. Nymphs and adults of lady beetles (Telsimia nitida and Lindorus lophanthae) preying on scales. (Kawamura).

Man and Animals - During February collected 373 VEXANS MOSQUITO (Aedes vexans nocturnus) and 4,551 SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) from 56 light traps from Oahu. Catches of Aedes ranged 0-289 per trap at Punaluu, and Culex ranged 0-996 per trap at Kailua. (Mosq. Contr. Br., State Dept. Health).

Beneficial Insects - On Kauai, field collected cowpea and snap bean material infested with BEAN FLY (Melanagromyza phaseoli) found parasitized from 80-100 percent by braconids (Opius phaseoli and Opius sp.). (Sugawa).

Miscellaneous Pests - Destroyed total of 141 GIANT AFRICAN SNAIL (Achatina fulica) specimens during February on Kauai; 134 at Poipu and 7 at Wahiawa. Detected 20+ snails on Hawaii at White Sands area. Aerial bait drops planned. (Sugawa, Yoshioka).

### CORRECTIONS

CEIR 22(7):56 - Map legend ... "COUNTIES IN WHICH EUROPEAN CORN BORER REPORTED in 1972" should read "NEW COUNTIES IN WHICH EUROPEAN CORN BORER REPORTED in 1971." (PP).

CEIR 22(9):101 - "The Southeastern Branch Entomological Society of America, " ... should read ... "The Southeastern Branch of Entomology Society of America, comprising the States of Louisiana, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina, Tennessee, and Arkansas ..." (PP).

### LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 3/3-9, BL, Granulate cutworm (Feltia subterranea) 4, saltmarsh caterpillar (Estigmene acrea) 2, tobacco budworm (Heliothis virescens) 1, yellowstriped armyworm (Spodoptera ornithogalli) 1, armyworm (Pseudaletia unipuncta) 2. MISSISSIPPI - Stoneville, 3/3-9, BL, Temp. 30-70F., precip. 0.09, Black cutworm 5, armyworm 13, variegated cutworm (Peridroma saucia) 11. TEXAS - Waco, 3/4-10, BL, Armyworm 225, yellowstriped armyworm 27, black cutworm 22, variegated cutworm 152, granulate cutworm 58, saltmarsh caterpillar 1.

## ALFALFA BLOTCH-MINER SITUATION IN EASTERN UNITED STATES

Infestations of a leafminer (Agromyza sp.) in alfalfa have been reported in some of the Eastern States during the past several years. These occurrences have been reported in the Cooperative Economic Insect Report on a weekly basis since July 1969.

Prior to 1972, this leafminer was considered, by K. A. Spencer, a specialist of Agromyzidae in England, to be an undescribed species, especially in Massachusetts, New Hampshire, New Jersey, New York, and Connecticut, because of deviation of characters in available descriptions. United States taxonomists suspected that the species involved in these States was Agromyza frontella, a European species. Early in 1972, it was taxonomically confirmed by Spencer that this species is present in Massachusetts, New Jersey, and New York.

A questionnaire was submitted to cooperators in 18 Eastern States in an attempt to ascertain the distribution, economic impact, and controls used for this species. The responses from 15 of these States indicate the problem to be most significant in Massachusetts. Damage was first noticeable in this State during 1968 when infestations were reported in most of the State but population densities were recorded only in the 3 western counties. In 1971, infestations were heavy in southern Berkshire County, medium in Franklin, Hampshire, and Hampden Counties, light in Worcester County, and very light in Bristol County. There is no information available concerning infestations of this leafminer in alfalfa for the remaining two counties in Massachusetts. The heaviest larval damage to alfalfa leaflets during 1971 was 58 percent on June 14 in Berkshire County. (Personnel of Entomology Research Division, USDA, state that damage to alfalfa in some fields in the western portion of Massachusetts was so heavy that nothing remained of plants but the stems). The problem was first apparent during the first cutting of alfalfa when damage was at its peak. Damage declined slightly during the summer and sharply in September. This leafminer was not observed on any other crops in the State, and very little, if any, alfalfa was treated during 1971. The dollar loss to the alfalfa crop in Massachusetts (30,000 to 40,000 acres, not pure alfalfa) was negligible. Loss was mostly due to a lower quality of the crop.

The first noticeable damage to alfalfa in New York was during 1970 in Dutchess County and other adjacent counties. In 1971, this species was more important in this area than the alfalfa weevil. This leafminer apparently has not moved into other crops in New York. Controls using phosphate insecticides have been tested and show satisfactory results. Surveys in New Jersey during 1971 revealed infestations statewide. There were no reports of damage to alfalfa in 1971.

It is suspected that many of the reports on Agromyza sp. which follow may in fact be Agromyza frontella. Agromyza sp. first caused noticeable damage to alfalfa in Connecticut during 1969 in New Haven County. Approximately 2,000 acres were involved. In 1970, this pest was a problem on about 8,000 acres of alfalfa in New Haven, Litchfield, and Tolland Counties, but was not a problem during 1971. No treatment for this pest on alfalfa was reported in Connecticut. Although no yield data are available, it is estimated that this leafminer caused a loss of about 10 percent to the 1969-1970 alfalfa crop, or about nine dollars per acre, in



Connecticut, involving the first and second cuttings. In Rhode Island, a leafminer, possibly Agromyza sp., damaged alfalfa during 1970. By the time damage was noted the mines were empty; thus, no specimens could be collected for identification. Although damage was quite extensive in a 40-acre field of alfalfa, the best estimate of damage available was a loss of 50 percent in some areas of the field. No leafminer infestations were reported in alfalfa in Rhode Island during 1971.

Agromyza sp. is believed to be present in alfalfa throughout Vermont and to cause some damage in isolated areas. Infestations have been confined to alfalfa in the Concord area of Vermont, with no apparent involvement of other crops. This leafminer first caused noticeable damage to alfalfa in New Hampshire during the 1969 season. It is estimated that 100 acres of alfalfa were affected in both 1969 and 1970; however, no damage was reported in 1971. The alfalfa acreage in Maine has always been very small and is steadily decreasing, due to frost killing and the increasing use of corn for silage. Many of the alfalfa stands in the State are very poor (10 percent stand or less); thus, a significant evaluation of the Agromyza sp. situation in alfalfa is very difficult. Damage was first noticed about July 20, 1971. Infestations were found in only two fields with less than a 10-percent stand. Both fields were in extreme southern York County near Springvale and Alfred. These infestations were observed only in the early bloom stage about ready for the second cutting. Damage was not significant and no treatment was made. Infestations was noticed only in alfalfa.

Leafminers were first noticed as being common in Delaware alfalfa about 1964 or 1965. These pests affected about 50 percent, or 2,500 acres, of the alfalfa in the State at that time, but were much less common in 1971. Although Agromyza sp. appears to occur state-wide, it is not known in what areas significant damage occurs. Leafminers have been observed to be much heavier in lima beans planted adjacent to alfalfa than in plantings some distance from alfalfa, but it is not known whether this is A. frontella. As no data are available on the economic threshold of this leafminer, it is difficult to determine the economic damage caused to alfalfa in Delaware. Agromyza sp. has been collected from alfalfa in Roanoke and Montgomery Counties, Virginia. There are records of this pest in Montgomery County since 1963, but it is not believed to cause economic damage to alfalfa in the State. Leafminers are difficult to find in most fields of alfalfa in Virginia and a small amount of leaf drop is not considered damaging to the crop. Very light infestations of a leafminer have also been observed in red clover since 1968 and there is a record of the pest on red clover as early as 1963. Populations have not been sufficiently heavy in Virginia to warrant treatment.

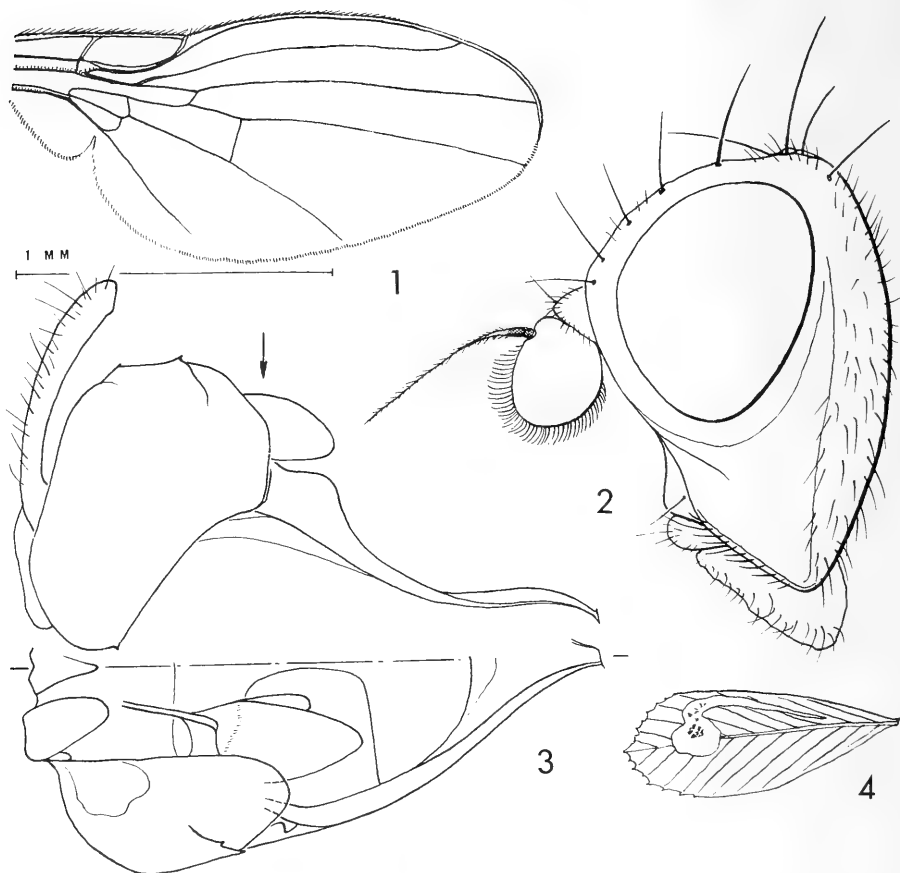
There are no records of Agromyza sp. on alfalfa in Maryland. In Pennsylvania, no noticeable damage by this pest has been observed on alfalfa. However, careful examination of alfalfa in Wyoming County showed that a few leaves on about 2 percent of the plants were infested with a leafminer during the summer of 1971. As the infestation was light, no treatments were made. In West Virginia, there is no information available concerning economic infestations of Agromyza sp. in alfalfa.

Agromyza sp. is not known to infest alfalfa in Ohio, Tennessee, or North Carolina.

The Taxonomy of the Alfalfa Blotch-Miner,  
Agromyza frontella (Rondani)

George C. Steyskal 1/

The species was originally described by Camillo Rondani in 1874 (Boll. Soc. Entomol. Ital. 7:175) as Domomyza frontella from the vicinity of Parma, Italy. The genus Domomyza is now considered a synonym of Agromyza. The species was for some time confused with Agromyza nana Meigen, but at least since 1924 has been adequately distinguished from that and other closely related species mining the leaves of various legumes. In North America, the species was at first considered to be an undescribed species because of deviation from characters in available descriptions, but after examination of sufficient material its identity with the European species was confirmed.

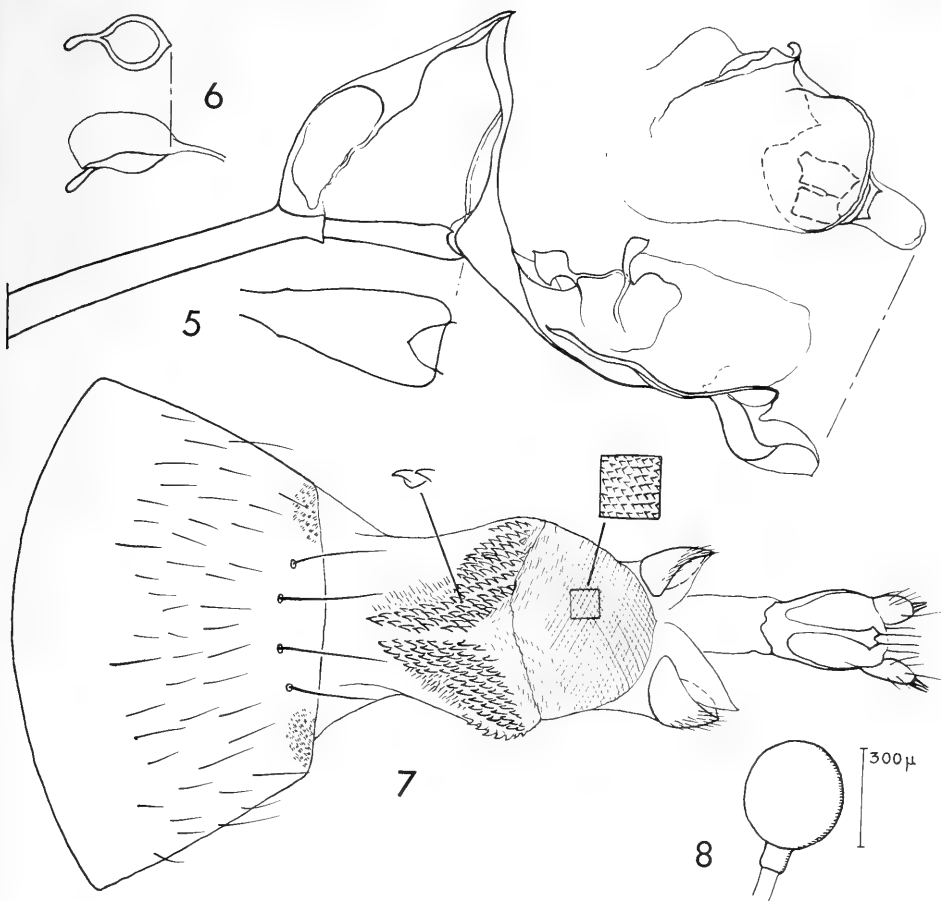


Figs. 1-4. Agromyza frontella (Rondani). 1, wing; 2, lateral view of head, male; 3, male postabdomen, less phallosome, lateral and ventral view (latter, a half-view in direction of arrow); 4, mine in leaflet of alfalfa. Scale refers to fig. 1 only.

1/ Systematic Entomology Laboratory, ARS, U.S. Dept. Agr.

Agromyza frontella has been reported from a wide area in Europe: Italy, France, England, Holland, Denmark, Sweden, Germany, Austria, Bulgaria, and Russia. It seems to have attracted little attention as a pest in Europe, inasmuch as the only specific report on its habits and morphology is one by H. Bollow (1955, Pflanzenschutz, Munchen, 7:141-143), who cites a mass occurrence on alfalfa in Germany.

The host-plants are various species of Medicago (M. falcata, M. lupulina, M. sativa), Melilotus, and Trifolium. The preferred host is apparently alfalfa, M. sativa.



Figs. 5-8 Agromyza frontella (Rondani), 5, male phallosome, lateral view, with dorsal view of base of phallopodeme and ventral view of aedeagus; 6, sperm pump; 7, female postabdomen, dorsal view; 8, spermatheca.

The mine of A. frontella (fig. 4) usually begins near the base of a leaflet, broadens toward tip of leaflet as the larva grows, and finally expands into a distinct blotch, which may occupy a large part of the leaflet.

The larvae of American Agromyzidae are so little known in detail that it is practical at this time only to state that the larva of A. frontella differs from those of the serpentine leafminers (Liriomyza species) in the dorsal cornu of the cephalopharyngeal skeleton. That part in A. frontella is broad and divided into 2 arms; in Liriomyza spp., it is slender and simple.

The adult of A. frontella will run in the key by Frick (1959, Proc. U. S. Natl. Mus. 108:362) to A. spiraeae, a leafminer of Rosaceae, and in the key by Spencer (1969, Mem. Entomol. Soc. Can. 64:30) it will run to couplet 28, beyond which point variability in color of the front and squamal fringe (both from yellowish to dark brown) will give difficulty. The species may be distinguished most readily from other North American species of Agromyzidae by the following characters:

- 1) Wing (Fig. 1) with subcostal vein complete to costa, touching first vein just before the latter forms a wedge-shaped area in joining the costa.
- 2) Halteres white.
- 3) Prescutellar acrostichal bristles present.
- 4) Body black, dully shining, knees, foretibia, basal 3 tarsal segments, middle and anterior part of front, large part of face and cheeks, and basal antennal segments yellowish to brownish.
- 5) Dorsocentral bristles 4, all large, 3 postsutural and 1 antesutural, the latter well anterior to presutural bristle.
- 6) Midtibia without median bristle (posterior when present).
- 7) Male and female postabdominal characters distinctive (figs. 3-7).

Additional characters are to be found in the wing (Fig. 1), the costa of which is evanescent between the tips of the third and fourth veins; the posterior crossvein a little basad of middle of the fifth vein; and the sixth vein long, but fading out before wing margin.

The head (Fig. 2, male) is characterized by unusually high cheeks and oblique oral margin, broadly fringed antennae in the male, and in both sexes by a rather short and pubescent arista, dark basally and in most of the slender part, but with a yellowish section where the thicker basal section tapers off.

The male postabdomen, removed along with part of the preabdomen and macerated for about a minute in freshly made 10 percent solution of soda lye (NaOH), shows decisive distinguishing characters (Figs. 3-6). The sperm pump (Fig. 6) is unusually small, with a very short stem and nearly circular head.

The female postabdomen, treated in the same manner as for the male, is also characteristic. Although this part is very difficult to handle when the ovipositor is withdrawn into the sheath, the spermathecae may be easily examined. In A. frontella

(Fig. 8), they are a pair of virtually globular black structures lying in the hind part of the abdominal cavity. If the abdomen of freshly killed female specimens is carefully squeezed, the ovipositor will usually extrude and a little gentle pulling will leave the parts in a position that will make eventual slide preparation, preferably in euparal, much easier.

All figures here given have been prepared from American specimens.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(11):134-137, 1972

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1971  
(Continued from page 124)

POTATOES, TOMATOES, PEPPERS

Highlights:

Green peach aphid became a problem in Oregon commercial and seed potato fields, overshadowed all other pests of potatoes and peppers in Michigan, and was difficult to control in Maine and Florida. Potato tuberworm was a severe problem to unharvested late spring potatoes in Virginia.

---

BEET ARMYWORM (Spodoptera exigua) larvae appeared in August and were heavy on fall potatoes and beets in VIRGINIA. While only scattered damage was observed during 1970, all potatoes were seriously infested on the Eastern Shore. CABBAGE LOOPER (Trichoplusia ni) populations started slowly, but dry weather from June to August helped the population in August. Larvae ranged 50-75 per tomato plant on the Eastern Shore.

EUROPEAN CORN BORER (Ostrinia nubilalis) was found in potatoes in central WISCONSIN in mid-July. Some stalks were killed in this area, however, controls were applied during periods of moth activity and damage was generally light. In MICHIGAN, European corn borer was controlled by the use of recommended procedures on peppers and potatoes. Damage to these crops was light. Damage to untreated sweet peppers in DELAWARE ranged 30 to 80 percent in Sussex County late August and in September. First-generation larvae were heavy on potatoes in some areas.

VARIEGATED CUTWORM (Peridroma saucia) larvae peaked during mid-summer throughout the potato-growing area of the Willamette Valley in OREGON. Defoliation was the most obvious damage but some larval feeding on shallow tubers also occurred. Larvae pupated in mid-August and first adults of the second generation emerged in late August. Economic populations of third-generation larvae failed to develop, apparently due to effects of weather and parasites. Larvae caused extensive damage on a wide variety of crops in OHIO. Heavy feeding was noted in tomato fields in northern areas, up to 8 holes were noted in individual tomato fruit.

POTATO TUBERWORM (Phthorimaea operculella) infestations started slow on spring potatoes on the Eastern Shore of VIRGINIA. Toward the end of the season economic populations occurred on unharvested spring potatoes. Some fields were abandoned due to injury in the soil. Heavy damage was noted to fall potatoes in August; but decreased afterwards due to adverse weather. In MICHIGAN, this pest was not a problem in potatoes in the field. Populations were heavy in potatoes in Monterey County, CALIFORNIA.

TOMATO PINWORM (Keiferia lycopersicella) was light in FLORIDA tomatoes in the greenhouse and in the field. Damaging populations were noted for the first time in MISSISSIPPI in several years. Populations in CALIFORNIA were late in developing and scattered.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) infestations on potatoes and tomatoes in northern and central UTAH, were above normal. Controls were applied to most commercial fields and some gardens twice. Larvae of the Colorado potato beetle appeared in

COLORADO the first week of June. Economic populations of 24 per 10 sweeps were common on potatoes in Weld County. Controls were applied to most fields. Adults and larvae were observed infesting potatoes throughout TENNESSEE the first week of June. Controls were effective when applied; however, in some few cases where no controls were applied, damage was severe. The earliest report in KENTUCKY was from Warren County on June 4. Populations rapidly increased and caused considerable damage to potatoes in Whitley and Fayette Counties and to tomatoes in Fayette County. Adult population was lighter than several previous years on the Eastern Shore of VIRGINIA. Untreated potatoes at the Eastern Shore Branch Station were defoliated at least 3 weeks later than in 1970 and produced 80-100 bags of U.S. number 1 potatoes per acre as compared with a 100 percent loss in 1970. Damage to tomatoes was also much less. Fall infestations appeared to be about equal with those of previous years and should insure a potentially heavy overwintered population for 1972. Adult feeding and egg laying in MARYLAND started the week ending May 14 in Somerset, Wicomico, and Worcester Counties. Populations appeared slightly below 1970's levels, but were moderate to heavy throughout the season. Potato and tomato growers depended heavily on scheduled spray programs to avoid economic damage. Colorado potato beetle was found throughout RHODE ISLAND by July 15. Several infestations on tomatoes were reported in Providence County. By July 19, larvae and adults were reported in Kent and Washington Counties. This insect did not cause economic damage in commercial fields.

GREEN PEACH APHID (Myzus persicae) buildup was noted in commercial and seed potato fields in Klamath County, OREGON, during July. An estimated 2,500 acres was economically infested and counts ranged 35-100 infested leaves per 100 leaf sample. Leaf roll symptoms were common and some commercial growers reportedly did not harvest. Green peach aphid appeared on potatoes and peppers about 10-14 days earlier than usual in MICHIGAN. Populations became established and overshadowed all other pests of these crops for the remainder of the season. Stem mothers were found on Canada plum in central and southern MAINE on May 21 and in northern areas on May 28. In Aroostook County, green peach aphid colonies increased in size by June 11 and winged migrants started to move to early planted potatoes on June 16. Winged migrants were collected in yellow pan traps on June 25. The heaviest counts of alate forms were observed on August 20, after which populations were reduced sharply due to a fungus disease. Several potato seed stock and chip growers had difficulty in controlling green peach aphid late in the season because of heavy foliage and perhaps some resistance. Systemics were good early control. Infestations were heavy on Irish potatoes during early July in Kent County, DELAWARE, and on some peppers during August and September in Sussex County. Also present in damaging populations during April and May on tomatoes in greenhouses in New Castle County. On the Eastern Shore of VIRGINIA, green peach aphid caused considerable damage to late Irish potatoes but was no problem to spinach in the spring. Very heavy infestations developed on fall potatoes in late October, along with a fungus. Plants infested earlier, more abundantly, and over a longer period in the season than observed for over 20 years in FLORIDA; heavy populations in the spring caused control problems on potatoes in St. Johns County. Heavy in many tomatoes in the Homestead area; worse than for many years or possibly than every before. Heavy colonies of green peach aphid

developed on peppers in Belle Glade area during the late winter and early spring and was the most important vector of virus diseases on this crop, causing very heavy losses throughout the producing areas. No problem during the fall but populations were heavy in the spring at Bradenton.

Colonies of POTATO APHID (Macrosiphum euphorbiae) nymphs, with wing pads, were observed on June 11 in MAINE on wild rose, where winged migrants were abundant by June 18 and observed moving to potatoes. Peak per plant infestation reached 94.83 percent on July 30 but declined to 38 percent at topkilling time on August 27.

#### BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) infestations were heavy throughout the Palouse area of eastern WASHINGTON. Damage to untreated peafields was moderate to heavy in this area. Adults in IDAHO reached outbreak numbers in some fields in Latah, Benewah, and Kootenai Counties early May. Counts of 2-20 adults per square foot were found about mid-May. The plants outgrew the feeding damage in most fields.

PEA WEEVIL (Bruchus pisorum) activity was retarded by cool, wet weather in WASHINGTON until harvest. Populations at that time were heavier than in 1970. Some growers indicated that populations were the heaviest in many years.

MEXICAN BEAN BEETLE (Epilachna varivestis) infestations were heavy throughout ALABAMA on pole and lima beans.

VARIEGATED CUTWORM (Peridroma saucia) larvae ranged up to 30 per square yard of bush beans in the Willamette Valley of OREGON. In some fields, larvae had not been detected until harvest. In these fields pod damage was excessive and crop was plowed under. WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) larvae ranged up to 15 per square yard of peas in Nez Perce County, IDAHO, about June 16. Damaged leaves and stems in this area. Economic populations were reported in Clearwater, Idaho, Nez Perce, Latah, and Lewis Counties in peas and lentils from July 26 to August 4. Controls were applied in these counties. EUROPEAN CORN BORER (Ostrinia nubilalis) larvae infested snap beans in late July in WISCONSIN. Controls were applied by commercial growers.

#### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) continues to be the main problem on cabbage in the Everglades area of FLORIDA. Populations were light during the winter, but considerable damage occurred during the spring whenever control procedures were relaxed. Heavy populations caused control problems at Hastings during the spring and fall. This pest in CALIFORNIA was troublesome on cabbage and broccoli.

IMPORTED CABBAGEWORM (Pieris rapae) damaged untreated cabbage in Larimer and Weld Counties, COLORADO, the week of July 24-30. Populations continued troublesome through August and September until harvest. Very common and widespread throughout CALIFORNIA on cole crops.



## GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) required almost continuous controls in the Parker Valley Lettuce growing area of ARIZONA from mid-October through mid-December. Larvae in east-central OKLAHOMA caused heavy damage to 200 acres of spinach and turnips in late October and early November. The first treatment was not effective and these fields had to be retreated.

BEE T ARMYWORM (Spodoptera exigua) larvae were found in lettuce throughout the season in ARIZONA. Controls were needed to maintain quality. In Yuma County, some difficulty was encountered in controlling this pest by some growers. Beet armyworm larvae caused much damage to many vegetables in CALIFORNIA. Populations were more prevalent this year than during previous years.

Continuous controls were needed for ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) in CALIFORNIA. Loss to artichoke ranged 15-20 percent of the crop.

ASPARAGUS APHID (Brachycolus asparagi) was common on asparagus fern in late August in New Castle and Kent Counties, DELAWARE. This was reported as a new State record. Asparagus aphid was recovered for the first time in a small garden of asparagus in Prince Georges County, MARYLAND. However, this aphid is not established in the commercial asparagus production areas of Maryland. This occurrence was reported as a new State record.

ONION MAGGOT (Hylemya antiqua) controls held heavy populations in check in Michigan. Heavy damage occurred to 400 acres where a nonrecommended insecticide was used.

ONION THRIPS (Thrips tabaci) was reported on onions in Delta, Montrose, Larimer, and Arkansas Valley areas of COLORADO. Populations were more abundant than usual, up to 75 per plant. This pest caused damage from late August until harvest. This species was a major pest of cabbage in Bay, Berrien, Cass, Monroe, and Van Buren Counties, MICHIGAN. T. tabaci also damaged green onions and seed onions throughout CALIFORNIA.

Weather of the week continued from page 126.

TEMPERATURE: Sunny weather prevailed over much of the Nation early in the week. A storm center moved from southern Alberta to the Great Lakes region and continued to Ontario and Quebec. An Arctic air mass pushed into the northern Great Plains and spread southward and eastward. A long front marked the advance of cold Arctic air. Southwesterly winds warmed an area south of the front. Hill City, Kansas, warmed to 93 degrees Monday afternoon, March 6. Grand Island, Nebraska, registered 84 degrees with less than 5 percent relative humidity, strong winds picked up dust from dry areas. Visibility in some dust storms became reduced to less than one-half mile. Cold northerly winds behind the eastward moving storm brought falling temperatures. Subzero weather came to the upper Great Lakes area Monday, to northern New England Tuesday, and northern portions of North Dakota and Minnesota on Wednesday. Some places northerly winds gusted to more than 50 m.p.h. They picked up snow and dust and visibility became less than 2 miles. Worthington, Minnesota, measured one gust of 75 m.p.h. Blowing and drifting snow were common from North Dakota to Michigan Tuesday afternoon. Mild weather continued along the Gulf of Mexico with afternoon temperatures reaching 70's or 80's at most locations. High pressure and fair weather covered mid-America from the Rocky Mountains to the Appalachians at mid-week. Winter continued its grip over the eastern half of the Nation. Warming occurred over the West and Central. Goodland, Kansas, was 9 degrees warmer than Tampa, Florida, Thursday afternoon. The Southwest was hot with temperatures soaring to the 90's most days. Phoenix and Yuma in Arizona, registered 94 degrees Thursday. Cold weather persisted near the Great Lakes Wednesday afternoon. Marquette, Michigan, registered only 12 degrees and Chicago, Illinois, 28 degrees. Slightly warmer temperatures occurred over the northern Great Plains and the Great Lakes region Thursday, but maximums were generally below freezing. Temperatures averaged cooler than normal in the vicinity of the Great Lakes and over States bordering the Atlantic Ocean. Most of the rest of the Nation averaged warmer than normal. Much of the Great Basin, central and southern Rocky Mountains, and central Great Plains averaged more than 10 degrees warmer than normal.

---

## NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-MARCH TO MID-APRIL 1972

The National Weather Service's 30-day outlook for mid-March to mid-April is for temperatures to average above seasonal normals west of the Rockies. Below normal averages are expected from the eastern portion of the Great Plains to the Appalachians while near normal temperatures are in prospect in unspecified areas. Precipitation is expected to exceed normal in the South and also over the East Coast States. Subnormal totals are indicated west of the Divide except for near normal totals along the north Pacific coast. Elsewhere near normal precipitation is in prospect.

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

For the continuation of the weather of the week and 30-day forecast see page 142.







U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

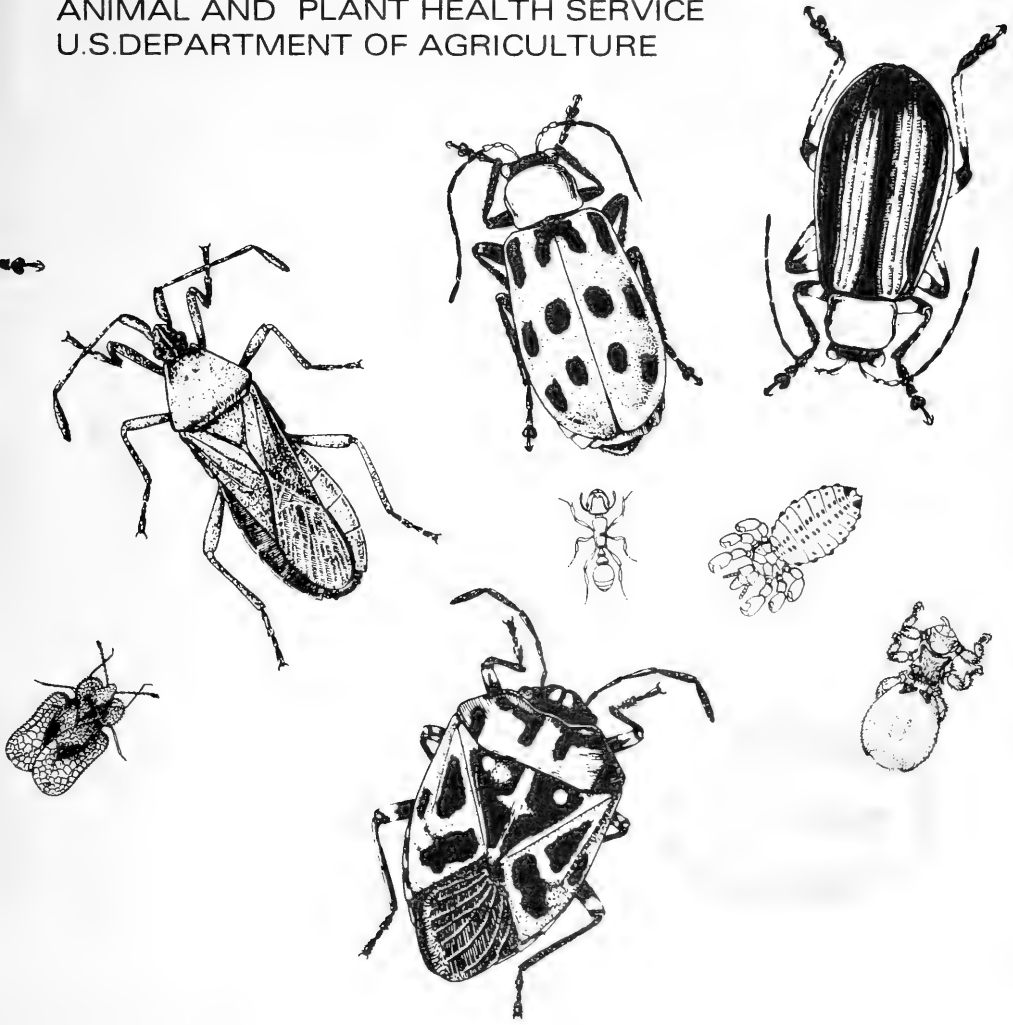


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

GREENBUG still heavy in wheat in Oklahoma and some controls applied in Rolling Plains of Texas. (p. 145).

Survival of overwintering EUROPEAN CORN BORER less than normal in Illinois. (p. 145).

ALFALFA WEEVIL larval infestations heavy throughout southeast Oklahoma. Expect heavy damage to alfalfa late in season in Illinois. (p. 146).

PEAR PSYLLA egg laying increased in north-central Washington, controls applied in Yakima Valley. (p. 147).

Detection

New State records include a GALL MIDGE from Indiana (p. 147) and a LAND SNAIL from South Carolina (p. 148).

For new county records see page 149.

Special Reports

Insects Not Known to Occur in the United States

An African Honey Bee (Apis mellifera adansonii) (pp. 158-160).

Summary of Insect Conditions in the United States - 1971

Deciduous Fruits and Nuts (pp. 150-154).

Citrus (pp. 154-155).

Small Fruits (pp. 155-156).

Ornamentals (pp. 156-157).

Distribution of European Red Mite. Map. (p. 151).

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

## CONTENTS

Special Insects of Regional Significance.....	145
Insects Affecting	
Corn, Sorghum, Sugarcane.....	145
Small Grains.....	145
Turf, Pastures, Rangeland...	146
Forage Legumes.....	146
Beans and Peas.....	146
Cole Crops.....	147
Deciduous Fruits and Nuts.....	147
Forest and Shade Trees.....	147
Man and Animals.....	147
Stored Products.....	148
Beneficial Insects.....	148
Hawaii Insect Report.....	149
Detection.....	149
Summary of Insect Conditions in the United States - 1971	
Deciduous Fruits and Nuts.....	150
Citrus.....	154
Small Fruits.....	155
Ornamentals.....	156
Insects Not Known to Occur in the United States	
An African Honey Bee ( <i>Apis mellifera adansonii</i> ).....	158
Distribution of European Red Mite. Map.....	151

---

### WEATHER OF THE WEEK ENDING MARCH 20

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

**HIGHLIGHTS:** The Southwest continued very dry. The northern Rocky Mountains and northern Great Plains enjoyed springlike temperatures, some localities averaging 15 degrees to 20 degrees warmer than the previous week.

**PRECIPITATION:** Light rains fell along the Washington coast and southward to northern California and light unimportant showers eastward to Montana in connection with a frontal system moving through the area early in the week. Heavier precipitation occurred over the eastern half of the Nation. A storm centered south of the Great Lakes Monday moved eastward to the Atlantic Ocean. Four to 6 inches of snow fell in the northern and western parts of Chicago, late Monday. The storm spread wet and windy weather from the lower Great Lakes to the Ohio River Valley and eastward to New England. Snow fell in some northern areas; thunderstorms occurred in the southern portions of the storm. The weather was especially unpleasant where mixtures of rain, freezing rain, sleet, and snow slicked the highways. Thunderstorms in New York and New Jersey were accompanied by winds gusting to 50 m.p.h. About the time the storm reached the Atlantic coast, another low developed in the Oklahoma Panhandle. It set off thunderstorms in Nebraska, Kansas, and Missouri late Tuesday. Dust storms occurred in the Texas Panhandle. As the storm moved eastward across the Ohio River Valley, it spread light snow over the Upper Great Lakes, rain and thunderstorms from the Lower Great Lakes to the Gulf of Mexico, and heavy snow over New York and portions of New England. In general, the new snow over New York and New England ranged from 3 to 10 inches. Utica, New York, received 14 inches in 6 hours early Wednesday. Hail fell late Wednesday from some of the thunderstorms from eastern Texas to southern Illinois. Weekend precipitation included light rain in

Weather of the week continued on page 157.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - KANSAS - Ranged 1-2 per square foot in established alfalfa in Lyon County. (Bell). COLORADO - Problems continue on winter wheat and alfalfa in Boulder and Adams Counties. Larvae ranged 1-4 per linear foot of wheat in Logan and Weld Counties. (Marquardt, Hantsbarger).

GREENBUG (Schizaphis graminum) - TEXAS - Infestations spotty throughout north area on small grains. Some fields treated in Denton and surrounding counties and Rolling Plains. (Turney, Boring). OKLAHOMA - Very heavy (1,000-2,000 per linear foot) in scattered wheatfields in Cotton and Tillman Counties. Also heavy (100-300 per linear foot) in scattered fields in other southwest counties and in central and south-central areas. Counts variable, averaged less than 10 per linear foot in some fields. Parasites noted in most fields; parasitism 5-10 percent in few areas. Counts ranged 0-35 per linear foot in west-central area. Counts in north-central, northeast, and east-central areas seldom averaged more than 10 per linear foot. Predators active in most areas, only Hippodamia convergens (convergent lady beetle) common to date. (Okla. Coop. Sur.). MISSOURI - Light, 1-8 per linear foot, in small grains in southwest area. Ranged 20-100 per linear foot in small spots in 2 fields in this area. (Munson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Light on alfalfa at Gainesville, Alachua County. (Mead). OKLAHOMA - Increased on alfalfa in southwest area; infestations moderate on susceptible varieties. (Okla. Coop. Sur.). ARIZONA - Problems noted in many alfalfa fields in Salt River Valley. First cutting difficult for many growers, due to abundant honeydew obstructing baling mechanism in machines in Maricopa County. (Ariz. Coop. Sur.). NEVADA - This species and Acyrtosiphon pisum (pea aphid) averaged less than 2 per sweep in Pahrump Valley, Nye County, alfalfa. (Zoller).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Survival of overwintering borers averaged 74 percent as compared with 80-85 percent for normal year. Highest survival rate 80 percent in northwest area and lowest 68 percent in southeast area. (Ill. Ins. Sur.).

## SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 1-5 per linear foot in most wheat in Kingfisher, Canadian, and Grady Counties. Averaged 70 per linear foot in field in Chickasha area, Grady County. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Moderate to heavy in wheat in Cimarron County. Averaged 30 per linear foot in Cotton County field. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Mostly winged forms appearing in wheat in central, south-central, and southwest areas. Ranged 0-5 per linear foot. (Okla. Coop. Sur.).

## TURF, PASTURES, RANGELAND

RANGE CRANE FLY (Tipula simplex) - CALIFORNIA - Females infested pastureland at Modesto, Stanislaus County. (Cal. Coop. Rpt.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - TEXAS - New county records include Baylor, Coleman, Eastland, Foard, Haskell, Johnson, Jones, Knox, Runnels, Schleicher, Stephens, Taylor, Throckmorton, and Wise. Adults damaged alfalfa in Wilbarger, Navarro, Johnson, and Wise Counties. Heavy larval infestations noted in Brazos County. (Boring et al.). OKLAHOMA - Larval infestations heavy throughout southeast half of State, including east-central, southeast, and south-central areas, and parts of the northeast, central, and southwest areas. Range per square foot by county: Up to 300 in Tillman; up to 100 in Muskogee, Wagoner, and McIntosh; up to 60 in Tulsa; and up to 20 in Johnston. Terminals 70-100 percent infested in most alfalfa with as many as 12 larvae per terminal reported. All larval stages present in most areas and pupation noted in Cotton County. Terminals ranged 48-64 percent infested in Caddo County and larvae ranged 2-6 per square foot in Garfield County. Moderate in Craig County. Ranged 1-3 per terminal in 84 percent of terminals in field of vetch in Carter County. (Okla. Coop. Sur.). MISSOURI - Early instar larvae noted north to Bates County, in western area of State. (Munson). ILLINOIS - Tip feeding ranged 0-32 percent; larvae ranged 0-44 per 100 stems of 2-inch tall alfalfa in 5 Johnson County fields. Current rate of development early and may indicate heavy damage late in season. (Ill. Ins. Sur.). KENTUCKY - Egg averages per square foot of alfalfa: 138 in Oldham County field; 172 in Barren County field; and 230 in Warren County. Larvae averaged 1.9 per square foot in Fayette County. Eggs deposited averaged 10 per square foot. (Barnett). VIRGINIA - First hatch in Charlotte County on March 2, and in Powhatan County on March 3 about 75 percent of tips infested with 1-2 first and second instar larvae per tip. Infestations 21 days earlier than usual. (Allen). TENNESSEE - First and second instar larvae light on alfalfa in Tipton County. Current counts below control levels. (Gordon). FLORIDA - Collected 87 larvae in 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

CLOVER LEAF WEEVIL (Hypera punctata) - MISSOURI - Larvae ranged 0-13 per square foot in west-central area. (Munson).

PEA APHID (Acyrtosiphon pisum) - FLORIDA - Light on alfalfa at Gainesville, Alachua County. (Mead). OKLAHOMA - Scattered, moderate to heavy counts (400-550 per square foot) in southwest counties and in Grady, Canadian, Caddo, and Woodward Counties. Ranged 10-20 per square yard in Muskogee, Wagoner, and McIntosh Counties and light in Garvin and Johnston Counties. (Okla. Coop. Sur.). ARIZONA - Heavy on alfalfa in Graham County and 140 per 100 sweeps in Maricopa County. (Ariz. Coop. Sur.).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Counts of 800 per 100 sweeps of alfalfa in Graham County and 26 in Maricopa County. (Ariz. Coop. Sur.).

## BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Adults observed on volunteer pea leaves near Moscow, Latah County. (Futter, Mar. 9).

## COLE CROPS

DIAMONDBACK MOTH (Plutella xylostella) - NEW MEXICO - Light to moderate on cabbage in southern Dona Ana County. (Clayshulte).

## DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Controls applied in lower and upper Yakima Valley, Yakima County. Trap collections in this area indicate much movement. Controls underway in Chelan, Douglas, and Okanogan Counties. Egg laying increased in north-central areas due to warmer weather. (Ballard et al.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Larvae on peach trees as far north as Major and Mayes Counties on March 11. Larvae heavy on wild plum in scattered south-central areas and in Cotton County. (Okla. Coop. Sur.). ALABAMA - First of season. Second instar larvae feeding on plum in Lee County. (Barwood).

## FOREST AND SHADE TREES

A GALL MIDGE (Taxodiomyia cupressiananassa) - INDIANA - Specimens collected from bald cypress in Vanderburgh County during October 1971 by V.R. Knapp. Determined by J. Appleby. This is a new State record. (Knapp). Specimens collected in Posey County during November by J.L. Van Camp for a new county record. (Meyer).

ELM LEAF BEETLE (Pyrrhalta luteola) - SOUTH DAKOTA - Collected on elm, June 6, 1971, in Jerauld County. This is a new county record. (Carson).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 14 cases reported in U.S. March 5-18 as follows: TEXAS - Hidalgo 3, Jim Hogg 1, Kenedy 2, Starr 1, Webb 1, Zapata 4, Kleberg 1. ARIZONA - Cochise 1. Total of 263 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 108, Chihuahua 17, Coahuila 8, Nuevo Leon 28, Tamaulipas 102. Total of 78 cases reported in Mexico south of Barrier Zone. Barrier Zone is where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screwworm flies released: Texas 48,950,000 and Mexico 157,134,000. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - TEXAS - Adults noted in north-central area. (Turney). OKLAHOMA - Ranged 10-12 per head on cattle in Johnston County. Moderate in Craig and Muskogee Counties, and light in Tulsa and Woodward Counties. (Okla. Coop. Sur.). KENTUCKY - Averaged 4.7 (ranged 0-21) on backs of dairy cows of various ages in Fayette County. (Barnett).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Eight adults noted on single cow in Oktibbeha County. First of season. (Combs). OKLAHOMA - First adults of season ranged 30-50 per head on cattle in Payne, Noble, and Lincoln Counties. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - OREGON - Adult males appearing in Salem, Marion County. (Goedon).

HOUSE FLY (Musca domestica) - OKLAHOMA - Adults up to 5 per Scudder grid in barns in Payne County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Mainly Haematopinus eurysternus (short-nosed cattle louse) still moderate to heavy on cattle in most areas. (Okla. Coop. Sur.).

#### STORED PRODUCTS

TOBACCO MOTH (Ephestia elutella) - NORTH CAROLINA - Surveys in 28 major tobacco storing counties made to determine locations of heaviest infestations and losses. Heaviest infestations reported in Wilson, Wayne, Greene, Pitt, and Craven Counties. About 13.6 million pounds of flue-cured tobacco stored in State during 1971. Total value in counties surveyed estimated at \$8.4 million and total loss of about \$1.1 million or 13 percent. Cost of control not included. (Hunt).

INDIAN MEAL MOTH (Plodia interpunctella) - SOUTH DAKOTA - Economic in seed corn stored at Brookings, Brookings County. Treatments applied. (Walstrom).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - TENNESSEE - Heavy in corn storage area in Fayette County. (Smith, Rezba).

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Larvae ranged 2-3 per linear foot in many greenbug infested wheatfields in southwest and south-central areas. Adults and pupae present. (Okla. Coop. Sur.).

A BRACONID (Lysiphlebus testaceipes) - OKLAHOMA - Present in most greenbug infested wheatfields in southwest quarter of State. Parasitism averaged 1 or 2 percent in most areas but ranged 5-10 percent in few scattered areas. Parasitism averaged 20 percent in one field in Garvin County. (Okla. Coop. Sur.).

HONEY BEE (Apis mellifera) - MINNESOTA - Surveys indicate overwintering losses heavy due to starvation in Ramsey and Hennepin County area. (Minn. Pest Rpt.).

A LAND SNAIL (Vertigo rugosula) - SOUTH CAROLINA - Specimens collected at Charleston, Charleston County, by B.S. Lawrimore on March 6, 1972. Determined by W.J. Byas. This is a new State record. (Nettles). No economic importance, feeds on fungus and bacteria. Generally distributed throughout southeast U.S. (PP).

## HAWAII INSECT REPORT

General Vegetables - SOUTHERN GREEN STINK BUG (Nezara viridula) trace, less than 1 nymph or adult per 20 plants, in 3,000 square feet of soybeans at Pearl City, Oahu. Three of 7 adults (41 percent) bore eggs of a tachina fly (Trichopoda pennipes var. pilipes). (Miyahira).

Fruits and Nuts - HAWAIIAN THRIPS (Taeniothrips hawaiiensis) light to moderate in flowers of 4 macadamia nut orchards (total 5.5 acres) at Kohala, Hawaii. Adults of FULLER ROSE WEEVIL (Pantomorus cervinus) trace on young terminal growth at every orchard; less than 5 percent of terminals affected. (Kobayashi). Collected 23 larvae and 11 eggs of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) from 5 citrus plants at Salt Lake, Oahu; one egg parasitized. Collections of Podotachina sorbillans negative to date; this tachina fly purposely introduced from Thailand to aid in control of P. xuthus. COCONUT LEAFROLLER (Hedylepta blackburni) larvae moderate to heavy at Kahyku, Oahu. (Davis, Mitchell).

Forest and Shade Trees - PACIFIC BEETLE COCKROACH (Diploteria punctata) heavy, as many as 128 nymphs and adult per 12-inch long branch, on 25-30 percent of terminals of 75+ Casuarina sp. trees at Tantalus, Oahu. Damage negligible (Kashiwai).

---

### DETECTION

New State Records - A GALL MIDGE (Taxodiomyia cupressiananassa) - INDIANA - Vanderburgh County. (p. 147). A LAND SNAIL (Vertigo rugosula) - SOUTH CAROLINA - Charleston County. (p. 148).

New County Records - ALFALFA WEEVIL (Hypera postica) TEXAS - Baylor, Coleman, Eastland, Foard, Haskell, Johnson, Jones, Knox, Runnels, Schleicher, Stephens, Taylor, Throckmorton, Wise (p. 146). ELM LEAF BEETLE (Pyrrhalta luteola) SOUTH DAKOTA - Jerauld (p. 147). A GALL MIDGE (Taxodiomyia cupressiananassa) INDIANA - Posey (p. 147).

5

DECIDUOUS FRUITS AND NUTS

Highlights:

PEAR PSYLLA was difficult to control in some areas of Oregon and Washington late in the season. Populations were heavy in Michigan orchards. CODLING MOTH was serious on walnuts in California. WALNUT CATERPILLAR caused complete defoliation of walnut in many areas of northwest Arkansas and southern Missouri. A new North American record was reported for an ERIOPHYID MITE in Oregon.

CODLING MOTH (Laspeyresia pomonella) first appeared in sexlure trap in Yakima County, WASHINGTON, April 27. First-generation exit holes were first observed about July 1. Second generation entry holes were found August 3 at Grandview. In CALIFORNIA, infestations were widespread in apples and pears. Populations increased in NEW MEXICO in untreated and improperly treated orchards. Many orchards in the northern areas were not treated due to poor crop following frost damage. Codling moths appeared in COLORADO in Western Slope orchards about April 25. Moths continued to increase, up to 30 per trap were recorded the week of May 8-14. By the first week of June, moths were collected from all fruit areas of Mesa, Delta, Montrose, and Garfield Counties. Second-generation moths appeared during the period July 10-16. In many areas of Colorado, 4 cover sprays were applied for control on apples and pears. In MICHIGAN, emergence was first observed in southern orchards May 28 and about 10 days later in the northern areas. Larval entries into fruit was noted 14 days after emergence. Second-generation moths appeared July 13 and peaked July 27. A few moths were observed until September, due to the warm and humid weather.

ORIENTAL FRUIT MOTH (Grapholitha molesta) flights were light in May and early June in Mesa County, COLORADO. Moth collections increased by June 19, with up to 47 per trap. Parasites were released in orchards at this time. Moth recoveries were up to 60 per trap by July 16 and controls were recommended. In MICHIGAN, first-generation moth emergence peaked June 27. Populations remained light until late August.

Larvae of a TORTRICID MOTH (Platynota flavedana) in VIRGINIA damaged 30-70 percent of the apples in 250 acres. In the Winchester area, 2-15 percent of the apples showed feeding damage in July and August.

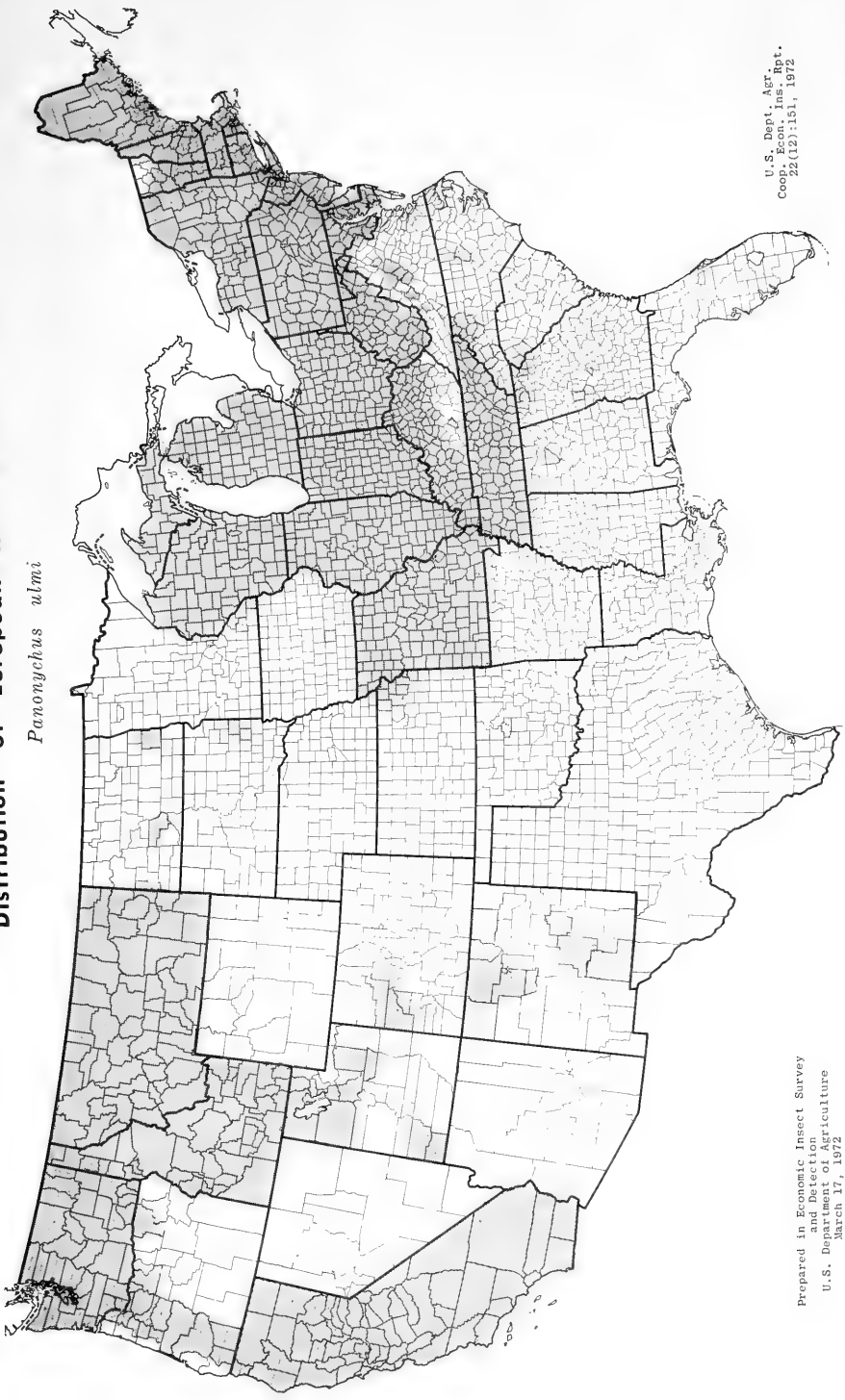
PEACHTREE BORER (Sanninoidea exitiosa) and LESSER PEACHTREE BORER (Synanthedon pictipes) were the most destructive pests to peach, plum, and cherry trees in ALABAMA. Lesser peachtree borer damage in FLORIDA was the heaviest in orchards that had been poorly pruned.

EUROPEAN RED MITE (Panonychus ulmi) overwintering eggs began to hatch in central MAINE on May 17, about 7 days later than usual. First summer eggs were laid on June 3 and began to hatch on June 15. Damaging populations began to appear by mid-July and early August. Overwintering eggs in MASSACHUSETTS began hatching about May 14 in Hampshire and Hampden Counties. By May 25, an estimated 75-80 percent were hatched. By June 3, second-generation eggs were being deposited on apple foliage. By July 27, eggs averaged over



# Distribution of European Red Mite

*Panonychus ulmi*



U.S. Dept. Agr. Insect.  
Coop. Econ. Ins. Invt.  
22(12):131, 1972

Prepared in Economic Insect Survey  
and Detection  
U.S. Department of Agriculture  
March 17, 1972

4 per leaf in some poorly treated orchards. By September 28, heavy counts of overwintering eggs had been deposited on the spurs and calyx ends of some apples.

European red mite infestations were heavy on apple in Adams County, PENNSYLVANIA, by July 7. Lady beetles were feeding on mites in southern orchards. Eggs hatched in MARYLAND during the last week of May. Populations and damage remained light until August and increased to moderate levels. About a third of the apple growers experienced problems with light to moderate bronzing in their orchards. In VIRGINIA, European red mite caused severe injury on susceptible apple varieties; other varieties had significantly less damage. Adults began laying eggs in August and the egg carryover is heavy. Started slow in MICHIGAN following an unusually heavy mortality of overwintering eggs. In most instances, early season oil sprays and prebloom miticides kept them in check until mid-late July. Unseasonal temperature-humidity relationships encouraged population buildup versus normal decline through August, a chronic, if not acute, problem for many growers into early September.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) appeared in orchards on Western Slope of COLORADO about March 16. Eggs were noted by April 24 on apple and pear trees in Mesa County. Heavy buildup was noted by July 10. Overwintering forms were noted by late July. Damage was evident in those orchards where controls were not satisfactory.

PEAR PSYLLA (Psylla pyricola) eggs were found February 20 in OREGON. Prespray counts were as high as 8 per tap. Early season controls were effective. During mid-summer, populations reappeared but were generally suppressed by hot weather. Damage was about normal. Heavy buildup was noted in Douglas County in late July, and repeated controls were needed to regain control. In WASHINGTON, the first dormant oil sprays were applied March 12. The first egg hatch was noted in Yakima County the first of April. Adults were recovered April 29, when pears were at 90 percent bloom. There were some reports of poor control in some areas of Washington. There were heavy summer infestations with much damage and honeydew. The second generation egg hatch was reported June 24. Pear psylla was widespread on pears throughout northern CALIFORNIA, and controls were needed throughout the year. Populations in most pear orchards were very heavy in MICHIGAN. Adults emerged about April 9 and eggs were abundant about April 16. Nymphs were noted during the bloom period and sprays were not effective for this stage. Overlapping generations caused some problems by early summer.

GREEN PEACH APHID (Myzus persicae) eggs hatched on the Western Slope of COLORADO about March 16. Some leaf curl and colonies from stem mothers were reported in late April. Populations were abundant in unsprayed peach and plum orchards in Mesa County during early May. Migration was noted the first week in June.

SAN JOSE SCALE (Quadraspidiotus perniciosus) continued to be the most important scale affecting peach, apple, plum, and pear in central and north ALABAMA. In UTAH, this scale caused severe damage to trees and fruits in Box Elder County, and damage was less in Utah, Salt Lake, Weber, and Washington Counties.

TARNISHED PLANT BUG (Lygus lineolaris) adults in MASSACHUSETTS were feeding on pear buds in Worcester and Middlesex Counties, by April 22. Many commercial growers were reporting damage to peaches by July 14. In VIRGINIA, damage was light in 1971 because of earlier emergence than usual; consequently, most had died before the pink stage. This is the second year that damage declined.

Migrants of APPLE APHID (Aphis pomi) appeared in central MAINE on new terminal growth on June 14. Moderate populations had developed by July, and controls were applied. In some apple orchards several applications were needed. Populations were near the severe infestations of 1970.

PLUM CURCULIO (Conotrachelus nenuphar) adults made their first contribution to the late June drop of apples, plums and peaches on May 17, in MICHIGAN. Migration from woodlots and brush continued for nearly 6 weeks after bloom. Fruit of all host crops showed egg laying scars the week of May 24. Cool temperatures, supplemented with insufficient moisture, slowed and prolonged egg deposit through first cover. Plum curculio was the most serious pest to fruit of peaches, plums, and apples in ALABAMA.

APPLE MAGGOT (Rhagoletis pomonella) adults emerged June 22 in Van Buren County and June 26-29 in the vicinity of Grand Rapids, MICHIGAN. In the northern area, adults appeared July 3-5. Weather conditions produced a sporadic emergence until populations peaked August 6 to September 3 from south to north, respectively. Adults in MINNESOTA were first reported in mid-July. Emergence was general in the southern half of the State by the last of July. Populations appeared moderate, and there were no heavy infestations reported. In RHODE ISLAND, apple maggot adults were reported by July 15 and adult activity was very heavy in an unsprayed orchard on July 22. Adults were present throughout August and into September.

CHERRY FRUIT FLY (Rhagoletis cingulata) emergence in MICHIGAN began June 4 in Berrien County and June 18-20 for the Hart and Shelby area northward. Protective sprays at 10-day intervals were necessary to the end of harvest on cherries. Peak emergence was June 17 for the south and about July 5 farther north.

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) first adults were trapped on June 6 in WASHINGTON, 30 days later than normal in Yakima Valley. Peak adult emergence was July 15, as indicated by sticky traps.

CARIBBEAN FRUIT FLY (Anastrepha suspensa) larvae caused heavy damage to peaches in the Homestead area of FLORIDA.

PEARSLUG (Caliroa cerasi) damage in UTAH was unusually heavy in some Box Elder, Davis, and Salt Lake County cherry orchards. Damage to apples, pears, and susceptible ornamental shrubs varied from light to moderate locally, sometimes severe.

PECAN NUT CASEBEARER (Acrobasis caryae) moth emergence in TEXAS began on April 30 in Guadalupe and Maverick Counties. Nutlet injury was noted in Maverick, Gonzales, Guadalupe, Travis, and Bastrop Counties by May 7. Insecticide applications began on May 10-14 in southern areas. Control was completed in the Rolling Plains during late May. A survey west of the Pecos River detected the pecan nut casebearer in Terrell and Pecos Counties. Eggs were

first found on May 21 in south-central OKLAHOMA and on June 1 in the northeast area. Infestations were generally heavy in the northern areas and ranged light to heavy in the south. Pupation was noted late June. A second generation occurred in July with damage ranging up to 10 percent in some areas.

CODLING MOTH (Laspeyresia pomonella) was particularly serious in walnuts in CALIFORNIA due to error in scheduling proper controls. Bio-control eliminated the need for treatment of Chromaphis juglandicola (walnut aphid), and codling moth populations increased. NAVEL ORANGEWORM (Paramyelois transitella) was general in almonds in California and there was much buildup in walnuts due to the late harvest.

WALNUT CATERPILLAR (Datana integerrima) was heavier during 1971 than usual and caused complete defoliation of walnut in northwest ARKANSAS. Populations were heavy in southwest and south-central MISSOURI. Complete defoliation of walnuts was noted in about 10 counties in these areas.

PECAN WEEVIL (Curculio caryae) adults were taken in traps or on pecan nutlets in the eradication zone in Otero County, NEW MEXICO. Control measures were immediately applied. In OKLAHOMA, adults began to emerge in early August and continued through mid-September. Scattered moderate to heavy infestations were reported, but some areas were only lightly infested this year. Larvae were emerging from early maturing nuts in the north-central area by mid-September. Pecan weevil emergence began in early August in Lowndes, Newton, and Panola Counties, MISSISSIPPI. Emergence peaked in late August and early September. Heavy infestations were observed at this time in Lowndes, Newton, and Hinds Counties. Infestations were heavy in many orchards in north FLORIDA; damage was severe in parts of orchards.

WALNUT HUSK FLY (Rhagoletis completa) adults were trapped in most of the principal walnut-growing areas of western OREGON. First adults were trapped early in August and peaked during mid-August. Controls were applied to orchards in Douglas, Josephine, and Jackson Counties. A specimen was noted in a home planting of walnut at Thompson, Winnebago County, IOWA, for a new county record. Populations in UTAH were heavy in some Box Elder, Weber, Salt Lake, and Tooele County English and black walnuts.

PECAN PHYLLOXERA (Phylloxera devastatrix) was an important pest in southwest MISSISSIPPI, and control measures were used in some areas.

Aphids were heavy on pecans in south and central ALABAMA. The major species were Tinocallis caryaefoliae (black pecan aphid), Monellia costalis (blackmargined aphid), and Monelliopsis nigropunctata.

AN ERIOPHYID MITE (Aculus comatus) found on filberts in Benton County, OREGON. This was reported as a new North American record.

#### CITRUS

##### Highlights:

TEXAS CITRUS MITE populations came close to the record high established in Florida in 1965.

Populations of CALIFORNIA RED SCALE (Aonidiella aurantii) increased in many areas of CALIFORNIA.

BLACK SCALE (Saissetia oleae) remained very light in FLORIDA from January through May, and then increased rapidly and remained heavy for most of the summer; however, only scattered groves had important infestations. In November this scale peaked, producing the heaviest November populations in 20 years of record. At this time, 32 percent of the groves had economic infestations.

WHITEFLY (Dialeurodes spp.) infestations were generally below normal in FLORIDA the first third of the year but were heavy from June through summer. Further increases resulted in the highest October level in 20 years of record. At that time, 87 percent of the groves checked were infested, and 34 percent had economic infestations. November populations dropped out of the high range but still were high enough to result in the highest level for November in 20 years of record; 18 percent of the groves had economic infestations.

CITRUS THRIPS (Scirtothrips citri) controls were needed at prebloom and petalfall in Yuma County, ARIZONA, in mid-March and late April. In Maricopa County, growers generally treated in May. This species was a major pest in southern CALIFORNIA.

TEXAS CITRUS MITE (Eutetranychus banksi) population in FLORIDA was at normal low during the winter and spring but, by the end of June, approached the record high set in 1965. This mite reached the summer peak early in July and remained at a high level above normal until mid-July, 42 percent of the check groves had heavy infestations. By September, population rapidly decreased to a low level and remained so the rest of the year.

CITRUS RUST MITE (Phyllocoptruta oleivora) was the major pest problem throughout the citrus belt of FLORIDA. The population was above normal all season. At the end of July, 48 percent of the groves that had not been sprayed during the month harbored heavy infestations.

#### SMALL FRUITS

Infestations of GRAPE BERRY MOTH (Paralobesia viteana) and WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) were above normal in vineyards of Washington County, Utah. Western grapeleaf skeletonizer caused the heaviest damage in 20 years.

A LEAFHOPPER (Erythroneura comes) was abundant on wild grapes in PENNSYLVANIA. Population peaks occurred in early September with 240 adults per 25 sweeps. Some foliar damage was evident on Concord vineyards.

GRAPE PHYLLOXERA (Phylloxera vitifoliae) infestations were light (6-20 galls per leaf with 8-24 percent of the shoots infested on 4 cultivars). In Lancaster County, PENNSYLVANIA, a heavy infestation was noted with 80 percent of the shoots of one cultivar infested.

BLUEBERRY MAGGOT (Rhagoletis mendax) adult emergence in NORTH CAROLINA began the week of June 7 and peaked about June 21. Larvae appeared the week of June 14 and peaked on July 19. Three hundred larvae were collected from 50 quarts of randomly picked berries between June 14 and July 19.

TWOSPOTTED SPIDER MITE (Tetranychus urticae) caused heavy damage to strawberries early in the season at Homestead, Dade County, FLORIDA. Fruit production stopped early in the season. Although light during fall in Manatee and Hillsborough Counties, populations during spring were heavy in these areas. This mite continues to be the major pest of strawberries in CALIFORNIA.

Adults of BLUEBERRY BUD MITE (Acalitus vaccinii) ranged up to 200+ per terminal bud with great variation among blueberry varieties in early April in NORTH CAROLINA. A survey in Pender, Bladen, and Duplin Counties of the most susceptible variety (Wolcott) revealed 43-75 percent of the fruit buds from the top shoots showing heavy infestations. This was the heaviest infestation in 6 years on the Wolcott variety.

### ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) hatch began the last week of March in OKLAHOMA. Infestations were moderate to heavy in July and August. Pupation occurred the first week of September. In KENTUCKY, hatch occurred June 1-6. Damage was general statewide but heavier in the eastern counties, especially in Bell, Knott, Letcher, Perry, Knox, and Washington. Bagworm was the most destructive pest of junipers in the State. In TENNESSEE, larvae were feeding in the eastern area during early June and were in all areas by mid-June. The population was not so large as in 1970. Timely controls were effective; the absence of controls in many cases resulted in severe damage. Bagworm was the most destructive pest of coniferous shrubs throughout ALABAMA. Continuing to increase in VIRGINIA, populations were heavy in Pittsylvania, Orange, Culpeper, Nansemond, Richmond, Essex, and Tazewell Counties. Populations in MARYLAND were heavy in all counties by early June. Bagworm infested several varieties of evergreen trees and shrubs, as well as many roadside stands of black locust, sweet gum, and sycamore. This pest was the most common insect problem encountered in ornamental pest surveys this season.

Larvae of a PIERID BUTTERFLY (Phoebis sennae) were collected at Faunsdale in Marengo County, ALABAMA, October 11, feeding on Cassia alata. This was a new State record.

BRONZE BIRCH BORER (Agrius anxius) damage was severe to natural stands, residential plantings, and nursery birch throughout lower MICHIGAN for the second successive year. Adult emergence in WISCONSIN started in late May in Dane County. Many limbs were dead in a few southeastern sites by July 16.

An ARMORED SCALE (Phenacaspis cockerelli) was found on magnolia trees in Charleston County, SOUTH CAROLINA, March 10, 1971. This is a new State record. Since then, it has been found on magnolia in Horry County.

OBSCURE SCALE (Melanaspis obscura) the most serious pest of ornamental oaks in MARYLAND, continued to cause economic damage to street plantings of oaks statewide.

A LECANODIASPIDID SCALE (Lecanodiaspis pruinosa) damaged honeylocust trees in NEBRASKA in several Lincoln, Lancaster County, parks in late July and August. This insect was reported as a new State record.

TULIP BULB APHID (Dysaphis tulipae) was found heavily infesting a shipment of tulip bulbs from Holland on December 14, 1970, in Davidson County. This was the first recorded find of D. tulipae in TENNESSEE. Continuing investigations revealed that this aphid was infesting bulb shipments from Holland in Shelby and Sullivan Counties.

A PIT SCALE (Cerococcus kalmiae) infested a rhododendron in Lancaster County on August 6 for a new county record for PENNSYLVANIA.

IVY APHID (Aphis hederæ) was collected from English ivy at Salem, Marion County, OREGON, for a new State record.

BOXWOOD LEAFMINER (Monarthropalpus buxi) damage in VIRGINIA was severe due to the heaviest overwintered populations in four years. Larval counts of 3-4 per leaf were common on American boxwood in Albemarle, Amelia, and Henrico Counties. Adults were emerging in Henrico County on May 5.

---

Weather of the week continued from page 144.

the Pacific Northwest, light snow in the northern Rocky Mountains, a few flurries in the lee of the Great Lakes and in the Northeast, and showers in the Deep South. No rain fell in Arizona and New Mexico and only widely scattered sprinkles fell in nearby States.

TEMPERATURE: Warm weather continued over the western half of the Nation. Temperatures reached the 50's and 60's, 20 degrees to 30 degrees above normal, over the northern Great Plains. The warm temperatures melted the snow rapidly in western North Dakota. The rapid snow melt, combined with ice jams on some streams, caused severe flooding of lowland fields, highways, and some urban areas. Rising waters on the Cannonball River forced the evacuation of 30 families from their homes in the western part of Mott, North Dakota, Monday afternoon. Severe flooding occurred Wednesday at Beulah, Hazen, and Zap, North Dakota, on the Knife River. At Beulah, the water was in 200 houses and some families moved out. Most of the Rocky Mountains and the northern and central Great Plains averaged 10 degrees to 25 degrees warmer than normal. The eastern half of the Nation averaged near or slightly above normal with only small day-to-day temperature changes. The East was a few degrees warmer than the previous week.

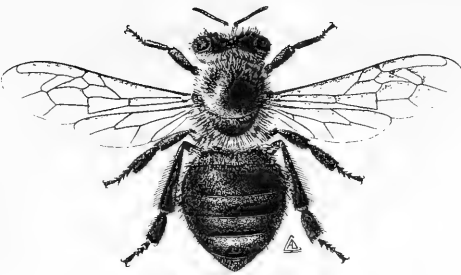
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

AN AFRICAN HONEY BEE (Apis mellifera adansonii) Latreille

Economic Importance: Apis m. adansonii can produce more honey in South America than the European honey bee, and is a more aggressive and productive worker during nectar flows than the other bees found in South America. Wherever this subspecies has been introduced in South America, it has progressively replaced the other honey bees present. This honey bee was introduced in 1956 for experimental purposes at Rio Claro, Brazil. Less than 2 dozen swarms escaped and from these swarms it has spread over an area in South America equal to the continental United States. Some authorities state that due to this species' aggressive behavior toward man and animals, (as reported from South America),

bee keeping as we know it today in the United States could become obsolete soon after its introduction. They estimate that it could spread into the United States within 7-13 years.

Distribution: In Africa; south of the Sahara Desert, but is absent in the Cape Region. In South America; Argentina, Brazil, Bolivia, Paraguay, Uruguay, and Venezuela.



General Distribution of A. m. adansonii in South America



Behavior and Habits: The following are some of the behavioral characteristics of A. m. adansonii as reported from South America. The bee is more aggressive during foraging and works from very early in the morning until late in the afternoon. It is adaptable to working at high temperatures and at very low temperatures. Larger colonies are more aggressive than weaker colonies. It never starves in the hive; when stores are depleted, it moves on until food is found or it starves. Swarms in flight are more aggressive, and when united with another swarm they are reported to be dangerous. A. m. adansonii when attacking will follow the "victim" up to approximately 100 meters; whereas the Italian honey bee will only follow up to about 10 meters.

Some workers suggest the "aggressiveness" may be eliminated or reduced by breeding and selection, without losing the desirable characteristics.

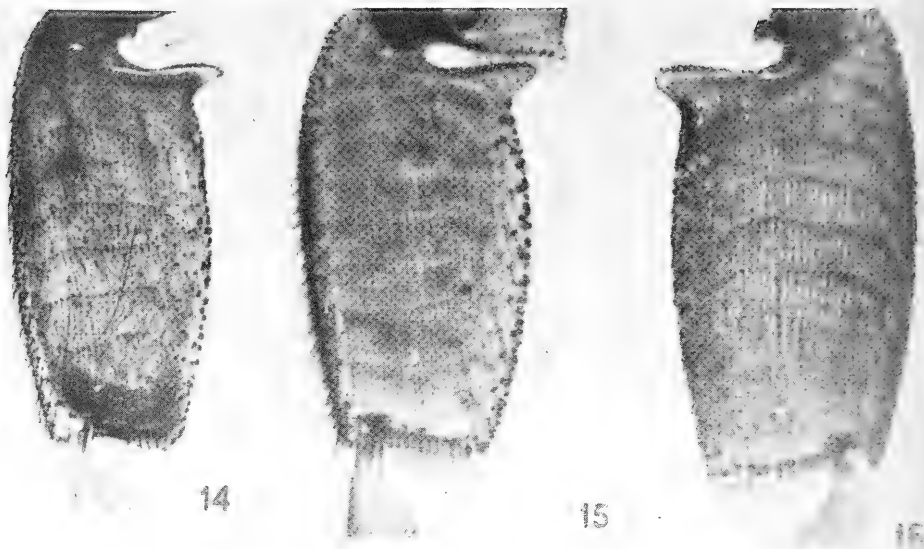
Distinguishing Characteristics: The African honey bee by casual observation is indistinguishable from the honey bee of the United States. Apis mellifera is found worldwide, and is represented in the Old World by numerous subspecies, several of which have been introduced into North America with the result that much interbreeding has occurred among them. The escaped bees of the woodlands in North America are largely A. mellifera mellifera (dark bee), while the beekeepers' bees are largely A. mellifera ligustica (Italian bee). A. mellifera caucasica (Caucasian bee) is also followed by some beekeepers and crosses between the three are common.

The African honey bee found in Brazil is Apis mellifera adansonii. The following key gives the characteristics according to Tsing-Chao Maa, which differentiates the 3 subspecies of mellifera introduced into South America.

1. Antecosta and gradulus parallel or almost parallel; the former not enlarged in its middle part.....2  
Antecosta and gradulus very convergent in their middle parts; the former particularly enlarged in this region, with the ensuing narrowing of the pregradular area.....remipes

2. Antecosta and gradulus of urosternite II slightly divergent. Wax plates of urosternites III to VI, large. Plate guiding the sting (urosternite VI) cut very low. Transverse series of tiny spines on the inner surface of the posterior basitarsi in a curved line. Interocellar and ocellorbital distances in the ratio 13.5:14.....mellifera

3. Antecosta and gradulus of urosternite II particularly parallel. Wax plates of urosternites III to VI, small. Plate guiding stinger (urosternite VI) not cut very low. Transverse series of tiny spines on the inner surface of the posterior basitarsi in a straight line. Interocellar and ocellorbital distances in the ratio of 13.5:11.....adansonii



Figures: 14, 15, 16 - *Basitarsus posterior*, female; *Apis m. mellifera*, *A. m. adansonii*, *A. m. remipes*.

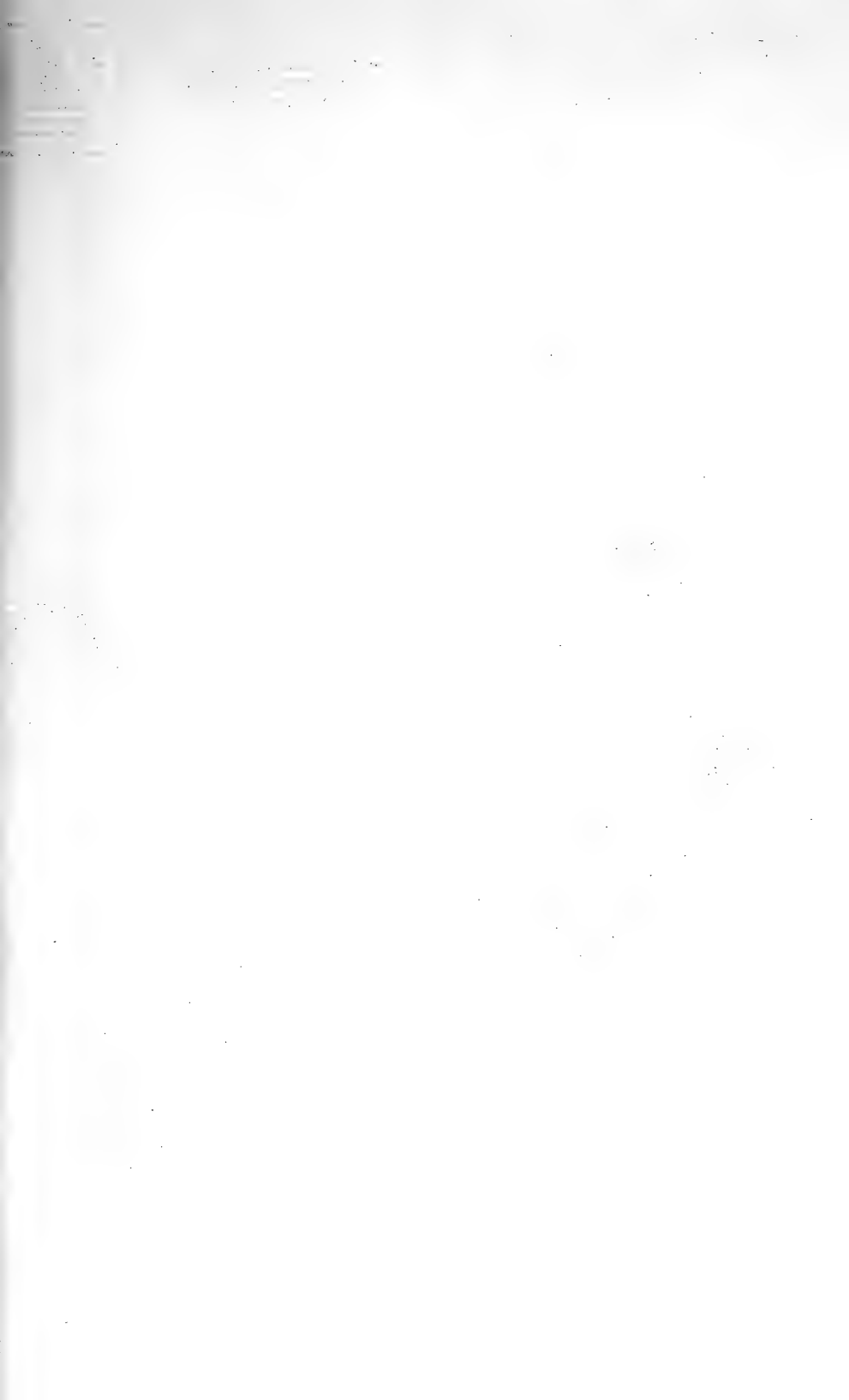
Selected References: De Santis, L. and Cornejo, L. G. 1968 La Abeja Africana "*Apis (Apis) adansonii*" en America Del Sur. Rev. de la Facul. de Agron. 44:17-35. McGregor, S. E. 1970. Report on travel to the first Brazilian Apicultural Congress and visits to bee research laboratories and beekeeper operations in Brazil, Peru, and Mexico, with a special report appended on the African bee. 18 pp., June 1, mimeograph. Araujo, V. De P. 1971, The Central African Bee in South America, *Bee World* 52, No. 3 pp. 116-121. Muesebeck, C.F.W., Krombein, K., Townes, H.K., and others. 1951 Hymenoptera of America North of Mexico. USDA Monog. 2, pp. 1255.

Prepared in Economic Insect Survey  
and Detection  
U.S. Department of Agriculture  
March 17, 1972

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(12):158-160, 1972







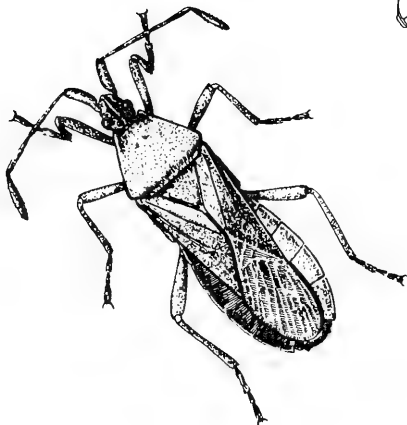
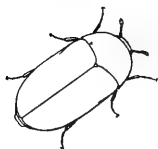
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

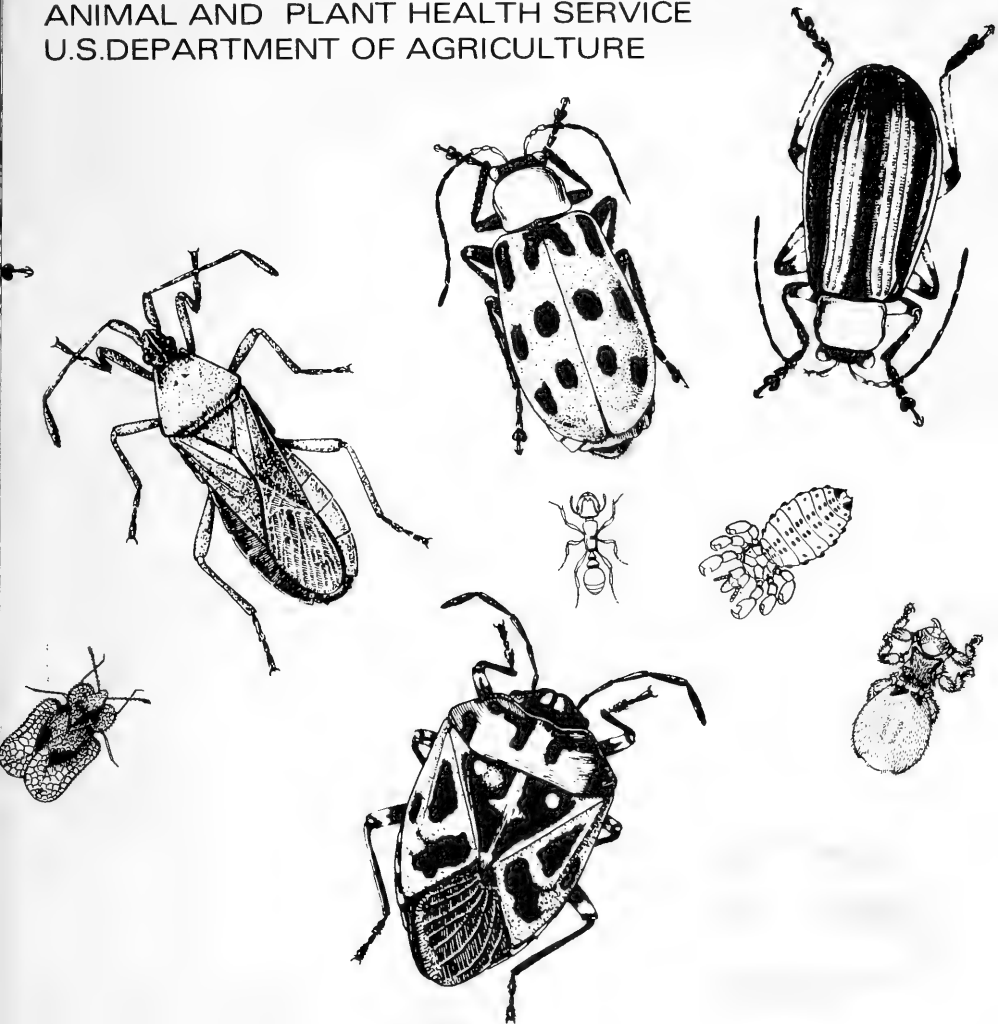


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

GREENBUG continues heavy on small grains in portions of Oklahoma. Damaged oats in Arkansas. (p. 160).

CHINCH BUG expected to cause some damage to seedling sorghum and corn in Kansas. (p. 160).

ALFALFA WEEVIL still heavy on alfalfa in southern Oklahoma. Controls underway in all areas of Arkansas. Above control levels in west Tennessee. Heavy in alfalfa hay in Nevada. PEA APHID heavy on vetch in Texas. Heavy on alfalfa in portion of Oklahoma. (p. 161).

LYGUS BUGS damaged pear buds in Washington. (p. 162).

Detection

A POWDERPOST BEETLE reported for first time in Mississippi for a new State record. (p. 167).

Special Reports

Summary of Insect Conditions in the United States - 1971  
Forest and Shade Trees (pp. 169-174).  
Man and Animals (pp. 174-178).  
Households and Structures (p. 178).  
Beneficial Insects (pp. 178-180).

Chronological Spread of Gypsy Moth from 1869 to 1971. Map. (p. 181).

Important Recent Name Changes Among Earwigs of the Genus Doru. (pp. 182-185).

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

## CONTENTS

Special Insects of Regional Significance.....	163
Insects Affecting	
Corn, Sorghum, Sugarcane....	163
Small Grains.....	163
Forage Legumes.....	164
Cotton.....	164
Potatoes, Tomatoes, Peppers.	165
Deciduous Fruits and Nuts...	165
Citrus.....	165
Small Fruits.....	166
Forest and Shade Trees....	166
Man and Animals.....	166
Households and Structures.	167
Beneficial Insects.....	167
Federal and State Plant Protection Programs.....	167
Hawaii Insect Report.....	168
Detection.....	168
Corrections.....	168
Light Trap Collections.....	186
Summary of Insect Condition in the United States - 1971	
Forest and Shade Trees.....	169
Man and Animals.....	174
Households and Structures.....	178
Beneficial Insects.....	178
Chronological Spread of Gypsy Moth from 1869 to 1971. Map....	181
Important Recent Name Changes Among Earwigs of the Genus <u>Doru</u> .	182

---

### WEATHER OF THE WEEK ENDING MARCH 27.

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

**PRECIPITATION:** Light rain dampened the Pacific Northwest and the Florida Peninsula Monday. Rains also fell over mid-America from the Dakotas and Minnesota to the Gulf of Mexico. Severe local thunderstorms broke out ahead of a cold front in eastern Oklahoma and Eastern Texas. One especially heavy thunderstorm dumped several inches rain at Houston late in the afternoon and early evening. One station in the Houston vicinity reported 24-hour rainfall of 7.47 inches measured Tuesday morning. As the front moved eastward, it brought wet, windy weather to much of the East. Numerous thunderstorms and some with hail noted. Winds at Willowick, Ohio, near Cleveland gusted to 70 m.p.h. Light snow fell in Upper Michigan and nearby portions of Wisconsin. As the front moved eastward, rains slackened in the Southeast, but wet, windy weather continued in the Northeast. Six inches of snow fell at Caribou, Maine, Wednesday afternoon. Snow also fell in the Appalachians. Thomas, West Virginia, measured 7 inches of new snow Thursday morning. Hail fell about noon Thursday and snow flurries were seen in the Washington, D.C., metropolitan area in late in the afternoon. A weekend storm dumped heavy snow in portions of the northern Great Plains from Montana to the Great Lakes. Six to 9 inches of snow fell in spots in Montana. Gusty winds piled snow in 2 foot drifts in the foothills in the north-central part of State. Rain and drizzle fell in South Dakota and southern Minnesota with glaze slicking highways some areas. Strong winds kicked up dust and sand in the Southwest Sunday afternoon. Dust storms were especially severe in the deserts. The north-central

Weather of the week continued on page 186.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - COLORADO - Larva 1 per linear foot in Sedgwick County winter wheat. (Marquardt).

GREENBUG (Schizaphis graminum) - ARIZONA - Ranged 170-410 per 100 sweeps in 3 fields of barley and wheat at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 10-30 on wheat in Curry and Roosevelt Counties. (N.M. Coop. Rpt.). OKLAHOMA - Moderate to heavy on small grains in Grady County. Counts per linear foot of wheat by county: Canadian 5-10, Roger Mills 50-150, and Mayes 5. Light and scattered in Noble County, heavy in spots in Washita County; parasitism controlling aphids in many areas. Greenbugs light in Garfield County wheat. Heavy in Cotton County, moderate in Love County, and light in Bryan County. (Okla. Coop. Sur.). ARKANSAS - Light in wheat in Washington County. (Boyer). Counts of 2 per 10 sweeps of wheat in Crittenden County. (Sterling). Mixed populations of greenbug and Macrosiphum avenae (English grain aphid) reported from Faulkner, Franklin, Lonoke, Prairie, and Arkansas Counties. Greenbug heavy enough to cause death of leaves in oats in few areas. (Barnes). MISSOURI - Light to moderate (3-25 per row foot) in small grains in southwest and south-central areas. Light in some orchard grass fields. (Munson). KANSAS - Counts per drill row of small grain by county: 0-0.6 in Cowley, 0-0.5 in Chautauqua, 0.3-1.0 in Sumner, and zero in Kingman. (Bell).

SPOTTED ALFALFA APHID (Therioaphis maculata) - TEXAS - Heavy on alfalfa in Brazos County field previously controlled for Hypera postica (alfalfa weevil). (Latham, Coles). NEVADA - Counts of 10 per sweep on alfalfa hay in Las Vegas area, Clark County. (Hoff, Zoller). OKLAHOMA - T. maculata heavy in Cotton County. (Okla. Coop. Sur.). ARIZONA - Counts of 1,000 per 100 sweeps of alfalfa in Maricopa County. (Ariz. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

CHINCH BUG (Blissus leucopterus leucopterus) - TEXAS - Localized and heavy on emerging sweet corn at Groesbeck, Limestone County. (Brown). KANSAS - Annual winter survey completed March 17. Mostly noneconomic in counties surveyed; ranged 0-250 per square foot of bunch grass. Similar infestations in 1970 and 1971. Severe in 1 of 4 samples in Ottawa County; heaviest count 1,152 per square foot. Expect occasional damage in 1972 to seedling sorghum and corn, primarily in central and north-central districts. (Bell).

## SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Increase noted on wheat at Lovelock, Pershing County. (Stitt). OKLAHOMA - Moderate in wheat in Cimarron County. Light in most areas in Garfield County, heavy in one field. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged up to 30 per linear foot of wheat in Canadian County. (Okla. Coop. Sur.).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 2,000-3,000 per foot on rye plots in Stephens County. (Okla. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Counts of 38 per 100 sweeps of wheat in Maricopa County. (Ariz. Coop. Sur.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEVADA - First eggs of season in Mason Valley, Lyon County. (Adams). First and second instar larvae of Hypera spp. 40 per sweep on alfalfa hay at Las Vegas, Clark County, with damage evident. Populations heavier than 1970 when observed in Clark County for first time in about 40 years. (Hoff, Zoller). UTAH - H. postica adults numerous in grass and willow duff in Snowville area of Box Elder County. (Knowlton). COLORADO - Adults feeding on alfalfa in Las Animas County. (Hantsbarger). TEXAS - Larvae up to 2 per sweep damaged alfalfa in Zavala and Maverick Counties. Heavier infestations in Wharton, Kaufman, and Brazos Counties. Larvae 3-4 per sweep on vetch in Kaufman County. (Latham et al.).

OKLAHOMA - Percent of terminals infested by H. postica; 50-60 in Canadian County and 10-20 in Roger Mills County. Heavy in Craig, Muskogee, Coal, Grady, Washita, and Cotton Counties. Several fields in Major County near economic levels. Adults 150 per square foot on alfalfa in Lincoln County and 5-6 per terminal in Kiowa County. Up to 75 percent of terminal buds infested in Payne County alfalfa. Larvae ranged 0-4 per bud. Moderate in Love, Marshall, and Bryan Counties. (Okla. Coop. Sur.). ARKANSAS - Early instar larvae 350 per 100 sweeps of alfalfa in Washington County. (Boyer, Dumas). Treatments underway in all areas. (Boyer). MISSOURI - Early instar larvae ranged 0-14 per plant in southern area fields. Adult mating and feeding noted on warm days. (Munson). ILLINOIS - Larvae 100 per 100 stems and tip feeding 68 percent in Johnson County field. Tip feeding 20.4 percent and larvae 27.1 per 100 stems for southern one-fourth of State. (Ill. Ins. Sur.). KENTUCKY - Eggs averaged 183 per square foot of alfalfa in Fayette County and 85 per square foot in Madison County. First instar larvae noted in Madison County. (Barnett). TENNESSEE - Surveys show populations above control levels in western area in older alfalfa. Expect control levels to be reached in new alfalfa soon. (Emerson).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Larvae 10 per square foot of alfalfa in White County field and 6 in Johnson County field. (Ill. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - TEXAS - Heavy on vetch in Maverick and Zavala Counties. Ranged 1,000+ per sweep at one Zavala County site. Light to medium on alfalfa in Zavala and Maverick Counties. (Latham et al.). OKLAHOMA - Ranged 150-250 per sweep in alfalfa in Roger Mills County and 20-200 per sweep in Noble County. Heavy in alfalfa in Grady County and moderate to heavy in Muskogee, Seminole, Hughes, and Craig Counties. Very heavy in Beckham County. Moderate on alfalfa in Woodward County. (Okla. Coop. Sur.). ARKANSAS - Ranged 150-200 per 100 sweeps of alfalfa in northwest areas and 450-500 in east-central areas. (Boyer, Sterling). ILLINOIS - Started to increase, 45 per 100 sweeps, on alfalfa in Johnson County. (Ill. Ins. Sur.).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - MISSISSIPPI - Spring survival surveys in Grenada County indicate 484 weevils per acre of ground trash. Negative in Yalobusha County. (Robinson).

## POTATOES, TOMATOES, PEPPERS

VEGETABLE LEAFMINER (Liriomyza munda) - FLORIDA - Heavy, 7 mines per leaf on young tomato plants in Manatee County. (Poe).

## DECIDUOUS FRUITS AND NUTS

LYGUS BUGS (Lygus spp.) - WASHINGTON - Numerous adults damaged pears in north-central areas. (Rushmore). Damage to pears increased at Zillah, Yakima County (Gregorich); 32 percent pear damage of pear buds based on 50 spur count at Parker. (Johnson).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Controls applied to nectarine trees to prevent injury in Fresno and Tulare Counties. (Cal. Coop. Rpt.).

APPLE APHID (Aphis pomi) - WASHINGTON - Nymphs appearing on apples at Zillah, Yakima County. (Gregorich).

## CITRUS

Insect Situation in Florida - Mid-March - CITRUS RUST MITE (Phyllocoptura oleivora) infested 68 (norm 65) percent of groves; economic in 44 (norm 43) percent. Decreased and now slightly above normal but still in high range. Decrease to moderate level predicted. Highest districts south, west, and central. CITRUS RED MITE (Panonychus citri) infested 19 (norm 40) percent of groves; economic in 2 (norm 15) percent. Population lowest for March in 21 years of record and will remain very low in all districts. TEXAS CITRUS MITE (Eutetranychus banksi) infested 17 (norm 31) percent of groves; economic in 5 (norm 12) percent. Population near very low level of 1970 and will remain unimportant in most districts despite predicted increase. Highest district central. SIXSPOTTED MITE (Eotetranychus sexmaculatus) infested 5 percent of groves; economic in none. Population below normal and very low, will increase in scattered groves. PURPLE SCALE (Lepidosaphes beckii) infested 80 (norm 76) percent of groves; economic in 3 (norm 8) percent. Population near normal. Moderate in all districts. Increase expected. Highest district north. GLOVER SCALE (Lepidosaphes gloverii) infested 70 (norm 80) percent of groves; economic in 2 (norm 13) percent. At lowest March level since 1963. Population expected to increase from low to moderate range. Highest district east. CHAFF SCALE (Parlatoria pergandii) infested 45 (norm 56) percent of groves; economic in 1 (norm 7) percent. Population will remain below normal and low. Highest district south. YELLOW SCALE (Aonidiella citrina) infested 34 (norm 61) percent of groves; economic in none. Population at lowest March level since 1964 and will remain low in all districts despite expected light increase. BLACK SCALE (Saissetia oleae) statewide population averages above March normal. At present, populations vary greatly. Gradual increase expected. AN ARMORED SCALE (Unaspis citri) infested 31 percent of groves; economic in 23 percent. Population higher than in any prior month. Light increase expected. WHITEFLY adults and eggs more numerous than normal for March. Rapid increase of adults and eggs expected until mid-April. APHIDS infested 10 percent of groves; none economic. Although population near normal and currently low, rapid increase will occur. Important infestations expected through April in groves of susceptible varieties. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Heaviest count 42.96 per lemon leaf at one untreated grove on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

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

### SMALL FRUITS

BLUEBERRY BUD MITE (Acalitus vaccinii) - NORTH CAROLINA - Infestations generally lighter than in winter of 1970 and 1971. Damaging infestations observed in some untreated Pender and Bladen County blueberry fields. Infestations on 60 to 90 percent of terminal buds. Controls satisfactory. (Sorensen).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - FLORIDA - Widespread, ranged 5-10 per leaf on strawberry plants at Plant City, Hillsborough County and at Bradenton, Manatee County. (Poe).

A NOCTUID MOTH (Euxoa sp.) - CALIFORNIA - Larvae heavy in grape vineyards in some areas of Fresno County and required controls. (Cal. Coop. Rpt.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - OREGON - Adults light, (averaged 10 per leaf) on daffodils in 20-acre planting near Logsdon, Lincoln County. (Wheeler, Larson).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Ranged 5-10 per flower head on chrysanthemum in Manatee County. (Poe).

### FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Heavy, localized infestations destroyed about 10 acres of pine in Marengo County. (Yates).

A CONIFER SAWFLY (Neodiprion taedae linearis) - ARKANSAS - Hatch began in south areas February 28. Weather conditions favored larval feeding and development. Third to fifth instar larvae present. Feeding damage not yet serious. Numbers sufficient to cause defoliation in local areas. Activity began about 2 weeks earlier than normal. (Warren).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Surveys indicate population collapse in east-central areas; this jack pine area scheduled for controls in 1972. (Minn. Pest Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Medium to heavy on wild plum throughout Brazos and Madison Counties. (Williamson). ARKANSAS - Hatched in northwest areas about March 5, and about February 27 in south areas. Infestation heavier in northwestern areas. (Boyer). MISSISSIPPI - Larvae on cherry trees in southern half of State. (Guice).

### MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 22 cases reported in U.S. March 19-25, as follows: TEXAS: Dimmit 1, Duval 2, Frio 2, Jim Hogg 1, Kenedy 2, Medina 1, Starr 5, Webb 2, Zapata 3. ARIZONA: Cochise 2, Pima 1. Total of 127 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico

as follows: Sonora 49, Chihuahua 5, Coahuila 8, Nuevo Leon 16, Tamaulipas 49. Total of 38 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 screwworm flies released: Texas 49,988,000; Arizona 600,000; Mexico 74,314,000. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Averaged 4.4 per animal on backs of dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - Light on cattle in Hughes County and moderate in Craig County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Counts of 100 per cow in herd in Jones County. Heavy for time of year. (Harris). Occasional fly on herd in Monroe County. (Robinson). OKLAHOMA - Ranged 25-150 on animals in Payne County. Up to 300 per head on yearling steers, 500 per head on mature cows, and 1,000 per head on 2 mature bulls. Moderately heavy on cattle in Marshall County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Increased, averaged 2 per head, on unsprayed dairy cattle in Payne County. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - OKLAHOMA - Counts averaged 9 per Scudder grid in untreated barns and homes in Payne County. (Okla. Coop. Sur.).

#### HOUSEHOLDS AND STRUCTURES

A POWDERPOST BEETLE (Lyctus bruneus) - MISSISSIPPI - Specimens recovered from mahogany door frames in Jackson County by J.F. Hall on February 3, 1972. Determined by V.H. Owens. This is a new State record. (McCarty). This is a cosmopolitan species and occurs worldwide. (PP).

#### BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - ARKANSAS - Overwintered satisfactory. Due to blooming of plants and favorable weather, 2-3 brood cycles observed in northwestern counties. Because of heavy population buildup, feeding may be necessary to prevent starvation prior to nectar flow. Drones appeared in some colonies and swarming may occur earlier than usual. (Warren).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASS BUGS (Labops spp.) - NEW MEXICO - Damaged crested wheat-grass in reseeded areas near Llaves, Rio Arriba County. (Durkin). UTAH - L. hesperius hatched throughout Bryce Canyon, Garfield County, and up to elevations of 8,000 feet. Also active in area north and east from Alton, Kane County. (Haws, Judd).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Old adult females and egg masses present on pomegranate trees in Porterville, Tulare County. (Cal. Coop. Rpt.).

## HAWAII INSECT REPORT

General Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) light in young cucumber at Haleiwa and Pupukea, Oahu; eggs and nymphs moderate in 1.5 acres of bittermelon at Pupukea. SWEETPOTATO LEAFMINER (Bedellia orchilella) larval mines heavy in 2 acres of sweet potato at Hoolehua, Molokai; no parasites observed. (Fujimoto). GREEN PEACH APHID (Myzus persicae) light to moderate on about 30 percent of terminals in 6,000 square feet of sweet peppers at Pupukea, Oahu; less than 5 percent of aphids mummified. (Kawamura).

Fruits and Nuts - Larvae of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) increased on citrus in Oahu period ending March 17. Eggs collected from Waimanalo, Nuuanu, and Ewa parasitized. (Kashiwai, Kumashiro).

Forest and Shade Trees - A CONIFER APHID (Cinara carolina) heavy in 20 acres of Pinus taeda at Olinda, Maui; young terminals with as many as 25 nymphs and adults per lineal inch; damage negligible. (Miyahira). Larvae of a NOCTUID MOTH (Melipotis indomita) moderate under loose bark of roadside kiawe (Prosopis pallida) trees at Waimea and Kekaha, Kauai. Small increase in adult light trap collections during first 14 days of March on Oahu. (Sugawa).

---

### DETECTION

New State Record - A POWDERPOST BEETLE (Lyctus bruneus) - MISSISSIPPI - Jackson County. (p. 167).

### CORRECTIONS

CEIR 22(12):148, 149 - A LAND SNAIL (Vertigo rugosula) - SOUTH CAROLINA - ... should read ... A LAND SNAIL (Vertigo rugosula oralis) - SOUTH CAROLINA. Delete ... Generally distributed throughout southeast U.S. (PP).



FOREST AND SHADE TREES

Highlights:

SPRUCE BUDWORM defoliation increased in Washington and is expected to increase again in 1972. An increase was also reported in Maine; a 3-fold increase is expected in 1972. Damage was reported from Michigan and Pennsylvania. SOUTHERN PINE BEETLE infestations were heavy in Maryland and in some areas of North Carolina. ROUNDHEADED PINE BEETLE was heavy in Lincoln National Forest and adjacent areas of New Mexico. SAWFLIES were troublesome in Michigan and several southeastern States. VARIABLE OAKLEAF CATERPILLAR defoliation was heavy in North Dakota, while in Missouri, epidemic conditions were noted in the southern areas.

SPRUCE BUDWORM (Choristoneura fumiferana) defoliation increased in the Okanogan and Wenatchee National Forests in WASHINGTON. Populations are expected to increase again in 1972. Populations increased this year in northern MICHIGAN. Spruce budworm had not been a serious problem, with one exception, in the past 40 years. During the early 1950's, there was an outbreak in the Keweenaw Peninsula. The largest acreage involved in 1971 was in Mackinac and Chippewa Counties, with about 40,000 acres of forests involved. There has been some host mortality in these areas. About 100,000 acres of forest were lightly infested in portions of Luce, Delta, and Marquette Counties. Controls are planned in some areas due to the value of the timber. No control had been planned on State forestland for 1972. In PENNSYLVANIA, spruce budworm defoliated hemlock in Centre County by June 23. Heaviest damage was reported on 40 square miles of hemlock in portions of Cameron, Union, and Centre Counties.

The epidemic infestation of spruce budworm which has been observed in northern MAINE for several years, continues to increase. This infestation involves several hundred square miles mostly in Piscataquis County. Tree mortality has or is expected to occur on about 31,000 acres in the Oxbow area. About 500,000 acres are approaching a high hazard condition. Egg mass surveys indicate a 3-fold increase in 1972.

WESTERN SPRUCE BUDWORM (Choristoneura occidentalis) defoliation in northern NEW MEXICO ranged moderate to heavy. About 50,000 acres were involved on the Carson National Forest and Taos Indian Pueblo lands. Defoliation was moderate to heavy in northern MINNESOTA, with about 2 million acres involved. Some scattered mortality was observed on balsam fir and lesser damage to white spruce. Some chemical tests were made; however, no control programs were undertaken in 1971.

JACK PINE BUDWORM (Choristoneura pinus) infestations in MICHIGAN were mostly confined in Crawford, Oscoda, Ogemaw, Montmorency, and Presque Isle Counties. Some populations in these counties were less than during 1970. Populations are expected to increase in 1972.

EASTERN BLACKHEADED BUDWORM (Acleris variana) infestations increased in size and number in western WASHINGTON. Epidemic levels were rated for about 209,880 acres of eastern hemlock, spruce, and firs in the western areas.

DOUGLAS FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) populations were heavy in local areas of El Dorado National Forest and Yosemite National Park in CALIFORNIA. About 100,000 acres were involved in this infestation.

WESTERN PINE TIP MOTH (Rhyacionia bushnelli) was recovered for the first time on Monterey pine in CALIFORNIA in San Diego County during July. Also has been recovered in San Bernardino and Kern Counties.

SOUTHERN PINE BEETLE (Dendroctonus frontalis) infestations were heavy in MARYLAND during the fall of 1970 and the spring of 1971. Loblolly pines were killed in Dorchester, Somerset, Talbot, and Worcester Counties; total losses were estimated at 35 million board feet and valued at \$1.4 million. Populations and damage declined during June and continued into the fall. Above normal rainfall may have contributed to this decline on the Eastern Shore. Infestations in NORTH CAROLINA declined in all yellow pines. During September, surveys revealed heavy infestation on 73,000 acres in the Nantahala National Forest. Salvage operations were undertaken in the heavier infested areas. In SOUTH CAROLINA, surveys indicated an increase in populations in some central Piedmont counties.

ROUNDHEADED PINE BEETLE (Dendroctonus adjunctus) was at epidemic levels in NEW MEXICO on the Lincoln National Forest and the adjacent Mescalero and Apache Indian Reservation. An estimated 400,000 pole-sized ponderosa pine were infested, involving about 150,000 acres.

JACK PINE SAWFLY (Neodiprion pratti banksianae) was economically the most serious pest on State forest in the Upper Peninsula of MICHIGAN. The most serious infested areas were in portions of Schoolcraft and Luce Counties. About 50,000 acres were involved in these areas. In Luce County, up to 90 percent mortality was reported to overmature stands of jack pine. Salvage operations were underway in dead and high risk stands. In the Lower Peninsula, jack pine sawflies were common; however, most of the defoliation was to small trees, particularly those shaded by hardwoods.

EUROPEAN PINE SAWFLY (Neodiprion sertifer) populations in the southern half of lower MICHIGAN were heavier than in several years. This sawfly was troublesome on several species of ornamental pines.

CONIFER SAWFLIES were troublesome in several States. In KENTUCKY, larvae of Neodiprion spp. infested 95 percent of the trees in a 400 acre plot, with 25-30 percent defoliation in May. In late May, 75 percent of the pines were infested in Calloway, Ballard, and Marshall Counties. Defoliation was about 75 percent. Larvae of N. taedae linearis were observed in early to mid-April in middle and west TENNESSEE. Defoliation was heavy in Giles, Hamilton, Meigs, Hardeman, Crockett, Polk, and Coffee Counties. Larvae were recorded from Humphreys and Houston Counties during June, for new distribution records. In FLORIDA, heavy defoliation was reported on loblolly pine by N. excitans in Taylor and adjacent

Counties. An endemic spring population was noted in an isolated stand of pine at Cedar Key in Levy County. Some heavy parasitism was noted.

SARATOGA SPITTLEBUG (Aphrophora saratogensis) was found in combination with red pine and sweetfern throughout northern MICHIGAN. Damage was reported as heavy to the pine. Reports from Thunder Bay River Forest indicate that most of the red pine planted since 1960 where sweetfern is present is being destroyed. Other areas also report heavy infestations. In the Lower Peninsula, increased activity was reported for the third year by A. saratogensis and A. parallela.

For the third consecutive year a NOTODONTID MOTH (Symmerista canicosta) defoliated 250-300 square miles of white oak and red oak in MICHIGAN. In this area for the second time numerous eggs of this species were found blackened and failed to hatch. Predatory beetles were observed feeding on first and second instar larvae; also a braconid was noted associated with same instar larvae. Calosoma scrutator and Podisus maculiventris, common during 1970 on fourth and fifth instar larvae, were not as abundant in 1971. There was no evidence of disease in the population, and the outlook for 1972 is unknown. The more significant mortality of S. canicosta occurred in areas where defoliation was heavy, probably due to starvation.

SADDLED PROMINENT (Heterocampa guttivitta) population collapsed in MICHIGAN, apparently due to parasitism of the egg. Expect this decline to continue during 1972. In MAINE, heavy defoliation was recorded on 26,000 acres, an increase from 1970. The third year of the outbreak in NEW HAMPSHIRE continued, mostly in margins of areas defoliated in 1970. Many larvae were destroyed by a disease, and no serious problems are expected for 1972. Saddled prominent larval damage in PENNSYLVANIA was light to moderate in 90,000 acres in Elk and McKean Counties by July 28. Heavy defoliation was reported on maple and beech in Potter County by August 23.

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) eggs hatched by August 6 in NORTH DAKOTA and leaf skeletonization was noted in Benson County. Defoliation was heavy on basswood, buroak, and elm in Benson County and on birch and buroak in Dunn County. Infestations were heavier and more widespread than during 1970. Overwintering larvae in MISSOURI pupated April through August. Moths emerged August and September. Epidemic conditions prevailed in the south-central and southeast Ozarks. Defoliation ranged 80 to 100 percent on an estimated 2 to 3 million acres and defoliation ranged 20 to 79 percent on another 5 million acres. In ARKANSAS, infestations of H. manteo were above normal, but lighter than in 1970. The favorite host apparently is red oak. There were two staggered generations, and larvae were noted until the middle of October.

EASTERN TENT CATERPILLAR (Malacosoma americanum) eggs were hatching in RHODE ISLAND by May 5. Infestations were heavier in Providence County than during 1970. Pupation was noted about June 11. The number of complaints decreased by June 14. In MARYLAND, larval damage to wild cherry trees was the heaviest within the past several years. Egg laying was heavy in most areas; therefore, heavy populations can be expected in April 1972. Eastern tent

caterpillar populations were heavier in VIRGINIA than during 1970. Egg hatch was noted about March 16 in Henrico and Pittsylvania Counties. Damage to wild cherry and unsprayed orchards was very heavy statewide. Infestations were also heavy in ARKANSAS, and larvae appeared March 12 in Calhoun County.

FOREST TENT CATERPILLAR (Malacosoma disstria) eggs hatched in NORTH DAKOTA May 15 in Benson County. Pupation was noted by July 2. Defoliation was light but more widespread than during 1970. Parasites and predators reduced populations during 1971. Damage was reported on about 2,000 acres of woodland. A decrease is expected in 1972. In Minnesota, defoliation was heavy in 400,000 acres in the northern areas. About one million acres was reported as light to moderately defoliated. Primary host in Minnesota was aspen. Forest tent caterpillar defoliation in PENNSYLVANIA was moderate to heavy on maple, red oak, black cherry, and aspen. There was a decline in southern Somerset and Bedford Counties, largely due to a virus.

BIRCH SKELETONIZER (Bucculatrix canadensisella) defoliation in late summer in the lower Peninsula of MICHIGAN was not as heavy as in 1970. Populations continued heavy in the Upper Peninsula in 1971. Paper birch was defoliated throughout this area. By the first of September leaves were gone, or the crowns had turned yellow.

OAK SKELETONIZER (Bucculatrix ainsliella) damage to oaks in RHODE ISLAND was heavy by June 24 in Providence County. Infestations of second and third instar larvae were heavy statewide. By July 7, pupation was observed and moths were in flight from July 12 to 16.

SPRING CANKERWORM (Paleacrita vernata) populations were heavy and damaged shade trees, primarily elm and hackberry, throughout May and early June in middle TENNESSEE. Controls were successful where applied. In KANSAS, defoliation ranged 50 to 100 percent on many elms throughout the central and eastern areas. Female moths of P. vernata emerged in Cass County, NORTH DAKOTA, by March 30, which was about 7 days earlier than 1970. Moths were abundant on Siberian elm in Bottineau County by April 12. Moth and egg masses (8 egg masses per square foot) were present in Ward County by April 30. By May 7, eggs were abundant on elm in Bottineau County. Within 7 days, eggs of P. vernata) and FALL CANKERWORM (Alsophila pomataria) had hatched in Ward, Burleigh, Bottineau, and Cass Counties. Light shotholing was evident. Shelterbelt trees in Pembina and Ward Counties were completely defoliated and larvae had completed feeding and pupated by July 2. In Cass County, female moths of A. pomataria emerged. The only reported infestation of P. vernata and A. pomataria was in Shakey Lakes Park in Menominee County, MICHIGAN. This area had been sprayed in the past and the population was less than in the past 2 years, with about 10 percent defoliation. Populations are expected to remain light for another 3-4 years.

LARGE ASPEN TORTRIX (Choristoneura conflictana) defoliation was heavy in 1.5 million acres in northeastern MINNESOTA; primary host was aspen. Light to moderate defoliation extended southwest and west, with 2 million acres or more involved. OAK LEAFTIER (Croesia albicomana) defoliation was heavy during June in PENNSYLVANIA. Controls were applied to 2,000 acres in Black Moshannon State Park, with about 100 percent mortality noted by June 24 in this area. Also defoliation was heavy in French Creek

State Park and Pine Grove Furnace State Park. By August 12, heavy defoliation was noted in a 1,000 acre tract for the second year. An area of 6,300 acres showed heavy to complete defoliation in Union County. Oaks were the major hosts.

Several species of Lepidoptera were reported from ALABAMA for new State records. These were: A NOTODONTID MOTH (Datana contracta) in Lee County; PYRALID MOTHS (Tetralopha militella) in Lee County and T. asperatella in Houston County; an OECOPHORID MOTH (Psilocorsis faginella) in Houston County; and an OLETHREUTID MOTH (Paralobesia liriodendrana) in Macon County.

PUSS CATERPILLAR (Megalopyge opercularis) was reported for the first time from TENNESSEE; recovered from Knox County on redbud.

BOXELDER LEAFROLLER (Gracillaria negundella) outbreaks occurred in UTAH in the mouths of many Cache, Box Elder, Weber, Salt Lake, and Utah County canyons. Several thousand trees were defoliated. Injury also occurred in a number of communities in these counties. Controls were needed in these areas.

The first generation of MIMOSA WEBWORM (Homadaula anisocentra) was very light. Damage was heavy but scattered to mimosa in eastern OKLAHOMA in July, August, and September. Five new counties were found infested in the southeast, south-central, and central areas in limited surveys in the fall.

ELM LEAF BEETLE (Pyrrhalta luteola) was extremely abundant in COLORADO and caused some defoliation to elm trees. By the first week in June, larval infestations and damage were apparent. In scattered areas of Weld and Mesa Counties, defoliation approached 100 percent on untreated trees. Severe defoliation of elms was reported from most metropolitan areas of the State. Elm leaf beetle caused leaf damage on 100 percent of the American and Siberian elms at Sioux City, IOWA, during September. It is estimated that 50 percent of the effective leaf surface was destroyed. Heavy defoliation also occurred in the southwest areas. Elm leaf beetle infestations were not as extensive in MISSISSIPPI as they were in 1970. However, some severe infestations caused up to 100 percent defoliation of Chinese elms in Leflore, Lowndes, Hinds, Oktibbeha, Tunica, and Washington Counties.

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) infestations in TENNESSEE were light on elm trees in Franklin, Coffee, and Greene Counties. These were reported as new county records.

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) adults in NORTH DAKOTA appeared in window traps May 7, which was about the same date as in 1970. Trap logs in Cass and Richland Counties had up to 24 galleries per foot of log. Adults were collected May 14 in Burleigh and Emmons Counties for new county records.

In PENNSYLVANIA, 16 adults of an EURYTOMID WASP (Eudecatoma marylandica) emerged August 17 from gouty oak galls in January near Auburn, Schuylkill County, for a new State record.

BIRCH LEAFMINER (Fenusa pusilla) populations were the heaviest in Delta, Dickinson, Menominee, and Iron Counties, MICHIGAN. By mid-July, large numbers of birch in these counties were brown. Trees

along roadsides, field borders, or in yards were the most susceptible to attack. The birch leafminer was the most important aesthetic insect problem in the Upper Peninsula. Larvae were beginning to mine leaves in RHODE ISLAND by June 1 in Providence County and by June 10 there was extensive evidence of mines in leaves on unsprayed gray birch in Washington County. From June 14 to 18 there was very noticeable damage to unsprayed birches throughout the State. The second generation was reported on July 15 in Providence County. Birch leafminer was generally found throughout VERMONT. Leaf browning was heavy on grey birch in the Champlain Valley.

LOCUST LEAFMINER (Xenochalepus dorsalis) outbreak occurred in July in TENNESSEE as in past years. The degree of infestation, or amount of damage, was not nearly as great as in 1970; however, feeding was observed in west Tennessee in 1971, but not in 1970.

Adults of a PLATYGASTERID WASP (Platygaster obscuripennis) emerged from 2 willow terminal twig galls at La Porte, Sullivan County, on February 15. This was reported as a new record for PENNSYLVANIA. Larvae of a SAWFLY (Nematus abbottii) were collected feeding on black locust leaves at Auburn, Lee County, ALABAMA. This was reported as a new State record.

#### MAN AND ANIMALS

Highlights: This was the fourth best year since 1962 for SCREW-WORM in the U.S. HORN FLY populations were about normal except for Texas, North Dakota, Ohio, Maryland, Mississippi, and Florida. FACE FLY caused some control problems in Maryland and some productivity loss in Illinois. Increased in Kentucky. STABLE FLY was annoying in several States. A BLACK FLY continues to affect turkey production in South Carolina.

---

There were 473 laboratory-confirmed cases of SCREWWORM (Cochliomyia hominivorax) reported in the U.S. during 1971. This was the fourth best year since 1962, the start of the program, when 50,000 cases were reported. This was an expected increase following the lowest 2 years ever. In 1969, a total of 219 cases was reported and in 1970 there were 153 cases.

In 1971, 255 of the screwworm cases submitted for identification were in September and October, whereas, in 1969 and 1970, May, June, and July were the most active months. There were no cases reported during January and only one case during February. There were no cases reported in NEW MEXICO for the second time on record; none for the first time in CALIFORNIA since 1965. For the seventh consecutive year OKLAHOMA reported no cases and LOUISIANA has continued screwworm-free since 1962. In ARKANSAS, 25 cases were reported and ARIZONA had 4 cases.

In northern Mexico, there were 8,811 laboratory-confirmed cases of screwworm as compared to 4,634 cases in 1970.

There were 2,584 non-screwworm samples submitted in the U.S. this year, and 1,945 in 1970.

Screwworm eradication operations were started in Puerto Rico, and the U.S. and British Virgin Islands on June 1, 1971.

HORN FLY (Haematobia irritans) populations in IDAHO were about normal and ranged 100-300 per animal. This area includes Latah County north to Boundary County. Chemical dust bags were satisfactory where available to cattle. In UTAH, populations were more troublesome in areas where controls were neglected. Infestations were troublesome in Washington and San Juan Counties. Horn fly infestations in TEXAS were first reported in March from Bell County. Populations increased during late April and early May in the Trans-Pecos and Rolling Plains areas. The heaviest infestations were reported from the Trans-Pecos area and south-central Texas. Horn fly populations were found in OKLAHOMA from late March to mid-November on cattle. There was a peak about mid-June, then a second peak in mid-August. With a gradual decrease through October.

Horn flies ranged 0-10 per animal in NEBRASKA on May 11 on herds pastured in Cherry and Lincoln Counties. Increase noted by June 1, then the range was 20-30 per animal in Red Willow, Furnas, Frontier, and Lincoln Counties. Populations peaked at 500+ per animal in late July. In NORTH DAKOTA, economic counts of 300 per animal noted on cattle in McKenzie County by June 11. Infestations were found throughout the season. Horn flies averaged 141 per animal in ILLINOIS during June, July, and August. This represents an estimated loss in productivity of 2.8 percent. Averaged less than 10 per animal in INDIANA in the central district. Generally, was not an important pest in 1971.

Horn flies peaked in mid-July in OHIO. During July, up to 500+ were noted on the backs of cattle. Populations in MARYLAND were well below normal in Baltimore, Frederick, Carroll, Montgomery, and Prince Georges Counties. Heaviest counts were during July and August and ranged 10-50 per head. Counts in Wicomico and Dorchester Counties ranged 60-300 per head on unsprayed cattle. Sprayed cattle ranged 7-20 per head during the same period statewide. Most dairy herdsman applied some form of control to prevent annoyance. Horn flies appeared on May 7 in MISSISSIPPI in Oktibbeha County. Populations peaked in early July; adults ranged 300-400 per animal in Holmes, Oktibbeha, Monroe, and Montgomery Counties. A second peak was noted late August and early September with similar counts. By mid-October, a decline was noted and adults ranged 50-100 per animal. Some controls were applied.

Populations were lighter in FLORIDA in 1971 than in 1970 at Gainesville, Alachua County; Quincy, Gadsden County; and Ona, Hardee County. Peak infestations on beef cattle at Gainesville occurred in September, with a herd average of 1,080 flies per animal. Dairy cattle had much lower counts. Extreme variations in fly numbers were noted in 1971, depending on the week and the area counted. The fly season started earlier in the spring of 1971 than in 1970, with economic levels on beef and dairy cattle developing by May and continuing through November. Horn flies are found at Gainesville and Ona throughout the year, while Quincy had very few flies from October until March. The maximum number of flies per animal was recorded from a bull, from which 7,000 flies were removed and hand counted. Horn fly remained a problem at Belle Glade and continued at summer levels into the fall.

FACE FLY (Musca autumnalis) was first reported in IDAHO in Clearwater County on April 5. During July, counts ranged 3-35 per face on cattle from Latah County to the Canadian border.

Became a nuisance around homes about August 31. Populations not as troublesome to livestock as in 1969. In MONTANA, populations during July and August increased in the southwestern mountain valleys; counts of 25 adults per face were noted. Populations were lighter in the eastern areas. Adult counts of 18 per face on calves noted July 23 in Ransom County, NORTH DAKOTA. Economic infestations were observed in Dunn County, with counts of 20 per face in late August. Face flies ranged 2-3 per animal in NEBRASKA on June 21. Increased and peaked at 20-25 per animal on August 5, then declined. Counts of 5 per head reported by September 17.

Face flies on untreated cattle in ILLINOIS peaked at 34 per animal on July 15 in Ogle County. Heaviest counts were in Adams County; averaged 38 per animal and peaked at 45 on August 25. Average for Illinois for June, July, and August was 27 per animal and an estimated productivity loss of 4.1 percent. In INDIANA, adult males noted near barns in Tippecanoe County by April 23. At this time, averaged 5 per head of cattle in south-central areas. Face flies appeared in NEW HAMPSHIRE about the first of April in Strafford County. No serious problems were reported this year. In VERMONT, populations were moderate on cattle in pasture May 18 and increased until July 7, at this time counts of 200 per head noted in Chittenden County.

Face fly was the most difficult fly to control on cattle in MARYLAND. Populations were at annoyance levels by April 23 in Baltimore, Carroll, Frederick, and Harford Counties. Counts ranged 10-30 per head in these counties. Peaks ranged 30-100 per head during July and August in central Maryland. Populations were light on the Eastern Shore in counties east of Cecil County. Annoyance levels declined in October. In the higher elevations in VIRGINIA, adults ranged moderate to heavy. On a single farm in Carroll County, adults ranged up to 200 per head.

In KENTUCKY, face fly was more troublesome on cattle; however, it was also a pest of horses. Populations increased over the previous 3 years. Adults ranged 10-14 per head for the 62 counties surveyed. The incidence of "pink eye" was more numerous than the previous 2 years and appears to be increasing. In SOUTH CAROLINA, where counts of 50-100 per head were reported in 1970; counts ranged 0-5 per head in 1971. Infestations in MISSISSIPPI were comparable to those in 1970; but were less than the levels of 1969. Adults were first reported on cattle in Monroe County early in June.

COMMON CATTLE GRUB (Hypoderma lineatum) infestations were moderate in KENTUCKY, which was similar to the infestations of 1970. Larval emergence peaked in mid-February and a second peak was noted March 5. In FLORIDA, counts were less than in 1970 in Alachua County. Grubs in the backs of cattle were earlier instars and occurred later in the season than in 1970. This was due to the late fall and warmer temperatures. Late second and early third instar grubs were recovered in mid-December. Grubs averaged 5 per animal with herd infestation rate of 23 percent.

Hypoderma spp. infestations on cattle at 9 NORTH DAKOTA livestock markets during March ranged up to 60 grubs per head. This was an increase from 4 grubs per animal found during 1970. The number of animals infested decreased from 30 percent in 1970 to 10 percent in 1971. Those animals originating from south and west of the Missouri River showed heavier infestations.



STABLE FLY (Stomoxys calcitrans) counts in IOWA on an untreated herd averaged 27 per leg on June 30 and 13 per leg on August 13. Adults appeared on May 26, which was 20 days later than usual. Populations peaked in ILLINOIS at 22 per animal June 23, and the season's average was 11 per animal in Ogle County. Averaged 3 per animal in Adams County with no noticeable peak. Averaged 4.5 per animal in St. Clair County, with a peak of 10 per animal June 23. The State average was 6.5 during June, July, and August. This represents an estimated loss of productivity of 3.2 percent.

Stable fly populations in NORTH DAKOTA reached annoying levels on July 2 in Cass County, with counts of 15-20 adults per animal. Annoyance continued into October. This pest caused problems in hog houses. In NEBRASKA, ranged 4-5 flies per leg on feedlot animals in late June. Increased to a peak in mid-August, when counts ranged 25-30 per leg. Declined to 5 per leg by September 17. Stable fly activity was reported in OKLAHOMA from mid-March through September. Counts of 5 per head were reported on untreated cattle in Payne County in mid-May and also in early September. In UTAH, annoyance was about normal around farms.

First mosquito larvae in MINNESOTA were observed in the Minneapolis and St. Paul metropolitan area on March 31, but first pupation did not occur until April 26. By May 1, Aedes pupae were common but cool weather delayed adult emergence. The first heavy hatch of Aedes vexans eggs was the third week of May. This brood emerged about June 7 and light trap catches increased by June 11, as did nuisance levels. A. vexans accounted for over 90 percent of the trap collections. Heavy rains the fourth week in June brought on another general hatch of A. vexans eggs. Coquillettidia perturbans in significant numbers were present in trap collections by June 20 and peaked about July 10. Culex tarsalis were common during July but never in large numbers. Special surveys were made for Aedes triseriatus, and many tree-hole breeding sites were treated.

A WHITESTOCKINGED BLACK FLY (Simulium venustum) adults emerged in NORTH DAKOTA, in Cass County on May 3. Adults ranged up to 12 per animal on cattle and horses. By the end of May, populations increased to 1,000 per animal on cattle and 500 per animal on horses. Infestations persisted throughout July, but were not as severe as in 1970.

S. congareenarum and S. slossonae in SOUTH CAROLINA transmitted the parasites that caused a leucocytozoon disease in turkeys. This disease has reduced turkey production in the past 2 years. Egg production has been severely reduced in Chesterfield County. S. congareenarum occurred during April, May, and early June, while S. slossonae apparently was present throughout the year.

In SOUTH CAROLINA, 22 species of BITING MIDGES (Culicoides spp.) were collected in Georgetown County during August, September, and October. The dominant species in this area was Culicoides furens. Other species collected were: Culicoides hollensis, C. spinosus, and C. stellifer. During October, collections in light traps diminished.

HOUSE FLY (Musca domestica) infestations were serious in environmental controlled poultry houses in northwest ARKANSAS. House fly continues as the major problem in swine and poultry operations in SOUTH CAROLINA.

EAR TICK (Otobius megnini) apparently is established in ARKANSAS. This infestation has been present for the past 6 years in Searcy County and has spread over most of the central part of the county.

AN ITCH MITE (Notoedres douglasi) was collected for the first time in OREGON from skin lesions of silvery gray squirrels at Hood River, Hood River County.

BROWN RECLUSE SPIDER (Loxosceles reclusa) specimens were collected in Polk County, TENNESSEE during the week ending May 21 and collected from Hardin County during the week ending July 2 for new county records.

#### HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) remained the major structural pest throughout ALABAMA and MARYLAND.

Distribution of OLDHOUSE BORER (Hylotrupes bajulus) was extended within several States. In ALABAMA, larvae were collected in Houston County. Specimens were recovered in TENNESSEE, in counties of Hardin and Sevier, while in PENNSYLVANIA, the distribution included Fayette, Adams, Delaware, and Westmoreland Counties.

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) adults were in alfalfa in southwest OKLAHOMA by mid-January and larvae appeared by mid-March. Counts were heavy in aphid infested wheat and alfalfa by early May, but were not controlling the heavy populations of Therioaphis maculata (spotted alfalfa aphid). In other areas of the State, larvae and adults of H. convergens were common by mid-April. This lady beetle helped control Schizaphis graminum (greenbug) on sorghum during August in the panhandle area. Primarily convergent lady beetle adults and larvae in WISCONSIN were an important factor in the collapse of Cinara strobi (white pine aphid) in Dane County during July. H. convergens suppressed populations of Rhopalosiphum maidis (corn leaf aphid) in August and stabilized infestations of Acyrtosiphon pisum (pea aphid) during May.

Convergent lady beetle and Coleomegilla maculata fuscilabris were the more important species in ALABAMA crops for controlling aphids.

The lady beetle species most often observed in MAINE were Hippodamia tredecimpunctata, Coleomegilla maculata, Coccinella transversoguttata, C. trifasciata, and Adalia bipunctata. In cornfields where lady beetles were found last year they were heavier this year, and Rhopalosiphum maidis (corn leaf aphid) was less a problem.

In MASSACHUSETTS, lady beetle larvae were noted in an unsprayed orchard in Hampshire County on May 24. Observed in alfalfa from early July to the last of September in Berkshire and Hampshire Counties; the heaviest count was 50 adults and 17 larvae per 100 sweeps. The most common species in INDIANA in alfalfa and corn was Coleomegilla maculata. In ARKANSAS, the two most abundant species were C. maculata and H. convergens. Adults were first

observed about mid-March the southeast areas. Chilocorus stigma was common in fields of soybeans infested with whiteflies. Stethorus sp. was abundant in the Arkansas Valley of COLORADO Feeding on Oligonychus pratensis (Banks grass mite) in mid-August.

About 700 adults of a WEEVIL (Phrydiuchus tau) were released in OREGON during October, November, and December to feed on Mediterranean sage in rangeland areas in Lake County. Releases were also made of adults of Longitarsus jacobaeae (a flea beetle) in Lane and Tillamook Counties for control of tansy ragwort.

Development and emergence of a GOAT WEED BEETLE (Chrysolina quadrigemina) was retarded by abnormal heavy rains May and June in IDAHO in Kootenai County. On June 10, adult feeding was general in the Riverside area of Clearwater County. From the hillsides, collected 3,000 adults and released them in Elmore County for the control of goatweed.

A PUNCTUREVINE SEED WEEVIL (Microlarinus laareynii) appears to be established throughout OKLAHOMA. Specimens were recovered in Grady and Payne Counties in 1971. The original releases were made in 1965 in Oklahoma.

HYMENOPTERUS PARASITES became established in several areas and were factors in reducing or holding some pests in check. An ENCYRTID WASP (Holcencyrtus physokermis) a parasite of Physokermes picae (spruce bud scale) in OREGON was reared from host material from Multnomah County for a new distribution record. A BRACONID (Trioxys pallidus) was introduced into some Oregon English walnut orchards to control Chromaphis juglandicola (walnut aphid). An ICHNEUMONID (Bathyplectes curculionis) was abundant throughout the alfalfa areas of Oregon.

A BRACONID (Lysiphlebus testaceipes) was abundant in the Arkansas Valley of COLORADO, where it was parasitizing Schizaphis graminum (greenbug) in sorghum fields. In OKLAHOMA, L. testaceipes was common in greenbug infested wheat by early March and was an important factor in control of this pest. Opius cereus a parasite of Anastrepha suspensa (Caribbean fruit fly) had been introduced at several sites in Dade County, FLORIDA. During 1971, O. cereus was recovered at the release site areas in 30-40 percent of the A. suspensa larvae taken from subtropical fruits and examined.

In PENNSYLVANIA, the only parasites with a statewide distribution are Bathyplectes curculionis (an ichneumonid) and Tetrastichus incertus (an eulophid wasp). T. incertus showed a general decline statewide. Microctonus colesi (a braconid) was recovered from western Pennsylvania. B. anurus (an ichneumonid) was recovered from alfalfa weevil (Hypera postica) in the southwestern portion of the State for the first time. In MICHIGAN, surveys indicate B. curculionis present throughout the Lower Peninsula. M. aethiops was established at East Lansing and in Tuscola County. Expect parasitism of alfalfa weevil to increase. B. curculionis parasitism was up to 62 percent of the alfalfa weevil larvae in southern WISCONSIN during May and June. Probably the major factor in holding alfalfa weevil populations in check.

Several hundred specimens of a PHYCITID MOTH (Vogtia malloi) were introduced and released in FLORIDA during the summer to control alligatorweed, (Alternanthera philoxeroides). Releases were made at Orlando, Orange County, Ft. Pierce, St. Lucie County, Ortega River area of Jacksonville, Duval County, and three localities in Alachua County. All these releases have not been evaluated, but this species has become established at Orlando and Gainesville. Alligatorweed at Lake Alice in Gainesville during June averaged 52.5 aerial stems per square foot, but after V. malloi was released stems were reduced to 4 per square foot by the last of October. A CINNABAR MOTH (Tyria jacobaeae) is established in the areas of original release in OREGON (Linn County-1960, Coos County-1964) and was prevalent in about 100 square miles in eastern Linn County and most of southwestern Coos County.

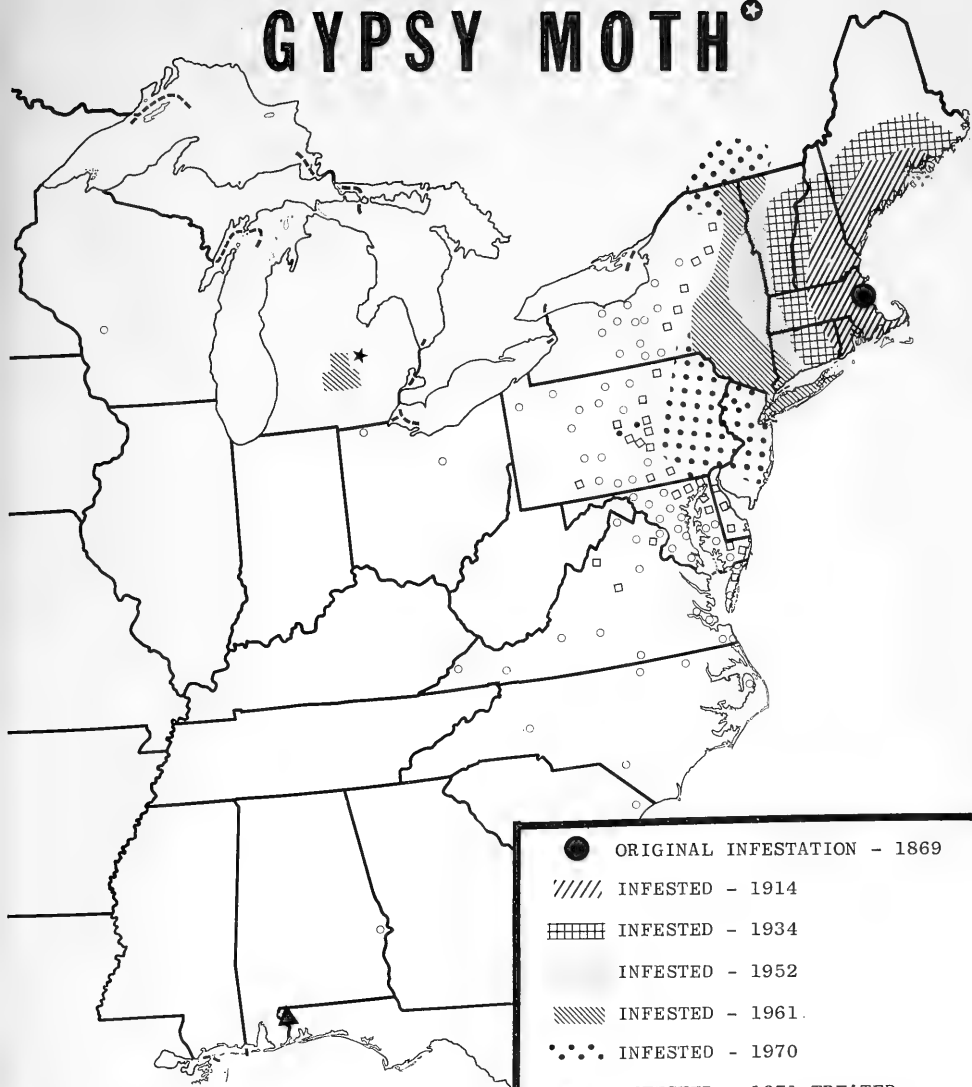
A BIGEYED BUG (Geocoris punctipes) and FLOWER BUGS (Orius spp.) were the more important species in ALABAMA feeding on the eggs and larvae of Heliothis spp. in various crops statewide.

An adult of a BROWN LACEWING (Kimminsia schwarzi) was collected from sweepings of Austrian pine in PENNSYLVANIA in Indiana County on September 3. This was reported as a new State record for this species.

The percentage of American foulbrood disease in the 60,000 colonies of the HONEY BEE (Apis mellifera) was 4-5 percent in SOUTH CAROLINA. This percentage was primarily due to abandoned or unkept colonies. In commercial operations the percentage of American foulbrood disease was under 2 percent. In middle TENNESSEE, colonies entered the winter in good condition; however, colonies in the eastern areas had very light stores. Expect these colonies would need to be fed in February to prevent starvation. The total honey crop was estimated at 50 percent of normal.

ALKALI BEE (Nomia melanderi) populations were heavy in WASHINGTON and nesting was good during July in Walla Walla County. Populations have shown a good recovery from the damaging rains in 1965 and 1966.

# GYPSY MOTH\*



\* CHRONOLOGICAL SPREAD OF GYPSY MOTH FROM 1869 to 1971.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(13):181, 1972

- ORIGINAL INFESTATION - 1869
  - ////// INFESTED - 1914
  - ||||| INFESTED - 1934
  - INFESTED - 1952
  - ==== INFESTED - 1961
  - INFESTED - 1970
  - ▲ INFESTED - 1971 TREATED AND APPARENTLY ERADICATED
  - ★ LAST FOUND 1966, ERADICATED
- COUNTIES WHERE MALE MOTHS TRAPPED
- 1970    ○ 1971

Important recent name changes among earwigs of the genus  
Doru (Dermaptera, Forficulidae)

Ashley B. Gurney 1/

Earwigs of the genus Doru are the most common Forficulidae in South and Central America, rivaling in abundance species of Euborellia in the Carcinophoridae. Likewise, Doru is encountered regularly during Plant Quarantine inspections of plant products and baggage from Mexico and elsewhere in the American tropics. Previously, most South and Central American specimens of Doru were identified as D. lineare (Eschscholtz). At least 2 species of Doru were recorded frequently from the southern States of the U.S., but there had been uncertainty about their names and relationships. Recently, the species of Doru were studied by Dr. Alan Brindle, University of Manchester, Manchester, England (Brindle, 1971), and he found that the name Doru lineare has been misapplied. Brindle also found that 3 Doru species comprise the fauna of the U.S.

Doru taeniatum (Dohrn) (fig. 1) exemplifies the general appearance of male specimens of Doru, but some species have vestigial tegmina (modified front wing) and forceps of a different shape. Females have simple forceps and lack a pygidial spine. In both sexes the second segment of all tarsi is strongly bilobed; antennae usually have 11 to 13 segments.

Following the revision, the name D. lineare now applies to a species occurring in Brazil, Paraguay, and Argentina. The species found commonly from Bolivia through Colombia, Central America and Mexico, which has been taken most frequently in quarantine inspections at southern U.S. borders, is D. taeniatum. Specimens of taeniatum usually are larger than those of lineare, the body length (exclusive of forceps) of taeniatum being 12-14 mm or more, while that of lineare is seldom more than 11 mm. The abdomen of taeniatum is dark, often blackish, but that of lineare is darkish orange or lighter. The pronotum of lineare is proportionally smaller than that of taeniatum and the lateral pronotal margins of taeniatum are straighter (figs. 4, 1). The last abdominal male tergum of lineare has paired dorsal tubercles (fig. 5, tu) which typically are more ridgelike and elongate than those of taeniatum. When mature, both lineare and taeniatum are long-winged, i.e., when tegmina and wings are folded in the usual position the "wing-scale" (fig. 1, ws) extends posteriorly to the tegmen, unlike several species in which no wing is visible (fig. 7).

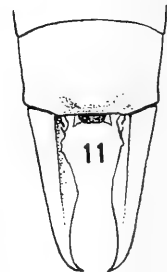
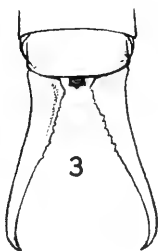
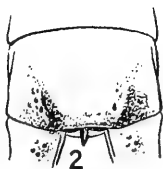
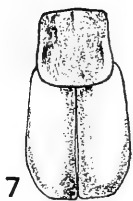
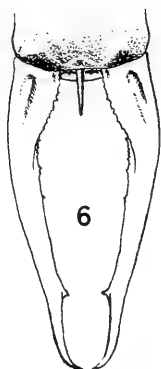
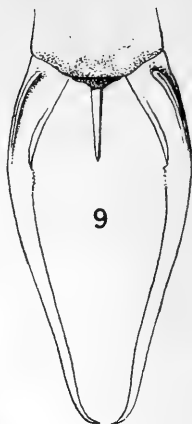
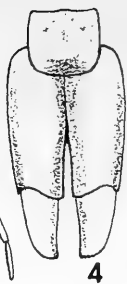
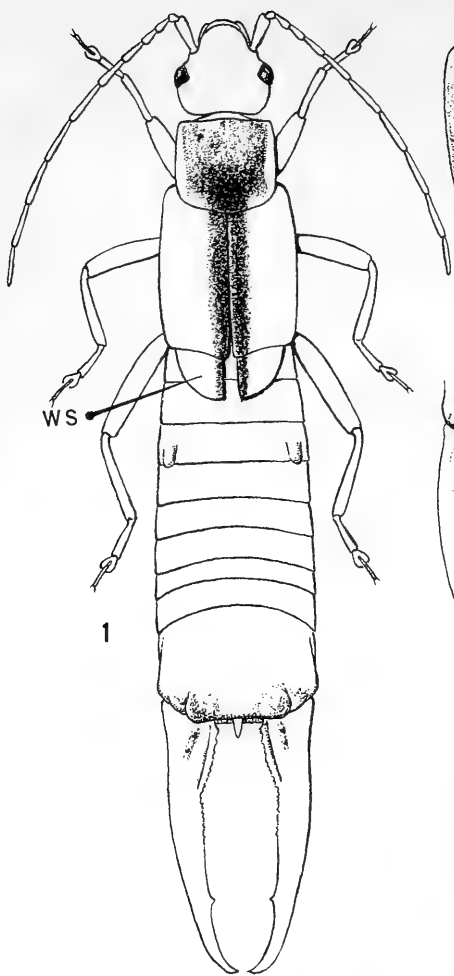
In the United States, breeding populations of Doru taeniatum occur in the southern tier of States from California to Florida, and they have been found as far north as Maryland in the East. However, some of those colonies may have resulted from introductions but later failed to become permanent. Likewise, some specimens found under artificial conditions were adventives that never were associated with established outdoor colonies. A few years ago all stages of taeniatum were found concealed behind the leaves and husks of late field corn in Georgia during September. It is not clear whether taeniatum was originally native in the United States or whether modern transportation has enabled it to migrate north and then to gradually enlarge the occupied area. Rehn & Hebard (1914) gave a summary of U.S. occurrence.

1/ Systematic Entomology Laboratory, Agricultural Research Service, USDA

Two other species, Doru aculeatum (Scudder) and D. davisii Rehn & Hebard, occur naturally as native species in the East. Each of them averages somewhat smaller than taeniatum and they also apparently differ from it in having no visible hind wings, that is, no wing-scales posterior to the tegmina. In the past, before taeniatum was recognized as occurring in the U.S., some individuals regarded as aculeatum or davisii were found to have visible wings. This matter deserves additional investigation because, particularly with davisii, large series of specimens have not been studied to determine the limits of variation. D. aculeatum is widespread, occurring from Florida to Louisiana, north to southern Ontario, Michigan, and Nebraska. It usually is found in tidal marshes or freshwater areas of tall reeds, marsh grasses, cat-tails, skunk cabbage and other plants that afford the earwigs living places. Specimens live concealed in the leaf-sheaths of stems and are active at night. On Long Island, N. Y., Cooper (1933) found numerous examples of aculeatum that had burrowed beneath logs and stones to hibernates in late fall. Cantrall (1943) gave a full account of aculeatum in Michigan. Doru davisii is known only from Florida, and most of the specimens I have seen were found near Lake Okeechobee. It differs from aculeatum by lacking a tooth near the apex of the male forceps (fig. 9), by the base of male forceps being more flared laterally and dorsally, by having a longer pygidial spine, and by the pronotum usually being slightly longer than wide. The apical tooth of aculeatum male forceps usually is distinct (fig. 6), but sometimes is weakly developed.

The genus Doru is represented in the West Indies by taeniatum at least in Cuba, Jamaica, Dominican Republic and Puerto Rico, but a more widespread species is D. albipes (F.), known from both the Greater and Lesser Antilles and apparently encountered more often than taeniatum. The tegmina of albipes usually bear a yellow spot, which, with the yellow wing-scales, give a 4-spotted appearance (fig. 10). The posterior male tergum bears a transverse row of 4 small tubercles, and both the variable male forceps (fig. 12, 13) and the female forceps (fig. 11) are distinctive.

Several South American species besides taeniatum and lineare are recognized in Dr. Brindle's revision, and about 13 New World species are known, most of them other than those noted here represented thus far by a small number of specimens. To aid in distinguishing some of the species, Brindle has utilized characters of male genitalia which are concealed by the posterior sternum.





## Explanation of Figures

- Figs. 1-3. Doru taeniatum (Dohrn). 1. General view of male (Dark color of abdomen not shown). ws-wing scale; 2. Male, details of posterior abdominal tergum and bases of forceps, dorsal; 3. Female, end of abdomen and forceps.
- Figs. 4, 5. Doru lineare (Eschscholtz). 4. Pronotum, tegmina, and wings; 5. Male, details of posterior abdominal tergum and bases of forceps, dorsal. tu- dorsal tubercles.
- Figs. 6, 7. Doru aculeatum (Scudder). 6. Male, end of abdomen and forceps, dorsal; 7. Pronotum and tegmina.
- Figs. 8, 9. Doru davisi Rehn & Hebard. 8. Pronotum and tegmina; 9. Male, end of abdomen and forceps, dorsal.
- Figs. 10-13. Doru albipes (Fabricius). 10. Pronotum, tegmina, and wings; 11. Female, end of abdomen and forceps, dorsal; 12. Male, end of abdomen with short forceps; 13. Male, end of abdomen with forceps of maximum length.

(Illustrations by Arthur D. Cushman)

## References

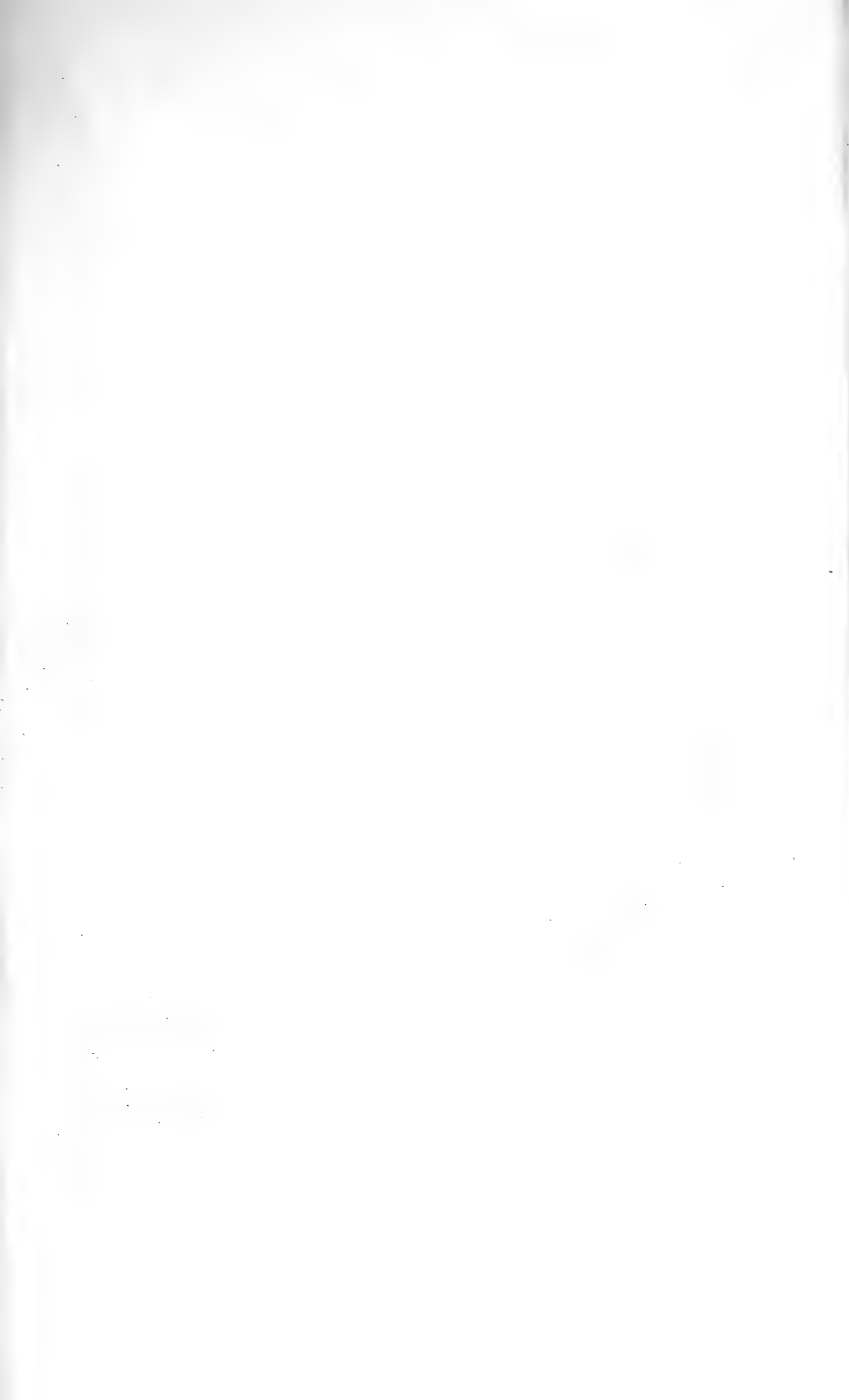
- Brindle, A. 1971. A revision of the genus Doru Burr (Dermaptera, Forficulidae). Papeis Avulsos de Zoologia (Sao Paulo, Brazil), vol. 23 (21): 173-196, 32 figs.
- Cantrall, I. J. 1943. The ecology of the Orthoptera and Dermaptera of the George Reserve, Michigan. Misc. Publ., Mus. Zool., Univ. Mich. no. 54: 1-182, 10 pls., 2 maps.
- Cooper, K. W. 1933. Observations on Doru aculeatum Scudder (Dermaptera). Bull. Brooklyn Ent. Soc., vol. 28: 216-217, 6 figs.
- Rehn, J. A. G. and Hebard, M. 1914. United States and Mexican records of species of the genus Doru (Dermaptera: Forficulidae). Jour. N. Y. Ent. Soc., vol. 22: 89-96, 8 figs.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(13):182-185, 1972









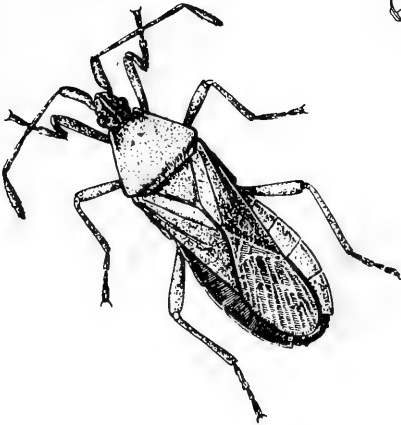
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

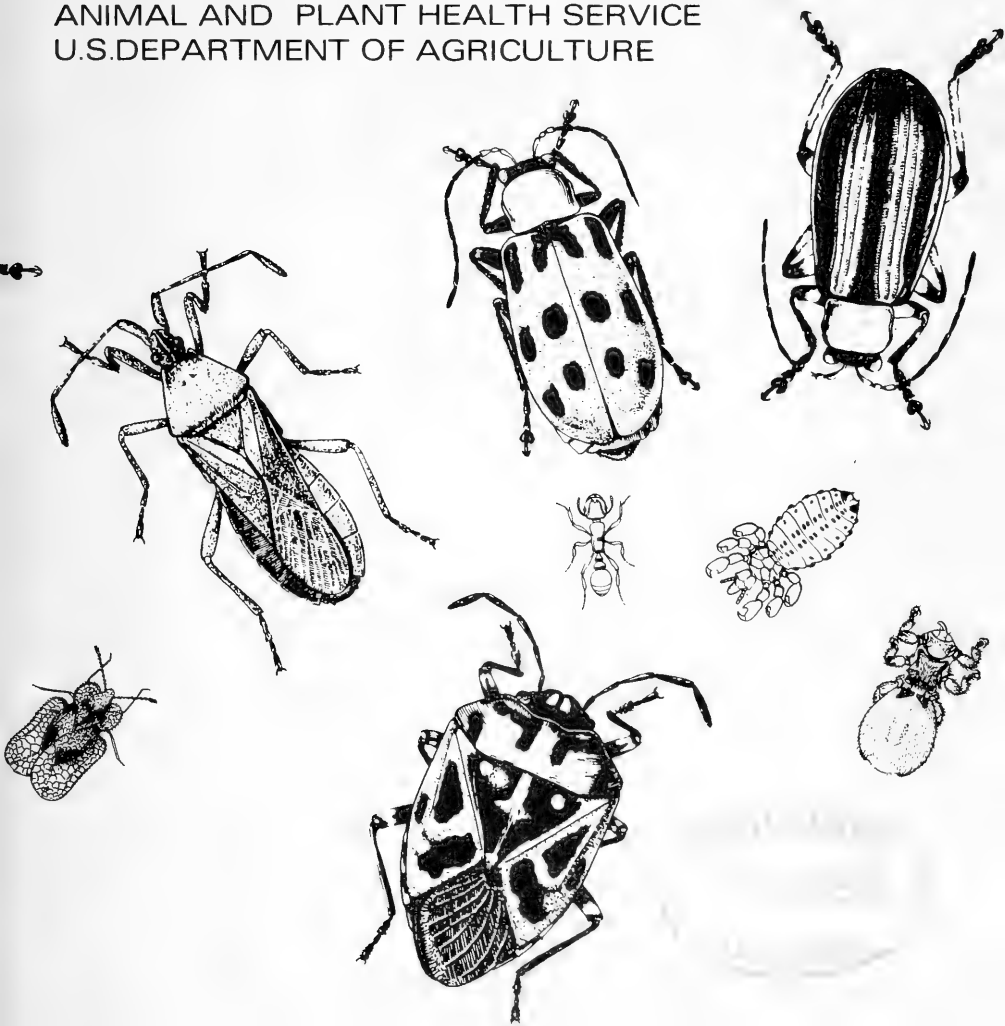


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

GREENBUG continues to damage small grain in Oklahoma. Economic on oats in east-central Arkansas. (p. 189).

ALFALFA WEEVIL continues to damage alfalfa in Oklahoma. Controls applied in all areas of Arkansas and planned in Missouri. (p. 190).

PEPPER WEEVIL serious on peppers in limited area of Florida. (p. 191).

Total number of SCREWORM cases in the U.S. increased from 22 the previous period to 71 this period. (p. 192).

WHITEFRINGED BEETLE larvae damaged tomato plants in southern Alabama. (p. 194).

Detection

A PHYTOSEIID MITE reported from Florida for first time. This is a new United States record. Little known of biology of this species. (p. 193).

A WEEVIL reported from Maine for a new State record. (p. 192).

For new county records see page 194.

Special Reports

Summary of Insect Conditions in the United States - 1971.

Forest Insect Highlights (pp. 195-198).

Contributors (pp. 198-199).

A Review of Literature on the Pheromone of the Boll Weevil, Anthonomus grandis Boheman (pp. 200-207).

European Chafer Quarantines. Map. Centerfold.

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

## CONTENTS

Special Insects of Regional Significance.....	189
Insects Affecting	
Corn, Sorghum, Sugarcane.....	189
Small Grains.....	189
Turf, Pastures, Rangeland....	190
Forage Legumes.....	190
Sugar Beets.....	191
Potatoes, Tomatoes, Peppers..	191
Cole Crops.....	191
Cucurbits.....	191
Ornamentals.....	192
Forest and Shade Trees..	192
Man and Animals.....	192
Stored Products.....	193
Beneficial Insects.....	193
Federal and State Plant Protection Programs.....	193
Hawaii Insect Report.....	194
Detection.....	194
Summary of Insect Conditions in the United States - 1971	
Forest Insect Highlights.....	195
Contributors.....	198
A Review of the Literature on the Pheromone of the Boll Weevil.....	200
European Chafer Quarantines. Map. Centerfold.	

---

### NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK APRIL 1972

The National Weather Service's 30-day outlook for April is for temperatures to average below seasonal normals across the Nation except for near normal in the Northeast and along the south Atlantic coast and near to above normal over California, portions of the central and southern Plateau, and the Rio Grande Valley. Precipitation is expected to exceed normal from central and southern portions of the Mississippi Valley to the middle and south Atlantic coast and also along the north Pacific coast. Subnormal totals are indicated for the Southwest as well as for the north Atlantic coast States.

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

#### WEATHER OF THE WEEK ENDING APRIL 3

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

**PRECIPITATION:** A severe late winter storm brought a variety of disagreeable weather to mid-America in the first half of the week. Heavy snow fell over the northern Great Plains and Montana to the Great Lakes. Light snow fell in the Northern and Central Rocky Mountains, intermittent snow glazed highways from the Great Lakes to New England. Gusty winds, blowing snow and drifting snow, snarled automobile traffic, delayed air travel, and closed schools. Eleven inches of snow fell in 12 hours Wednesday, at Moline, Illinois, 9 inches accumulated in Madison, Wisconsin, and 5 to 8 inches covered the Chicago, Illinois, area. Ten inches

Weather of the week continued on page 208.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - COLORADO - Larval counts per linear foot of small grain: 1-4 in Adams County; 2 in Arapahoe County; 1-2 in Elbert County; 3 in Lincoln County; and 6 in Washington County. (Marquardt). OKLAHOMA - Pupation started in alfalfa in Pontotoc County. (Okla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - ARKANSAS - Moths reported in area east of Little Rock, Pulaski County. (Boyer).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Treatment underway. Spring population moderate throughout most of San Joaquin Valley. Strong winds drying host vegetation. This will cause some natural mortality but will also cause dissemination of adults to croplands earlier than anticipated. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - ARIZONA - This species and CABBAGE LOOPER (Trichoplusia ni) required controls on lettuce at Yuma, Yuma County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Light to heavy on wheat in Wagoner County. Ranged 50-100 per sweep in Pottawatomie County. Moderate in Kingfisher County. Ranged 25-75 per linear foot in wheat and oats in Sequoyah and Le Flore Counties with some damage in spring oats. Ranged 20-40 per linear foot in Kay County. Numbers reduced by predators and parasites in Major County. Greenbug ranged 1-5 per linear foot in McCurtain and Choctaw Counties and light in Dewey and Roger Mills Counties. (Okla. Coop. Sur.). ARKANSAS - Some concern mainly in east-central area small grains. Economic in about 15 percent of oat-fields east of Little Rock. Two fields treated in Lee and Monroe Counties. In most cases, Macrosiphum avenae (English grain aphid) associated with greenbug. Greenbug increased slightly in north-west areas, no economic infestations observed or reported. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Counts of 253 per 100 sweeps of alfalfa in Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Light on alfalfa in Chaves and Eddy Counties. (Mathews). OKLAHOMA - Ranged 25-150 per square foot in alfalfa in Major County. (Okla. Coop. Sur.).

## CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - OKLAHOMA - Overwintering larvae in 20 percent of cornstalks in Muskogee County field and 10 percent of stalks in Okmulgee County field. (Okla. Coop. Sur.).

## SMALL GRAINS

APHIDS - MISSISSIPPI - Mixed populations of Rhopalosiphum fitchii (apple grain aphid) and R. padi heavy on oats in Panola County; also Schizaphis graminum (greenbug) light in this population. Some parasitism. R. padi heavy on small grain in Issaquena County. About 95 percent of population parasitized by a braconid. (Robinson). OKLAHOMA - R. padi ranged 2-10 per linear foot in oats and wheat in McCurtain, Choctaw, Le Flore, Sequoyah, and Payne Counties. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - SOUTH DAKOTA - Reported as new county record for Haakon County. (Jones). OKLAHOMA - Heavy in field of barley in Roger Mills County; light and scattered in other areas. Ranged 0-20 per linear foot in wheat in Major County. (Okla. Coop. Sur.). NEVADA - No increase from previous period on winter wheat in Lovelock area, Pershing County, due to cold, damp weather. (Stitt).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Moderate in wheat in Lincoln and Kingfisher Counties. (Okla. Coop. Sur.).

HESSIAN FLY (Mayetiola destructor) - KANSAS - During period November 1971 to March 1972, wheat samples checked to determine population densities of overwintering pupae (flaxseed). Significant damage noted to wheat where 35+ percent plants infested. Average percent infested plants by district: Northeast 5, east-central 2, southeast 0.6, north-central 8.7, central 6, south-central 7.5, northwest trace, west-central 55, and southwest 7. (Bell).

#### TURF, PASTURES, RANGELAND

WESTERN TENT CATERPILLAR (Malacosoma californicum) - OREGON - First instar larvae on bitterbrush at Mt. Vernon, Grant County. (Penrose).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - COLORADO - Adults laying eggs past 4 weeks in Western Slope area; alfalfa 1-2 inches tall. Mostly light to moderate in alfalfa checked. (Bulla). OKLAHOMA - Continues heavy in northeast, east-central, southeast, central, south-central, and southwest areas. Larval counts of 200-300 per square foot common. As much as 90-95 percent of foliage destroyed in many untreated fields. Many fields treated and some treated twice. Pupae common in southern half of State and adults emerging. Eggs found in Lincoln County. Numbers increasing in north-central, northwest, and west-central areas with counts of 10-60 larvae per square foot in several counties. Most reported damage moderate. Controls underway in these areas. (Okla. Coop. Sur.).

ARKANSAS - H. postica controls general statewide. Egg hatch continues. Larvae ranged 800-900 per 100 sweeps in untreated field in Washington County. Larvae in this field last period ranged 300-400 per 100 sweeps. (Boyer). MISSOURI - Egg count in southern half of State ranged 143-1,010 per square foot. Larvae in fields checked, controls planned. (Munson). KENTUCKY - Averaged 7.5 second instar larvae and 164 eggs per square foot in central areas. (Gregory). ALABAMA - Mixed larval populations of this species and LESSER CLOVER LEAF WEEVIL (H. nigrirostris) and CLOVER LEAF WEEVIL (H. punctata) feeding on crimson and burclover in south and central areas. Heaviest feeding on burclover. (Barwood et al.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae 62 per 100 sweeps of alfalfa in Maricopa County and adults 52 in Yuma County. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Averaged 300 per sweep in Moapa Valley, Clark County, alfalfa hay fields. (Hoff, Zoller). ARIZONA - Counts of 1,214 per 100 sweeps in Yuma County alfalfa. (Ariz. Coop. Sur.). NEW MEXICO - Light, ranged 10-40 per 25 sweeps

in alfalfa in Eddy, Chaves, and Dona Ana Counties. (Mathews, Riddle). OKLAHOMA - Continues in alfalfa in all areas of State except panhandle. Infestations light to moderate in many areas, counts of 300-500 per square foot reported from few counties in northwest, northeast, and south-central areas. (Okla. Coop. Sur.). ARKANSAS - Continues to increase in legumes. Infestations non-economic; some counts ranged 500-1,000 per 100 sweeps. (Boyer).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae 8 per 100 sweeps in Maricopa County alfalfa, and 20 in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light in most alfalfa in Chaves and Eddy Counties. (Mathews).

ALFALFA LOOPER (Autographa californica) - OREGON - Single moth recovered from light trap in Marion County and moth observed in Polk County, first of season. (Westcott, Long).

### SUGAR BEETS

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae infested 30 percent of crowns in Yuma County field. (Ariz. Coop. Sur.).

### POTATOES, TOMATOES, PEPPERS

PEPPER WEEVIL (Anthonomus eugenii) - FLORIDA - Serious problem in parts of Palm Beach and Broward Counties. Larvae and adults infested fruits of most of sweet and hot peppers on two farms west of Delray Beach, Palm Beach County; infested about 25 percent of bell peppers on farm in middle Palm Beach County. Infestations thin out northward in Palm Beach County; 2 farms near Palm Beach and Martin County line negative; however, one farm with 2 percent infestation. Farm west of Deerfield Beach, Broward County, near 100 percent of hot peppers infested. (Genung). Apparently this "hot spot" area in Palm Beach and Broward Counties is of recent vintage because this is first record of pepper weevil in State since 1945. At that time records confined to Tampa Bay area. (Woodruff, Mead).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - More prevalent than in 1971 on tomatoes in Homestead area, Dade County. (Wolfenbarger).

### COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Controls applied on young lettuce in Dona Ana County. (N.M. Coop. Rpt.).

### CUCURBITS

MELON APHID (Aphis gossypii) - ARIZONA - This species and Tetranychus sp. (a spider mite) required treatment in cantaloupe at Yuma, Yuma County. (Ariz. Coop. Sur.).

### DECIDUOUS FRUITS AND NUTS

GREEN PEACH APHID (Myzus persicae) - COLORADO - Eggs 95 percent hatched by March 10 on Western Slope area peaches. Egg and nymph counts moderate in orchards sampled. Nymphs 6-8 per 100 fruit buds

March 20. Most dormant and delayed dormant sprays applied and peaches in fullbloom by March 24 in Mesa County. Earliest peach bloom date since 1930. (Bulla).

ROSY APPLE APHID (Dysaphis plantaginea) - COLORADO - Hatch near complete March 31 in Western Slope orchards. (Bulla).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - COLORADO - Noted on trunk and lower twigs in apple orchards March 17 in Western Slope area. (Bulla).

## ORNAMENTALS

SPRUCE SPIDER MITE (Oligonychus ununguis) - ARIZONA - Heavy on arborvitae and Italian cypress in Salt River Valley. Webbing noticeable and many trees discolored. Similar to 1968 infestations in Maricopa County. (Ariz. Coop. Sur.).

## FOREST AND SHADE TREES

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Overwintering generation emergence complete and adults on young pines in Latimer County. (Okla. Coop. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - SOUTH CAROLINA - Webs 2 per tree on wild cherry in Sumter, Richland, Lexington, Calhoun, Dorchester, and Colleton Counties. First of season. (King). NORTH CAROLINA - Webbing noted in Wake, Columbus, Bladen, and Brunswick Counties. (Hunt). MARYLAND - First larvae of season on wild cherry in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

ELM LEAF BEETLE (Pyrrhalta luteola) - IOWA - Collected in Plymouth County, for a new county record. (Iowa Ins. Sur.).

A WEEVIL (Phyllobius oblongus) - MAINE - Specimens reported at Hampden, Penobscot County, by R. Cyr on June 17, 1971. Adults feeding on newly planted Norway maple. Determined by R.E. Warner. This is a new State record. (Gall).

A MARAGRODID SCALE (Kuwania quercus) - CALIFORNIA - Specimens collected from oak at Napa, Napa County for a new county record. This scale collected for first record outside Asian Continent in 1965 at Monticello Dam in Yolo County. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 71 cases reported in U.S. March 26 to April 1 as follows: TEXAS: Dimmit 1, Duval 2, Frio 1, Hidalgo 7, Jim Hogg 3, Kenedy 2, La Salle 2, Live Oak 4, Maverick 1, Medina 2, Real 1, Starr 5, Webb 10, Willacy 2, Zapata 5, Zavala 1, Goliad 1, Gonzales 1, Jim Wells 1, Karnes 1, De Witt 3, Kendall 1, Kleberg 2, McCulloch 1, Refugio 3, San Patricio 1, Victoria 1. ARIZONA: Cochise 5, Santa Cruz 1. Total of 259 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 109, Chihuahua 37, Coahuila 27, Nuevo Leon 35, Tamaulipas 51. Total of 56 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 screwworm flies released: Texas 67,172,000; Arizona 6,480,000; Mexico 35,912,000. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 25-500 per head on cattle in Major County and 250-400 per head in Payne County. Light in Craig and McCurtain Counties. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - First egg hatch noted March 24, larvae too small to identify; up to 25 per dip noted at several sites in Ramsey County area. (Minn. Pest Rpt.).

#### STORED PRODUCTS

A SCARAB (Strigoderma arboricola) - NORTH CAROLINA - Less than 5 percent grub damage in sweet potato packing sheds. Potatoes damaged in Sampson, Johnston, and Wilson Counties. (Hunt).

#### BENEFICIAL INSECTS

LADY BEETLES - KANSAS - Surveys of bunch grass March 7-17 showed overwintering Hippodamia convergens (convergent lady beetle) adults to range from 0 to 273 per square foot (4 samples per county). Coleomegilla maculata adults ranged 0-29 per square foot during same survey. (Bell). OKLAHOMA - All stages of H. convergens common in wheat and alfalfa in most areas. Ranged up to 60 per linear foot in wheat in Major County and up to 100 per sweep in wheat in Pottawatomie County. Helping to control greenbugs in these areas. H. convergens heaviest in untreated alfalfa in south-central area; ranged up to 200 per 10 sweeps. Adults of Coleomegilla maculata in alfalfa in Hughes County and on pine trees in Latimer County. (Okla. Coop. Sur.).

A BRACONID (Lysiphlebus testaceipes) - OKLAHOMA - Parasitized 60 percent of greenbugs in several wheatfields in Major County, caused considerable reduction in numbers. Also reducing greenbug populations in Payne County. (Okla. Coop. Sur.).

AN EULOPHID WASP (Tetrastichus incertus) - OKLAHOMA - Released about 125 adults of this alfalfa weevil parasite in infested alfalfa in Stephens County. (Okla. Coop. Sur.).

AN EULOPHID WASP (Aprostocetus diplosidis) - ALABAMA - Specimens collected in grain sorghum field in Macon County during September 1971 by H.F. McQueen. Determined by B.D. Burks. This is a new State record. (McQueen).

A PHYTOSEIID MITE (Ricoseius loxocheles) - FLORIDA - Adult found on seagrape (Coccoloba uvifera) at Miami, Dade County, by F.J. McHenry on January 18, 1972. This is a new United States record. This is the third time species collected anywhere. Previous reports from Puerto Rico and Brazil. Little known of biology of this species. (Mead, Denmark).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CARIBBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Specimens collected in 50 percent of traps in Sarasota area, Sarasota County. (McFarlin, Mead). Heaviest count 291 in single trap March 14-23. (Mead).

GRASSHOPPER - OKLAHOMA - Melanoplus sp. and Ageneotettix deorum hatched on rangeland in Comanche County March 20. These species and Cordillacris crenulata ranged up to 1 per square yard in rangeland in Jefferson County March 22. (Okla. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Collected 3 moths in blacklight trap in McLennan County. (Cowan).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae destroyed 50 percent of tomato plants in 3-acre commercial planting in Houston County. Remainder plowed up and treated and will replant. (Smith et al.). Larvae heavy and damaging at 3 additional sites in same area. (Wilson, Curtis).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Light in about 40 properties in 10-block-area at Ocean Beach, San Diego County. (Cal. Coop. Rpt.).

---

#### HAWAII INSECT REPORT

Corn - CORN PLANTHOPPER (Peregrinus maidis) trace (less than 2 nymphs or adults per plant) in 2.5 acres of sweet corn seedlings at Waimanalo, Oahu. Adults of Cyrtorhinus lividipennis (a predacious mirid bug) trace to light. (Kawamura).

General Vegetables - Adults of a GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) light, eggs and nymphs moderate in one acre of snap beans at Waimanalo, Oahu; all stages light in 5,000 square feet of sweet pepper seedlings. SWEETPOTATO LEAFMINER (Bedellia orchilella) larval mines trace in two separate, one-half acre planting of sweet potato at Waimanalo, Oahu. (Kawamura).

Fruits and Nuts - PALM MEALYBUG (Palmicultor palmarum) heavy on about 15 percent of young coconut trees at Keehi Lagoon Park, Oahu, on new unfurled fronds. Larvae and adults of lady beetles (Azya luteipes and Cryptolaemus montrouzieri) light amid infestation. COCONUT SCALE (Aspidiotus destructor) spotty, colonies on lower leaves in most commercial plantings of papaya at Waimanalo, Oahu; light on about 50 coconut trees at Keehi Lagoon Park. (Kawamura).

Ornamentals - A TERMITE (Incisitermes immigrans) moderate on structural garage lumber at Hilo, Hawaii. I. immigrans most commonly found in drought-affected woody shrubs in drier sections of islands. (Kobayashi).

---

#### DETECTION

New United States Record - A PHYTOSEIID MITE (Ricoseius loxochelēs) - FLORIDA - Dade County. (p. 193).

New State Record - A WEEVIL (Phyllobius oblongus) - MAINE - Penobscot County. (p. 192).

New County Records - BROWN WHEAT MITE (Petrobia latens) - SOUTH DAKOTA - Haakon (p. 190). ELM LEAF BEETLE (Pyrrhalta luteola) - IOWA - Plymouth (p. 192). A MARAGRODID SCALE (Kuwania quercus) - CALIFORNIA - Napa (p. 192).



FOREST INSECT HIGHLIGHTS 1/

Situation in the Western States

BARK BEETLES continued to dominate the forest insect situation in the Western States. Several new outbreaks and many existing ones caused severe timber losses.

In ALASKA, the overall forest insect situation improved in 1971. Epidemic SPRUCE BEETLE (Dendroctonus rufipennis) populations persisted but tree mortality caused by this pest decreased. WESTERN BLACKHEADED BUDWORM (Acleris gloverana) populations remained at endemic level for the sixth consecutive year.

BARK BEETLES continued to be the most destructive group of forest insects in OREGON and WASHINGTON. Severe outbreaks of MOUNTAIN PINE BEETLE (D. ponderosae), DOUGLAS FIR BEETLE (D. pseudotsugae), and FIR ENGRAVERS (Scolytus spp.) occurred throughout the region. Losses resulting from outbreaks of FIR ENGRAVER (S. ventralis) were much less in 1971 but were still considered serious. Defoliator activity increased substantially with widespread damage occurring in hemlock, true fir, and Douglas-fir stands. Populations of WESTERN SPRUCE BUDWORM (Choristoneura occidentalis) and WESTERN BLACKHEADED BUDWORM are increasing. Another important defoliator, the LARCH CASEBEARER (Coleophora laricella) continued to spread throughout the Pacific Northwest.

In CALIFORNIA, rapidly expanding DOUGLAS FIR TUSsock MOTH (Hemerocampa pseudotsugata) populations were the major concern in 1971. New infestations were discovered at seven locations from Shasta County to Fresno County. Increased activity by the LODGEPOLE NEEDLEMINER (Coleotechnites milleri) occurred on the Yosemite National Park. BARK BEETLE activity remained at a low level in most areas. Many of the air pollution affected trees in San Bernardino County were infested by bark beetles.

Populations of several species of destructive forest insects increased in the Northern Rockies during 1971. WESTERN SPRUCE BUDWORM defoliated 4.1 million acres in western Montana and northern Idaho and continued to spread northward in Montana. Increased activity occurred on portions of the Gallatin and Helena National Forests and the Yellowstone National Park. The LARCH CASEBEARER has now spread to all of the western larch type in the Region. Severe infestation of MOUNTAIN PINE BEETLE continued on the Kaniksu and Flathead National Forests in Montana and increased DOUGLAS FIR BEETLE population occurred in Idaho. Populations of SPRUCE BEETLE and FIR BEETLE continued to decline.

1/ The following summary is the highlights section of the "Forest Insect Conditions in the United States - 1971" 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 198 in this issue of the CEIR.

The forests in the intermountain States were plagued by a variety of insects in 1971. As usual BARK BEETLES, particularly the MOUNTAIN PINE BEETLE, caused more timber damage than any other group of insects. Although overall mountain beetle activity was at the lowest level in several years, a large volume of lodgepole and ponderosa pine trees were killed. The most severe outbreak was on the Targhee National Forest in Idaho. Population of DOUGLAS FIR BEETLE in southern Idaho were beginning to subside after remaining at epidemic levels during the last 2 years. The area infested by WESTERN SPRUCE BUDWORM increased on the Payette and Boise National Forests, but decreased on the Bridger National Forest. Natural factors were responsible for reducing DOUGLAS FIR TUSSOCK MOTH populations in southern Idaho.

In the Central Rocky Mountains, the most troublesome forest insects were MOUNTAIN PINE BEETLE and SPRUCE BEETLE. Most SPRUCE BEETLE infestations appear to be stable or decreasing but windthrown trees resulting from several windstorms in the fall of 1971 may trigger increased spruce beetle activity in 1972. MOUNTAIN PINE BEETLE populations continue to cause severe mortality in South Dakota, Colorado, and Wyoming. Losses in the Black Hills caused by this pest were estimated at 21 million board feet in 1971. The WESTERN SPRUCE BUDWORM outbreak on the San Isabel National Forest increased from 32,000 acres in 1970 to 113,000 acres in 1971.

In the Southwestern States, epidemic SPRUCE BEETLE populations were reduced by abnormally low temperatures. ROUNDHEADED PINE BEETLE (Dendroctonus adjunctus) activity remained at epidemic levels on the Lincoln National Forest and Mescalero and Apache Indian Reservation in New Mexico. Defoliator activity increased in the Southwest during 1971. WESTERN SPRUCE BUDWORM and WESTERN TENT CATERPILLAR (Malacosoma californicum) were the most important defoliators.

#### Situation in the Southern and Southeastern States

The SOUTHERN PINE BEETLE (Dendroctonus frontalis) continues to be the principal forest insect in the South and Southeast. During the summer of 1971, populations increased rapidly to epidemic levels over widespread areas of the region. Timber losses were very severe on the Francis Marion National Forest in South Carolina, where the infestation level was the highest it has been in 9 years. An outbreak on a 25,000-acre area of the Great Smoky Mountains National Park reached an infestation level of 1,000 infested trees per thousand acres of host type. Other SOUTHERN PINE BEETLE outbreaks occurred in Virginia, North Carolina, South Carolina, Tennessee, Georgia, Alabama, Mississippi, Louisiana, and Texas. Populations of ENGRAVER BEETLES (Ips spp.) were generally lower in 1971 than in 1970, however, increased activity did occur in Texas and Florida. The most important forest insect defoliators in 1971 were the VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo), FOREST TENT CATERPILLAR (Malacosoma disstria) and several pine feeding SAWFLIES. The GYPSY MOTH (Porthetria dispar) was trapped at locations in Virginia, North Carolina, and South Carolina. One small infestation was discovered in Pensacola, Florida, and promptly treated.

#### Situation in the Lake and Central States and the Northeast

Defoliators continued to dominate the forest insect situation in the Eastern Region. More than eight million acres of hardwood forests were defoliated by the major hardwood insect defoliators

in 1971. The impact of this defoliation was especially severe in intensively managed hardwood forest and urban areas. The most important defoliators were GYPSY MOTH, a REDHUMPED OAKWORM (Symmerista canicosta), VARIABLE OAKLEAF CATERPILLAR, SADDLED PROMINENT (Heterocampa guttivitta), and a complex of LEAFROLLERS. Another 4.5 million acres of coniferous forest were defoliated by increasing populations of SPRUCE BUDWORM (Choristoneura fumiferana) The SOUTHERN PINE BEETLE outbreak on the Delmarva Peninsula in Delaware and Maryland continued to cause serious pine mortality. Other important forest insects in 1971 were various SAWFLIES, BALSAM WOOLLY APHID (Adelges piceae), SARATOGA SPITTLEBUG (Aphrophora saratogensis), and PINE ROOT COLLAR WEEVIL (Hylobius radicis).

### Suppression Activities

Forest insect suppression programs were conducted throughout the United States and emphasized suppression measures that have minimal impact on the environment but will accomplish control objectives. Cultural practices, use of natural enemies and applying nonpersistent pesticides are but a few of the measures recommended in 1971 to reduce forest insect and disease caused losses.

Bark beetles are a major target of control in the Western States. The most significant control decision was to terminate the large-scale project for suppressing mountain pine beetle populations on the Targhee National Forest in Idaho and Wyoming. Although this virulent outbreak continues to increase in severity, suppression was considered unfeasible for various reasons. Elsewhere in the West, silvicultural measures, removal of infested trees, piling and burning and limited chemical control were used to combat bark beetles. Other bark beetles requiring suppression in the West were Douglas fir beetle, western pine beetle, spruce beetle, roundheaded pine beetle and various engravers. In the South and Southeast, forest managers relied almost entirely on non-chemical measures for suppressing the southern pine beetle. Removal of infested trees and piling and burning were the primary suppression measures used in Alabama, Louisiana, Mississippi, North Carolina, Tennessee, Texas, and Virginia. Several large-scale control projects were directed against defoliators in the Eastern Region during 1971. A total of 372,000 acres were aerially sprayed with carbaryl for gypsy moth suppression. Infestation of forest tent caterpillar and oak leaf rollers also required chemical suppression. Oak wilt and white pine blister rust were two disease problems that required control efforts in the eastern region.

A number of field test and pilot projects were conducted to evaluate promising methods for controlling important forest pest. In California, continuing studies to determine the effectiveness of synthetic attractants for suppression of western pine beetle showed promising results in 1971.

REGIONAL AND AREA OFFICE ADDRESSES

U.S. FOREST SERVICE

Region

Region

- |   |   |    |   |
|---|---|----|---|
| 1 | U.S. Forest Service<br>Federal Building<br>Missoula, Montana 59801                                | 6  | U.S. Forest Service<br>P.O. Box 3623<br>Portland, Oregon 97208  |
| 2 | U.S. Forest Service<br>Federal Center, Building 85<br>Denver, Colorado 80225                      | 10 | U.S. Forest Service<br>Federal Office Bldg.<br>P.O. Box 1628<br>Juneau, Alaska 99801                            |
| 3 | U.S. Forest Service<br>Federal Building<br>517 Gold Avenue, S.W.<br>Albuquerque, New Mexico 87101 |    | <u>Area</u>   |
| 4 | U.S. Forest Service<br>Federal Office Building<br>324 - 25th Street<br>Ogden, Utah 84401          | NA | Northeastern Area<br>U.S. Forest Service<br>6816 Market Street<br>Upper Darby,<br>Pennsylvania 19082            |
| 5 | U.S. Forest Service<br>630 Sansome Street<br>San Francisco, California 94111                      | SA | Southeastern Area<br>U.S. Forest Service<br>Suite 800<br>1720 Peachtree Road,<br>N.W.<br>Atlanta, Georgia 30309 |

CONTRIBUTORS

- |            |                |          |               |
|------------|----------------|----------|---------------|
| ALABAMA    | H.F. McQueen   | HAWAII   | K.F. Kawamura |
| ARIZONA    | J.E. May       | IDAHO    | R.W. Portman  |
| ARKANSAS   | W.P. Boyer     | ILLINOIS | T. Cooley     |
| CALIFORNIA | R.M. Hawthorne | INDIANA  | R.W. Meyer    |
| COLORADO   | W.D. Fronk     | IOWA     | H. Gunderson  |
| DELAWARE   | P.P. Burbutis  | KANSAS   | K.O. Bell     |
| FLORIDA    | F.W. Mead      | KENTUCKY | D.E. Barnett  |

U.S. DEPARTMENT OF AGRICULTURE  
ANIMAL & PLANT HEALTH SERVICE  
PLANT PROTECTION DIVISION AND  
CANADIAN DEPARTMENT OF AGRICULTURE  
COOPERATING WITH AFFECTED STATES

COUNTRIES ENTIRELY UNINFESTED ARE COMPLETELY REGULATED

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

- 5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.  
True bulbs, corms, rhizomes and tubers (other than clumps or 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 re-painted.
- 7. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the European chafer and the person in possession thereof has been so notified.

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

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.  
Soil samples shipped to approved laboratories do not require attachment of certificate or permit.\*\*  
Compost, decomposed manure, humus, and peat are exempt\*\*\* if dehydrated, ground, pulverized, or compressed.
2. Plants with roots, **except** soil-free aquatic plants, moss, and Lycopodium (clubmoss or ground-pine or running pine).
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.  
True bulbs, corms, rhizomes and tubers (other than clumps or dahlia tubers) of ornamental plants are exempt\*\*\* if free of soil.
6. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\*\* if cleaned and repainted.
7. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the European chafer and the person in possession thereof has been so notified.

THE FOLLOWING REGULATED ARTICLES MOVED FROM STATE REGULATED AREAS (BLUE) REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:\*

1. Bulk soil.
2. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\*\* if cleaned and repainted.
3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the European chafer and the person in possession thereof has been so notified.

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

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

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

# EUROPEAN CHAFER QUARANTINES

U.S. DEPARTMENT OF AGRICULTURE  
ANIMAL & PLANT HEALTH SERVICE  
PROTECTION DIVISION AND  
CANADIAN DEPARTMENT OF AGRICULTURE  
COOPERATING WITH AFFECTED STATES

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 (ERADICATION TREATMENTS APPLIED OR IN PROGRESS)

ERADICATED — REGULATIONS REMOVED



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

THE FOLLOWING REGULATED ARTICLES MOVED FROM STATE REGULATED AREAS (BLUE) REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:\*\*

1. Bulk soil.
2. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\*\* if cleaned and repainted.
3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the European chafer and the person in possession thereof has been so notified.

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

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

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



CONTRIBUTORS (Cont.)

MAINE  
A. Gall

MARYLAND  
J.L. Hellman

MASSACHUSETTS  
G.L. Jensen

MICHIGAN  
R.J. Sauer et al.

MINNESOTA  
R. Flaskerd

MISSISSIPPI  
J. Robinson

MISSOURI  
R E. Munson

MONTANA  
C.R. Pratt

NEBRASKA  
D.L. Keith

NEVADA  
R.C. Bechtel

NEW HAMPSHIRE  
R.L. Blickle

NEW MEXICO  
G.L. Nielsen

NORTH CAROLINA  
T.N. Hunt

NORTH DAKOTA  
W.J. Brandvik

OHIO  
R.W. Rings  
F.P. Andress

OKLAHOMA  
D.C. Arnold

OREGON  
R. Penrose

PENNSYLVANIA  
K.C. Kim

RHODE ISLAND  
G. Field

SOUTH CAROLINA  
V.H. McCaskill

SOUTH DAKOTA  
P.A. Jones

TENNESSEE  
C.D. Gordon

TEXAS  
L.R. Green

UTAH  
G.F. Knowlton

VERMONT  
J.W. Scott

VIRGINIA  
W.A. Allen et al.

WASHINGTON  
R.F. Harwood

WISCONSIN  
M.S. Conrad

A Review of Literature on the Pheromone of the Boll Weevil,  
Anthonomus grandis Boheman (Coleoptera: Curculionidae)

D. D. Hardee<sup>1/</sup>

Since its introduction into the United States about 1892 (Hunter and Hinds 1905), the boll weevil, Anthonomus grandis Boheman, has been the most costly insect in the history of American agriculture and is often termed the "\$10 billion insect" (Dunn 1964). Losses in cotton production due to the boll weevil are estimated to average \$200 to 300 million annually; to prevent even greater losses, growers spend an estimated \$70 million each year (Knipling 1964) for its control. It is estimated (Rainwater 1962) that about one-third of all insecticides used for agricultural purposes are applied for control of the boll weevil. The extensive use of insecticides for control of boll weevils not only may cause a serious problem of environmental pollution but often causes a drastic reduction of natural biological agents that otherwise would hold other agricultural pests in check. The adverse effect on natural insect parasites and predators often leads to an increase in subsequent populations of such insects as the tobacco budworm and the bollworm. This, in turn, may result in increased crop losses and increased intensive use of insecticides to protect the cotton crop.

Attempts to solve the problem resulted in considerable research in the past decade directed toward the development of ways to eliminate the boll weevil from all infested cotton growing areas in the United States. An area of research that has shown a great deal of promise in manipulation of populations of the boll weevil has been the use of pheromones (Karlson and Lüscher 1959). General reviews of literature on the boll weevil are available (Dunn 1964, Mitlin and Mitlin 1968). This review, however, is concerned only with literature relating to the pheromone of the boll weevil.

In the earliest record of sexual attraction in the boll weevil, Hunter and Hinds (1905) concluded that females were not attractive to males and that ". . . instead of seeking widely for the females, the males are content to wait for them to come their way." It was not until 1962 that Cross and co-workers (Cross and Mitchell 1966, confirmed by Keller et al. 1964) showed conclusively that the male boll weevil produces a wind-borne sex attractant (pheromone) that is attractive to females.

Once a laboratory bioassay procedure was developed (Hardee et al. 1967a), female attraction to males was confirmed, and subsequent research in the laboratory (Hardee et al. 1967b, Bartlett et al. 1968) showed that (1) males sterilized with apholate or gamma radiation were equally as attractive as untreated males when both were fed cotton squares (flower buds) as food; (2) peak sexual activity of both males and females occurred when weevils were 4 to 6 days old; (3) females responded to a single male, but response was significantly greater to 5, 10, or 25

<sup>1/</sup> Entomology Research Division, Agr. Res. Serv., USDA  
State College, Mississippi 39762

males; (4) virgin males were twice as attractive and virgin females were 3 times as responsive as mated males or females; and (5) comparisons between laboratory-reared and native weevils indicated food to be of greater importance than culture in determining female response.

Additional diet studies in the laboratory and field in 1966-69 (Hardee 1970c) showed that: (1) Males fed cotton squares, bolls, and blooms were considerably more attractive than males fed terminals, cotyledons and leaves; (2) pheromone production by males was reduced by about 50 percent one hour and over 90 percent twenty-four hours after food was removed; (3) males survived well and produced pheromone in laboratory bioassays on a variety of foods (50-70 percent as much as on cotton squares) such as apples, bananas, okra, peaches, and string beans, but the most favorable diet was cotton squares; and (4) overwintered male boll weevils survived longer without food than laboratory-reared males, but both needed some food before pheromone production began. In field tests, however, Cross et al. (unpublished data) were not able to show response to male boll weevils fed on any diet except cotton. The results indicated that a constant supply of adequate food, preferably cotton squares or small cotton bolls, is essential to continued production of a high level of pheromone by males.

The effectiveness of males or extracts of males in different kinds of traps in capturing virgin, released females (Cross et al. 1967, 1969, Hardee et al. 1969a) was evaluated in 1965-66 in several field studies in Mississippi, Florida, and Mexico. It was concluded from these studies that a wing-type trap coated with an adhesive was the most effective trap for boll weevils. Hardee et al. (1969a) concluded from these field tests that: (1) Males in close proximity to females were no more attractive to females than isolated males; (2) females responded to males as many as 3 times and from distances of as much as 250 feet; and (3) the high percentage of females captured in traps baited with males in the absence of competing males, and the low percentage captured with males in traps in an infested plot containing large numbers of competing males suggest that the sex pheromone might have a major role in suppressing boll weevils in areas where populations are extremely low; for example, in the spring after an effective fall diapause-control program has substantially reduced the number of overwintering boll weevils. They also substantiated results from previous tests in showing that: (1) Laboratory-reared males were as attractive and females were as responsive as native weevils if they had access to cotton squares (flower buds) as food; (2) isolated males were more attractive than grouped males; (3) males in close proximity to females were no more attractive to females than isolated males; (4) the lack of response of recently mated females emphasized the need to capture females in traps before they mate with free, competing males; and (5) sterilization of males with apholate or irradiation did not significantly decrease their attractiveness compared with untreated males.

In 1967 Cross and Hardee (1968) demonstrated for the first time, Bradley et al. (1968) confirmed, and Hardee et al. (1969b) showed in detail that the male pheromone is not only a sex pheromone for females but also acts as an aggregating pheromone for both sexes, primarily in the spring and fall, and to a lesser degree in mid-season. In 1968, Hardee et al. (1970a) confirmed the aggregating characteristic of the pheromone and studied in the field the influence of diet on production of the aggregating pheromone.

The potential of the pheromone in survey, control, and eradication procedures was studied in detail in west Texas in 1968 and 1969 and in Mississippi in 1969 (Hardee 1969c, Hardee et al. 1970b, 1971a, Lloyd et al. 1972a). Conclusions from these studies were that (1) live male boll weevils in traps afforded 60-80 percent suppression of boll weevils in the spring following an effective reproduction-diapause control program in the previous fall; and (2) 1 or 2 traps per acre were more effective than 4 or 8 traps per acre in suppressing boll weevils.

Since 1967 males in traps have been used extensively: (1) In survey and ecological studies (Bottrell et al. 1970, Walker and Bottrell 1970, Roach et al. 1971b, Mitchell et al. 1972); (2) in demonstrating that boll weevils will disperse up to 45 miles in search of cotton or other boll weevils (Davich et al. 1970, Ridgway et al. 1971); (3) in showing that treatment of male boll weevils with the chemosterilant, busulfan, does not reduce pheromone production (Klassen and Earle 1970); (4) in obtaining a positive correlation between the number of over-wintering weevils captured and the number observed in the field (Roach et al. 1971), and; (5) in determining that a metal wing trap, (about 4 X 6 inch wings X 9 inch base) painted daylight fluorescent yellow over a white undercoat, coated with an adhesive, containing live male boll weevils or synthetic pheromone, and placed around a cotton field adjacent to overwintering sites at distances of 1-3 feet above ground was the most effective trapping procedure (Hardee et al. 1972b).

Following the isolation (Tumlinson et al. 1968), identification, and synthesis (Tumlinson et al. 1969, 1971, Zurfluh et al. 1970) of the 4 components of grandlure, the name assigned to the pheromone of the male boll weevil (Hardee et al. 1971b), a great deal of effort was made to study in the laboratory factors that influence activity of grandlure, to develop a gas chromatographic procedure that would permit analysis of the four components with a single injection, and to develop a slow-release formulation of grandlure that would remain competitive with square-fed males in traps for at least one week. Hardee et al. (1971b) determined that: (1) Inert firebrick was an effective carrier to use in laboratory bioassays; (2) grandlure was attractive to females at dosages as low as  $5 \times 10^{-6}$   $\mu$  but was most attractive at 2.5 to 50  $\mu$ ; and (3) addition of a cotton plant attractant to grandlure markedly increased its attractiveness. Bull et al. (1971) devised a gas chromatographic procedure that detected accurately as low as 20  $\mu$  of each of the 4 components of grandlure in a single injection. McKibben et al. (1971) developed a polyethylene glycol tablet formulation of grandlure that showed no decrease in activity after aging 128 hours under simulated field conditions. Hardee et al. (1972a) reported that a formulation of grandlure containing glycerol, water, polyethylene glycol, and methanol impregnated on a cigarette filter wick was more than 80 percent competitive as an attractant for 7 days with caged, live males, fed cotton squares once or twice per week. They also showed that grandlure attracted boll weevils in sex ratios similar to live males, indicating that it evokes the aggregating response from both sexes as do live males. Subsequent to the development of this formulation, Moody et al. (1972) and McKibben (1972) developed devices for dispensing grandlure automatically to cigarette filters. In the 1971 growing season grandlure in this formulation was used with great success by 28 investigators representing 8 agencies in 7 states across the

Cotton Belt (Hardee, unpublished data).

In 1970 Cross et al. (1971) reported improved designs of the standard wing trap constructed of cardboard, painted daylight fluorescent yellow, coated with an adhesive, and baited with grandlure or square-fed males. Subsequently, Leggett and Cross (1971) developed a non-sticky trap ("Leggett" trap) which captures boll weevils alive and is more effective than the wing trap when baited with grandlure or males. Lloyd et al. (1972b) showed the potential effectiveness of males and grandlure in conjunction with the systemic insecticide, aldicarb, in a modified trapping system for suppressing low density populations of overwintered boll weevils.

From their theoretical calculations on the effects of pheromones used for insect control, Knipling and McGuire (1966) concluded that under the right set of conditions, pheromones offer a great potential in insect suppression. Studies during the past 7 years have shown that the potential for such use of the pheromone of the boll weevil is great, and grandlure will undoubtedly play a major role in the future in survey, management, suppression, and hopefully eradication of the boll weevil.

## References Cited

- Bartlett, A. C., P. A. Hooker, and D. D. Hardee. 1968. Behavior of irradiated boll weevils. I. Feeding, attraction, mating and mortality. *J. Econ. Entomol.* 61(6): 1677-80.
- Bottrell, D. G., R. E. Reeves, L. K. Almand, D. D. Hardee, and W. H. Cross. 1970. Studies of boll weevil populations and their movement in the High and Rolling Plains of Texas using male-baited traps, 1968. *Texas Agric. Exp. Sta. Misc. Publ.* 948, 8 p.
- Bradley, J. R., Jr., D. F. Clower, and J. B. Graves. 1968. Field studies of sex attraction in the boll weevil. *J. Econ. Entomol.* 61(5): 1457-8.
- Bull, D. L., R. A. Stoker, D. D. Hardee, and R. C. Gueldner. 1971. Gas chromatographic determination of the components of the synthetic boll weevil sex pheromone (grandlure). *J. Agric. Food Chem.* 19(1): 202-3.
- Cross, W. H. and H. C. Mitchell. 1966. Mating behavior of the female boll weevil. *J. Econ. Entomol.* 59(6): 1503-7.
- Cross, W. H., D. D. Hardee, and F. Nichols. 1967. Punch cards in attraction and population studies of boll weevils. *Ibid.* 60(5): 1484-5.
- Cross, W. H. and D. D. Hardee. 1968. Traps for survey of overwintered boll weevil populations. *Coop. Econ. Ins. Rpt.* 18(20): 430.
- Cross, W. H., D. D. Hardee, F. Nichols, H. C. Mitchell, E. B. Mitchell, P. M. Huddleston, and J. G. Tumlinson. 1969. Attraction of female boll weevils to traps baited with males or extracts of males. *J. Econ. Entomol.* 62(1):154-61.
- Cross, W. H., J. E. Leggett, and D. D. Hardee. 1971. Improved traps for capturing boll weevils. *USDA Coop. Econ. Ins. Rpt.* 21(21): 367-8.
- Davich, T. B., D. D. Hardee, and J. Alcalá M. 1970. Long-range dispersal of boll weevils determined with wing traps baited with males. *J. Econ. Entomol.* 63(5): 1706-8.
- Dunn, H. A. 1964. Cotton boll weevil, *Anthonomus grandis* Boheman: Abstracts of research publications, 1943-1960. *USDA Misc. Publ.* 985, 194 p.
- Hardee, D. D., E. B. Mitchell, and P. M. Huddleson. 1967a. Procedure for bioassaying the sex attractant of the boll weevil. *J. Econ. Entomol.* 60(1):169-71.
- Hardee, D. D., E. B. Mitchell, and P. M. Huddleston. 1967b. Laboratory studies of sex attraction in the boll weevil. *Ibid.* 60(5): 1221-4

- Hardee, D. D., W. H. Cross, E. B. Mitchell, P. M. Huddleston, H. C. Mitchell, M. E. Merkl, and T. B. Davich. 1969a. Biological factors influencing responses of the female boll weevil to the male sex pheromone in field and large cage tests. *Ibid.* 62(1): 161-5.
- Hardee, D. D., W. H. Cross, and E. B. Mitchell. 1969b. Male boll weevils are more attractive than cotton plants to boll weevils. *Ibid.* 62(1): 165-9.
- Hardee, D. D. 1969c. Pheromones - their potential use in eradicating the boll weevil. *Proc. 1st Annu. Texas Conf. on Insect, Plant Disease, Weed, and Brush Control.* p. 214.
- Hardee, D. D., T. C. Cleveland, J. W. Davis, and W. H. Cross. 1970a. Attraction of boll weevils to cotton plants and to males fed on 3 diets. *J. Econ. Entomol.* 63(3) 990-1.
- Hardee, D. D., W. H. Cross, P. M. Huddleston, and T. B. Davich. 1970b. Survey and control of the boll weevil in west Texas with traps baited with males. *Ibid.* 63(4): 1041-8.
- Hardee, D. D. 1970c. Pheromone production by male boll weevils as affected by food and host factors. *Contrib. Boyce Thompson Inst.* 24(13): 315-22.
- Hardee, D. D., O. H. Lindig, and T. B. Davich. 1971a. Suppression of populations of boll weevils over a large area in west Texas with pheromone traps in 1969. *J. Econ. Entomol.* 64(4): 928-33.
- Hardee, D. D., N. M. Wilson, E. B. Mitchell, and P. M. Huddleston. 1971b. Factors affecting activity of grandlure, the pheromone of the boll weevil, in laboratory bioassays. *Ibid.* (In Press).
- Hardee, D. D., G. H. McKibben, R. C. Gueldner, E. B. Mitchell, J. H. Tumlinson, and W. H. Cross. 1972a. Boll weevils in nature respond to grandlure, a synthetic pheromone. *Ibid.* (In Press).
- Hardee, D. D., W. H. Cross, E. B. Mitchell, P. M. Huddleston, and H. C. Mitchell. 1972b. Effect of size, location, and distance from ground level of traps baited with males on capture of boll weevils. *Env. Entomology.* (In Press).
- Hunter, W. D. and W. E. Hinds. 1905. The Mexican cotton boll weevil. *USDA Bur. Entomol. Bull.* 51, 181 p.
- Karlson, P. and M. Luscher. 1959. Pheromones, a new term for a class of biologically active substances. *Nature* 183: 55-6.
- Keller, J. C., E. B. Mitchell, G. McKibben, and T. B. Davich. 1964. A sex attractant for female boll weevils from males. *J. Econ. Entomol.* 57(4): 609-10.

- Klassen, W. and N. W. Earle. 1970. Permanent sterility induced in boll weevils with busulfan without reducing production of pheromone. *Ibid.* 63(4): 1195-8.
- Knipling, E. F. 1964. The potential role of the sterility method for insect population control with special reference to combining this method with conventional methods. USDA ARS-33-98, 54 p.
- Knipling E. F. and J. U. McGuire. 1966. Population models to test theoretical effects of sex attractants used for insect control. USDA Agr. Inf. Bull. 308, 20 p.
- Leggett, J. E. and W. H. Cross. 1971. A new trap for capturing boll weevils. USDA Coop. Econ. Ins. Rpt. 21(45-48): 773-4.
- Lloyd, E. P., M. E. Merkl, F. C. Tingle, W. P. Scott, D. D. Hardee, and T. B. Davich. 1972a. A large-scale field evaluation of reproduction-diapause control and male-baited traps for boll weevil control in Monroe County, Mississippi. *J. Econ. Entomol.* (In Press).
- Lloyd, E. P., W. P. Scott, K. K. Shcaunak, F. C. Tingle, and T. B. Davich. 1972b. A modified trapping system for suppressing low density populations of overwintered boll weevils. *Ibid.* (In Press).
- McKibben, G. H., D. D. Hardee, T. B. Davich, R. C. Gueldner, and P. A. Hedin. 1971. Slow-release formulations of grandlure, the synthetic pheromone of the boll weevil. *Ibid.* 64(1): 317-9.
- McKibben, G. H. 1972. An automatic device for dispensing grandlure. *Ibid.* (In Press).
- Mitchell, E. B., D. D. Hardee, W. H. Cross, P. M. Huddleston, and H. C. Mitchell. 1972. Influence of rainfall, sex ratio, and physiological condition of boll weevils on their response to pheromone traps. *Ibid.* (In Press).
- Mitlin, L. L. and N. Mitlin. 1968. Boll weevil, Anthonomus grandis Boh.: Abstracts of research publications, 1961-5. USDA Misc. Publ. 1092, 32 p.
- Moody, D. S., J. R. White, and D. G. Bottrell. 1971. A machine for automatic dispensing of a synthetic boll weevil pheromone. *Ibid.* (In Press).
- Rainwater, C. F. 1962. Where we stand on boll weevil control and research. In Proc. Boll Weevil Research Symposium, State College, Mississippi. March 21, 1962. USDA pp. 10-19.
- Ridgway, R. L., L. A. Bariola, and D. D. Hardee. 1971. Seasonal movement of boll weevils near the High Plains of Texas. *J. Econ. Entomol.* 64(1): 14-9.



- Roach, S. H., L. Ray, H. M. Taft, and A. R. Hopkins. 1971a. Wing traps baited with male boll weevils for determining spring emergence of overwintered weevils and subsequent infestations in cotton. *Ibid.* 64(1): 107-10.
- Roach, S. H., L. Ray, A. R. Hopkins, and H. M. Taft. 1971b. Comparison of attraction of wing traps and cotton trap plots baited with male boll weevils for overwintered weevils. *Annals Entomol. Soc. Amer.* 64(2): 530-1.
- Tumlinson, J. H., D. D. Hardee, J. P. Minyard, A. C. Thompson, R. T. Gast, and P. A. Hedin. 1968. Boll weevil sex attractant: isolation studies. *J. Econ. Entomol.* 61(2): 470-4.
- Tumlinson, J. H., D. D. Hardee, R. C. Gueldner, A. C. Thompson, P. A. Hedin, and J. P. Minyard. 1969. Sex pheromones produced by male boll weevils: isolation, identification and synthesis. *Science* 166: 1010-12.
- Tumlinson, J. H., R. C. Gueldner, D. D. Hardee, A. C. Thompson, P. A. Hedin, and J. P. Minyard. 1970. The boll weevil sex attractant, pp. 41-59. *In* M. Beroza (ed.) *Chemical Controlling Insect Behavior*. Academic Press, New York, 170 p.
- Tumlinson, J. H., R. C. Gueldner, D. D. Hardee, A. C. Thompson, P. A. Hedin and J. P. Minyard. 1971. Identification and synthesis for the four compounds comprising the boll weevil sex attractant. *J. Org. Chem.* 36(18): 2616-21.
- Walker, J. K. and D. G. Bottrell. 1970. Infestations of boll weevils in isolated plots in Texas, 1960-69. *J. Econ. Entomol.* 63(5): 1646-50.
- Zurfluh, R. L., L. L. Dunham, V. L. Spain, and J. B. Siddall. 1970. Synthetic studies on insect hormones. IX. Stereoselective total synthesis of a racemic boll weevil pheromone. *J. Amer. Chem. Soc.* 92: 425-7.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(14):200-207, 1972

Weather of the week continued from page 188.

fell at Rockford, Illinois. Rain and drizzle fell on the warm side of the storm Monday, followed by showers, thunderstorms, strong winds, hail, and a few tornadoes Tuesday, Wednesday and Thursday. Showers fairly well covered the area from Kansas to the Ohio River Valley and southward to the Gulf of Mexico. Hail, approaching the size of baseballs, fell in spots in Arkansas and Louisiana. High winds blew down a house, trees, and a power line 6 miles south of Eldorado, Arkansas Tuesday afternoon. A late evening tornado occurred at Clinton, Arkansas. In western Tennessee, high winds destroyed a tractor shed and uprooted trees. The storm center moved across the Great Lakes to Ontario Thursday, but a new storm developed over the Gulf of Mexico and moved across the Florida Peninsula headed northward along the coast. It spilled several inches of rain over the northern part of Florida, parts of Georgia, and the Carolinas. Hail fell in spots and up to 8 inches of snow fell in the mountains and western North Carolina. As the storm moved northeastward, it caused considerable cloudiness and light rain from North Carolina to New England. A weekend storm brought snow flurries to the northern and central Great Plains with rain farther south. Blustery winds accompanying snow made conditions hazardous for your livestock. Rain fell late in the week along the northern Pacific coast with snow in the Cascades and northern Rocky Mountains. Much of the Southwest received no rain or only light, widely scattered sprinkles and needed rain badly.

TEMPERATURE: Cold northerly winds kept temperatures below freezing Monday afternoon from the Continental Divide to western Wisconsin. Warm moist air covered the southern Great Plains. Little Rock, Arkansas, registered 84 degrees Monday afternoon, Nashville, Tennessee, recorded 76 degrees Tuesday, and the mercury at Pikeville, Kentucky, reached 75 degrees Wednesday when lower Michigan was still near the freezing mark. The North Central States continued cold because of northerly winds and deep snow. Snow remained on the ground because of cold weather. Cold air spread southward as the week advanced. Birmingham, Alabama, and Atlanta, Georgia, registered 30 degrees Sunday morning. Spots in the Rocky Mountains recorded subzero weather on one or two days. The mercury at Leadville, Colorado, plunged to 9 degrees below zero Thursday morning. Temperatures ranged mostly in the 70's and 80's across the Southland except Tuesday; they reached the 90's in the lower Rio Grande Valley. McAllen, Texas, registered 100 degrees Tuesday. Temperatures averaged below normal over most of the Nation. Parts of the central Great Plains averaged 6 to 10 degrees colder than normal. Above normal weekly mean temperatures occurred along the western gulf coast, over most of the Florida Peninsula, northern New England and from Los Angeles to San Diego, California.







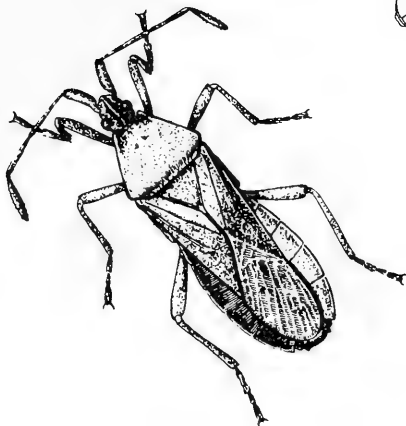
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

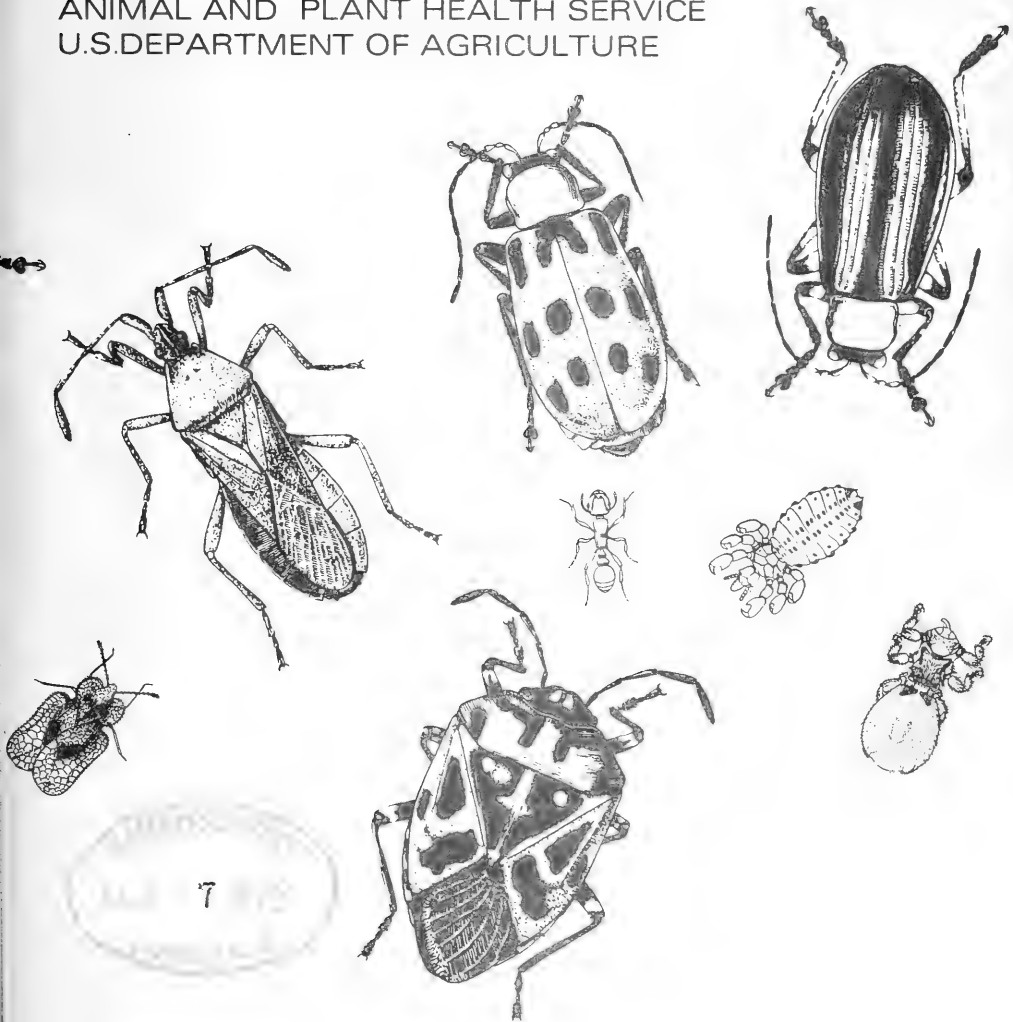


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

BROWN WHEAT MITE heavy in wheat in Nevada, Colorado, and Oklahoma. (p. 211).

ALFALFA WEEVIL heavy in southern Piedmont and Coastal Plain of Virginia and in west Tennessee. (p. 212).

SCREWWORM cases continue to increase in U.S. (p. 214).

Detection

For new county records see page 215.

Special Reports

Banks Grass Mite Situation in U.S. - 1971 (pp. 218-223).

Spread of Golden Nematode Since 1949. Map. (p. 224).

Japanese Beetle Quarantines. Map. Centerfold.

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

## CONTENTS

Special Insects of Regional Significance.....	211
Insects Affecting	
Small Grains.....	211
Forage Legumes.....	211
Cotton.....	213
Deciduous Fruits and Nuts.....	213
Citrus.....	213
Small Fruits.....	214
Forest and Shade Trees.....	214
Man and Animals.....	214
Beneficial Insects.....	215
Federal and State Plant Protection Programs.....	215
Detection.....	215
Corrections.....	215
Hawaii Insect Report.....	216
Light Trap Collections.....	217
Banks Grass Mite Situation in U.S. - 1971.....	218
Spread of Golden Nematode Since 1949. Map.....	224
Japanese Beetle Quarantines. Map. Centerfold.	

---

### WEATHER OF THE WEEK ENDING APRIL 10

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

PRECIPITATION: Winter refused to quit. Snow flurries occurred from the central Great Plains to the upper Mississippi River Valley and the Great Lakes region early in the week, due to a cold air mass spreading southward. Thundershowers occurred along the leading edge of a cold air mass along a Quasi Stationary Front that stretched eastward from Oklahoma to the Southeast. Some thundershowers produced large hail. Funnel clouds were seen in northeastern Arkansas and western Tennessee. About midweek, a storm center off the Oregon coast produced showers and a few thunderstorms from western Washington to northern California. Rains in the Northwest were accompanied by gusty gales. Gusts peaked at 63 m.p.h. at Portland, Oregon, Wednesday afternoon. Snow flurries occurred in the northern Cascades and central Rocky Mountains at midweek and portions of New York and New England the latter half of the week. Several inches of snow fell in western New York Thursday afternoon. A number of tornadoes struck northern Illinois late Thursday. A tornado at Joliet damaged more than a score of aircraft. A cold air mass pushed southward over the eastern half of the Nation over the weekend, bringing snow over the Northeast, rain over the southeast, and a bank of sleet or freezing rain between snow and rain. Most of the area north of the Ohio River received precipitation Thursday afternoon or evening. Precipitation Friday covered most of the area from Illinois to Pennsylvania and southward to Alabama and Georgia. Snow flurries or sprinkles occurred from Maine to Florida Saturday. Rains in the Northwest continued. Weekly totals in the Northwest exceeded 6 inches along the coast of Washington, but decreased inland to less than 1 inch about 200 miles from the coast. Sunny rainless skies continued over the southwest from southern California to Oklahoma.

Weather of the week continued on page 216.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - WYOMING - Trace in few wheat-fields near Pine Bluffs, Laramie County. (Burkhardt). NEBRASKA - Very light, averaged less than 1 per 25 row foot in 20 Cheyenne and Morrill County fields (Hagen, Sakurada). KANSAS - Generally light in wheat and alfalfa in western areas past 21 days. Larval counts of 2 per square foot in seedling alfalfa with some damage in Norton County. (Bell).

ASTER LEAFHOPPER (Macrosteles fascifrons) - FLORIDA - Adults 9 per 100 sweeps of oats in green seedhead stage at Gainesville, Alachua County. (Mead).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Total of 15,626 acres treated in Kern, Kings, and Fresno Counties. Much Russian thistle emergence at this time and will serve as "catch crop" for beetle leafhoppers as they migrate from rangeland breeding areas to croplands. Expect earlier than usual migration to crop areas due to drying of west side breeding grounds. (Cal. Coop. Rpt.). IDAHO - Surveys show overwintering adult populations light throughout most areas on Snake River Plain. Host plant development slow due to unusually cold winter. (Portman).

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae 5 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Still scattered and heavy in Cotton County; predators and parasites increased to level to control infestations. Light to moderate in Kingfisher County. Averaged 25 per linear foot in Payne County wheatfield; parasitism light. (Okla. Coop. Sur.). MISSOURI - Counts light, ranged 1-4 per linear foot of wheat in southeast area. (Craig).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Declined; nymphs and adults 100 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

### SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Controls applied to 100 acres of wheat at Lovelock, Pershing County. Brown wheat mite generally light except in fields where small grains planted in 1971 or in fields with considerable debris. These fields being irrigated. (Stitt). COLORADO - Heavy on winter wheat in southeastern areas. Some damage appearing in extremely dry areas. (Hogan, Kesterson). OKLAHOMA - Heavy in Seminole County wheat; controls planned. (Okla. Coop. Sur.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Very light, averaged less than 1 per 50 row foot in 20 fields in Cheyenne and Morrill Counties. No larvae in several Scottsbluff County fields. (Hagen, Sakurada).

### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WYOMING - Adults appearing in alfalfa at Worland, Washakie County. (Spackman). KANSAS - Percent tip feeding ranged as follows by county (number fields per county

in parentheses): Greenwood 1-10 (2); Elk 10-50 (4); Labette 75 (1); Cherokee 50 (1); Crawford 30-40 (3); Bourbon 5-20 (3); Anderson trace (1); and Osage none (1). About 25 percent of larvae dead or dying in fields surveyed in Greenwood and Elk Counties, apparently related to heavy frost in area on nights of April 3 and 4. (Bell). OKLAHOMA - Still heavy in southeastern area; light in southeastern Marshall County. Pupation increased in Payne County. (Okla. Coop. Sur.). TEXAS - Larvae and adults noted in Collingsworth, Donley, Wheeler, Gray, and Childress Counties. (Clymer et al.). ARKANSAS - Continues statewide and controls general. Egg hatch continues. Larvae up to 1,200 per sweeps in Washington County field where last period larvae ranged 800-900 per 100 sweeps. (Boyer). MISSOURI - Larval hatch slowed by cool weather. Damage extensive to some southwest area fields. Controls applied in selected fields. (Craig).

ILLINOIS - H. postica found throughout southern third of State in alfalfa. Hatch occurred as far north as Lawrence County in east and Madison County in west. Development behind prediction due to period of cool, wet weather. Heaviest infested field surveyed, averaged 68 percent tip feeding, 148 larvae per 100 stems, and 156 larvae per 100 sweeps in Johnson County. Feeding damage heavy. (Ill. Ins. Sur.). DELAWARE - Some first and second instar larvae on alfalfa in New Castle County, feeding injury light. (Burbutis). MARYLAND - First larvae of season on alfalfa at Beltsville, Prince Georges County and at Gaithersburg, Montgomery County. Survival doubtful due to freeze April 7 and 8 in these areas. (U. Md. Ent. Dept.). VIRGINIA - Surveys indicated about 68 percent of fields above economic threshold. Most larvae first and second instars. Controls recommended when 50 percent of alfalfa tips show damage. (Allen, Mar. 31). Currently, 50 percent of fields sampled above economic threshold. Heaviest populations in southern Piedmont and Coastal Plain. (Allen). TENNESSEE - Populations near or above control levels in most older alfalfa in west areas. Damage light. Increase expected. (Gordon). FLORIDA - Increased; larvae 149 per 100 sweeps of alfalfa (in bloom) at Gainesville, Alachua County. (Mead).

CLOVER LEAF WEEVIL (Hypera punctata) ILLINOIS - Ranged 2-30 per square foot of red clover throughout southeastern and southwestern areas. Feeding damage light to moderate in all fields surveyed. (Ill. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) CALIFORNIA - Populations variable in alfalfa in Imperial County. Some treatment necessary. (Cal. Coop. Rpt.). ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County as follows: Yuma Valley 1,300; Gila Valley 8,200; Dome Valley 3,200; and Wellton 1,200. (Ariz. Coop. Sur.). OKLAHOMA - Still in alfalfa statewide; averaged 800 square feet in Payne County field. (Okla. Coop. Sur.). FLORIDA - Nymphs and adults 1,100 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

ALFALFA LOOPER (Autographa californica) OREGON - Recovered 2 newly emerged adults in pheromone trap northwest of Salem, Marion County, April 4. First adults collected March 30 at Macleay and West Salem. (Penrose).

## COTTON

BOLL WEEVIL (Anthonomus grandis) MISSISSIPPI - Few weevils noted in several southern counties. (Mitchell). Recovered 2 weevils in Legget trap in Bolivar County. (Moore).

## DECIDUOUS FRUITS AND NUTS

PLUM CURCULIO (Conotrachelus nenuphar) TEXAS - Heavy on peach trees in Caldwell County. (Cole).

CODLING MOTH (Laspeyresia pomonella) NEW MEXICO - Collected 48 moths in pheromone trap in apple orchard at Las Cruces, Dona Ana County, April 3-5. (Durkin).

McDANIEL SPIDER MITE (Tetranychus mcdanieli) OREGON - Appearing on apple at Hood River, Hood River County. Typhlodromus sp. (a predator mite) also active. (Zwick).

## CITRUS

Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocoptura oleivora) infested 68 (norm 64) percent of groves; economic in 40 (norm 43) percent. Population dropped below average for first time in 24 months and now at moderate level on leaves and fruit. Little change expected. Highest districts south, west, and central. CITRUS RED MITE (Panonychus citri) infested 17 (norm 42) percent of groves; economic in 2 (norm 16) percent. Population at lowest March level in 21 years of record. Will remain in very low range through April. Highest district west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 26 (norm 34) percent of groves; economic in 7 (norm 4) percent. Below normal abundance, at low level. Increase expected in most districts. Highest district central. SIXSPOTTED MITE (Eotetranychus sexmaculatus) infested 5 (norm 7) percent of groves; none economic. Population will remain low and below normal; increase expected in scattered groves. GLOVER SCALE (Lepidosaphes gloverii) infested 80 (norm 79) percent of groves; economic in 2 (norm 15) percent. Population below normal and in moderate range; will gradually increase. Highest district west. PURPLE SCALE (L. beckii) infested 80 (norm 76) percent of groves; economic in 4 (norm 9) percent. Population near normal and moderate. Little change predicted. Highest district west. CHAFF SCALE (Parlatoria pergandii) infested 48 (norm 59) percent of groves; none economic (norm 8 percent). YELLOW SCALE (Aonidiella citrina) infested 38 (norm 63) percent; none economic (norm 9 percent). These scales will remain below normal and at low level in all districts. BLACK SCALE (Saissetia oleae) infested 41 (norm 24) percent of groves economic in 20 (norm 9) percent. Population above normal, but in low range. Further decrease expected in April followed by increase in May. Highest districts east and central. AN ARMORED SCALE (Unaspis citri) infested 31 percent of groves and 21 percent economic. Population highest on record for March. Will remain near current level. WHITEFLIES infested 63 (norm 64) percent of groves; economic in 13 (norm 16) percent. Population near normal and low. Increase to moderate level predicted. Highest district east. APHIDS infested 19 (norm 21) percent of groves; none economic (norm 1 percent). Population expected to be smaller than average and peak about mid-April. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

COTTONY CUSHION SCALE (Icerya purchasi) ARIZONA - Moderate on lemon twigs and leaves at Yuma, Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) ARIZONA - Buildup noted at Chandler heights, Maricopa County, with 1 per 20 blooms in one grove. Heavy in groves at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

GRAPE LEAFHOPPER (Erythroneura variabilis) ARIZONA - Egg laying noted in 3 vineyards on west side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### FOREST AND SHADE TREES

OAK LEAFTIER (Croesia albicomana) WEST VIRGINIA - Egg survey for 1972 showed decrease since previous years. Expect 300,000 acres will sustain negligible to moderate defoliation in Pocahontas and Greenbrier County area. (S.Va. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) WEST VIRGINIA - Egg mass surveys indicate complete collapse of populations in northern panhandle counties. (W. Va. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) KENTUCKY - First hatch, April 1, Lake Cumberland State Park, McCreary County. (Nordin, Barnett).

AN ARMORED SCALE (Lecanodiaspis pruinosa) NEBRASKA - Survey of 5 Lincoln area (Lancaster County) parks indicated light to severe infestations on honey locust, hackberry, and American elm. (Keith, Berogan).

#### MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 107 cases reported in U.S. April 2-8 as follows: TEXAS: Atascosa 4, Bandera 1, Brewster 1, Dimmit 5, Duval 7, Frio 2, Hidalgo 3, Jim Hogg 6, Kenedy 1, LaSalle 2, Live Oak 4, Maverick 3, McMullen 1, Medina 7, Starr 1, Sutton 1, Terrell 1, Uvalde 1, Webb 5, Zapata 10, Zavala 1, Bee 6, De Witt 5, Goliad 3, Gonzales 1, Hamilton 1, Jim Wells 5, Karnes 5, Kendall 2, Kleberg 3, Lavaca 1, Mason 1, Nueces 1, Refugio 4, Wilson 1. ARIZONA: Cochise 1. Total of 281 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 128, Chihuahua 20, Coahuila 13, Nuevo Leon 59, Tamaulipas 61. Total of 31 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 screwworm flies released: Texas 77,428,000; Arizona 6,600,000; Mexico 24,654,000. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) NORTH DAKOTA - Examination of 1,989 head of cattle at 6 livestock auction markets March 13-24 showed 15 percent infested with 1-15 (averaged 6.7) grubs per animal. (Brandvik). WYOMING - H. bovis (northern cattle grub) emerging from backs of Campbell County cattle. (Lloyd, Spackman). H. lineatum (common cattle grub) emergence about complete in Albany County. (Spackman).

HORN FLY (Haematobia irritans) OKLAHOMA - Ranged 200-400 per head on cattle in Major and Payne Counties. Moderate in Cotton County, heavy in Marshall County, light in Craig and Garvin Counties. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) OKLAHOMA - Averaged 3 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - OHIO - Eggs hatched in southern and northern areas. Collected 3,000 Aedes canadensis, second instar larvae, in Hocking County; 101 late third instar larvae in Ashland County consisting of A. canadensis and A. triseriatus. (Ohio Dept. of Health).

#### BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) SOUTH CAROLINA - Colonies at critical stage. Most winter stores about depleted due to increased rate of brood rearing. (Howard). OHIO - Honey supply reservoirs in 8 Morrow County colonies low. Supplemental feeding started. (Lyon, Fox).

CONVERGENT LADY BEETLE (Hippodamia convergens) ARKANSAS - Ranged 150-200 per 100 sweeps in alfalfa in Northwest area. No reproduction to date. (Boyer).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

A RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Specimens collected in San Patricio County on February 15 by C. L. Edgar and in Washington County by B. B. Smith on February 24.

FLORIDA - Specimens recovered in Lafayette County on February 22 by T. E. Gilliland. GEORGIA - Specimens taken in Emanuel County on February 9 by F. R. Woodard. SOUTH CAROLINA - Specimens collected in Fairfield County by J. L. King on February 24. Determinations by V. H. Owens, confirmed by D. R. Smith. These are new county records. (PP).

A GRASS BUG (Labops hesperius) NEBRASKA - First instar nymphs observed March 17, in wheatgrass pasture in Dawes County. First indication of damage to 3-inch tall wheatgrass noted on March 30. (Hagen). UTAH - Nymphs up to 1,000 per square foot of rangeland south of Panquitch, Garfield County. (Haws).

#### DETECTION

New County Records - A RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - San Patricio, Washington. GEORGIA - Emanuel. SOUTH CAROLINA - Fairfield. (p. 215).

#### CORRECTIONS

CEIR 22(10):105 - DETECTION - A PHYTOSEIID MITE ... delete note. See CEIR 22(14):187, 193, 194. (PP).

CEIR 22(10):108, 111 - A PHYTOSEIID MITE (Ricoseius lococheles) - FLORIDA - Delete entire note. (PP).

## HAWAII INSECT REPORT

Fruits and Nuts - LARGE MANGO TIP BORER (Bombotelia jocosatrix) damage spotty and sporadic to mango trees at Foster Village and throughout Ewa, Oahu. First reported in April 1968; incidence dropped to negligible levels past 2 years. Adults of a vespid wasp, Polistes sp. observed preying on B. jocosatrix larvae in field. (Kumashiro et al.). A NOCTUID MOTH (Phlegetonia delatrix) damage moderate to heavy to young foliage of roadside and waste-land Java plum (Eugenia cuminii) trees at Haiku, Maui and at Halawa and Ewa, Oahu. Larvae still elusive and only few specimens collected from heavily damaged trees at Ewa. (Miyahira, Kawamura). FLORIDA RED SCALE (Chrysomphalus aonidum) infestation light on 100 coconut trees at Lahaina, Maui; 25 percent of leaves show 5-10 scales per leaflet. (Miyahira).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) moderate under loose bark of kiawe trees at Mana, Kekaha, and Waimea, Kauai and at Kawaihae and Puako, Hawaii. On Oahu, light to moderate early instar larvae under loose, scaly bark of severely defoliated monkey pod trees at Punchbowl. About one-third of 36 trees void of foliage, one-third semi-denuded and canopies of remaining trees appear unaffected. (Sugawa et al.).

Man and Animals - Mosquito collections during March from 56 light traps on Oahu totaled: 279 Aedes vexans nocturnus (vexans mosquito), 7,811 Culex pipiens quinquefasciatus (southern house mosquito). Aedes catches ranged 0-74 at Ewa. Culex catches ranged 0 to 1,218 at Kailua. (Mosq. Contr. Br., State Dept. of Health).

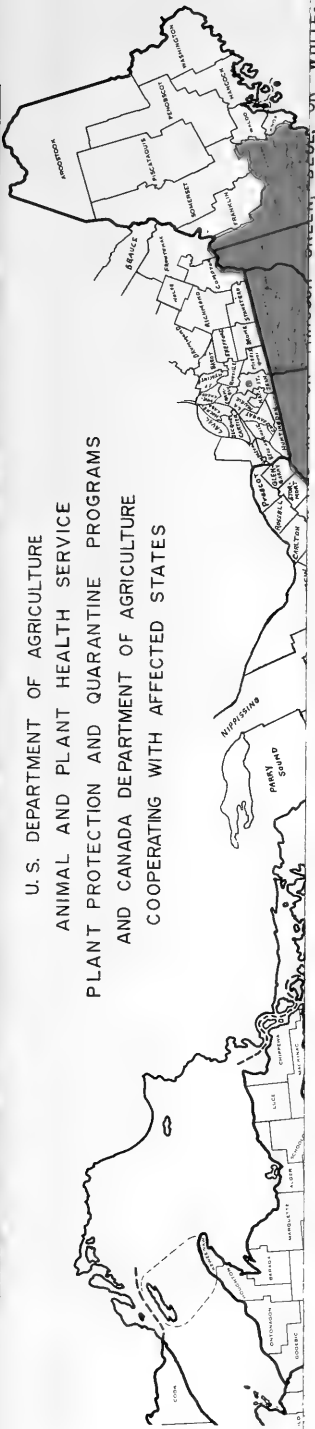
---

Weather of the week continued from page 210.

TEMPERATURE: Winter lagged. Artic high plunged southward across mid-America dropping temperatures to 32 degrees or lower as far south as Oklahoma by Tuesday morning. Ponca City, Oklahoma, registered 19 degrees Tuesday morning. Colder temperatures occurred farther north. Hibbing, Minnesota, temperature Tuesday morning was 5 degrees. Cold air spread eastward. Chattanooga, Tennessee, Birmingham, Alabama, recorded 32 degrees Wednesday. A quick warming occurred on the back side of a high as it moved eastward. Afternoon temperatures in southeastern Nebraska warmed from the 40's Monday to the 60's Tuesday, 70's Wednesday, and the 90's Thursday. Over the weekend a large arctic air mass brought unseasonally cold air from the Dakotas to Maine and southward as far as the Carolinas. Temperature at Waterloo, Iowa, dropped to 9 degrees Saturday morning, the coldest temperature of record for the month of April. On Sunday morning, Raleigh, North Carolina, set a new minimum temperature record for April when the mercury plunged to 23 degrees. Temperature continued near or above normal over the western half of the Nation. Weekly mean temperatures averaged above normal over the West and below normal over the East, except near normal along the Gulf of Mexico. Central and southern Rocky Mountains averaged 6-10 degrees warmer than normal. The Great Lakes region, northeast and south as far as Kentucky and Virginia averaged 6-12 degrees warmer than normal.



U. S. DEPARTMENT OF AGRICULTURE  
 ANIMAL AND PLANT HEALTH SERVICE  
 PLANT PROTECTION AND QUARANTINE PROGRAMS  
 AND CANADA 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.  
 (ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

STATE REGULATIONS ONLY.  
 (ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

ERADICATED--REGULATIONS REMOVED.



2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN°.
5. BLUE INTO ANY OTHER AREA°.

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

°° ONLY WHEN REQUIRED BY STATE QUARANTINE  
 REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

REVISED January 24, 1972

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES.  
 (other than clumps of dahlia tubers) of  
 ornamental plants are exempt\*\*\*if free of  
 soil.

6. Used mechanized soil-moving equipment.  
 Used mechanized soil-moving equipment is  
 exempt\*\*\*if cleaned and repainted.
7. Any other products, articles, or means of conveyance of  
 any character whatsoever, not covered by the above, when it is  
 determined by an inspector that they present a hazard of spread

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

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.  
Soil samples shipped to approved laboratories do not require attachment of certificate or permit.\*\*  
Compost, decomposed manure, humus, and peat are exempt\*\*\*if dehydrated, ground, pulverized, or compressed.
2. Plants with roots, except soil-free aquatic plants, moss, and Lycopodium (clubmoss or ground-pine or running pine).
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.  
True bulbs, corms, rhizomes, and tubers (other than clumps of dahlia tubers) of ornamental plants are exempt\*\*\*if free of soil.
6. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\*\*if cleaned and repainted.
7. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the Japanese beetle and the person in possession thereof has been so notified.

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:\*

1. Bulk soil.
2. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\*\*if cleaned and repainted.
3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the Japanese beetle and the person in possession thereof has been so notified.

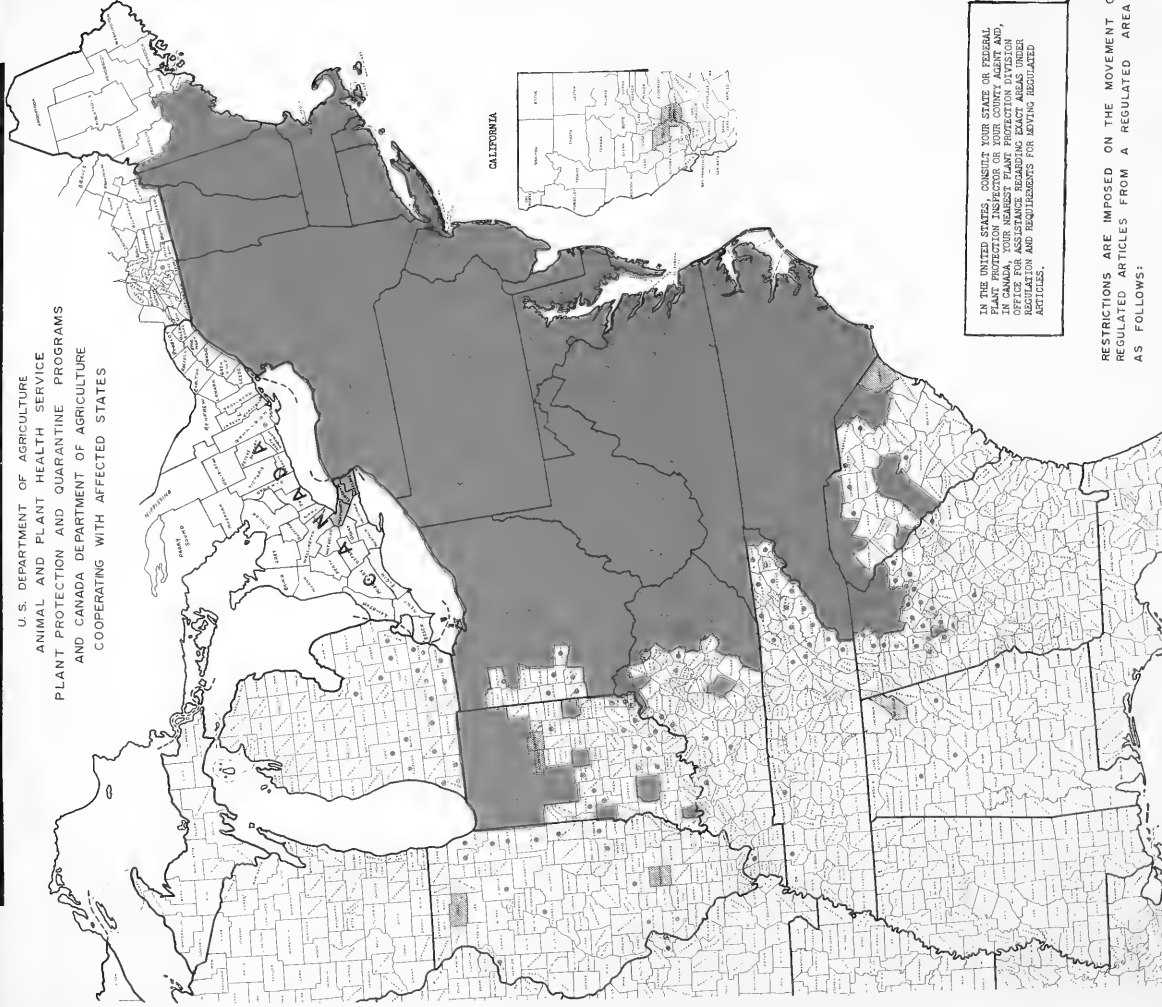
\* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

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

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

# JAPANESE BEETLE QUARANTINES

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



IN THE UNITED STATES, ADVISE YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OF YOUR QUARANTINE IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION, BEETLE FOR ASSISTANCE REGARDING EXACT AREAS UNDER QUARANTINE AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

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 WITHIN 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.

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.  
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

STATE REGULATIONS ONLY.  
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)

ERADICATED-REGULATIONS REMOVED.

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES.

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

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:\*

1. Bulk soil.
2. Used mechanized soil-moving equipment.  
Used mechanized soil-moving equipment is exempt\*\*\*if cleaned and repainted.
3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the Japanese beetle and the person in possession thereof has been so notified.

- \* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.
- \*\* Information as to approved laboratories may be obtained from an inspector.
- \*\*\*Exempt if not exposed to infestation after cleaning or other prescribed handling.

LIGHT TRAP COLLECTIONS

State	Locality	Date	Time	Specimen	Temp.	Wind	Humid.	Wind Dir.	Wind Sp.	Crops	
										(% of total)	(% of total)
FLORIDA	Gainesville 3/24-30 Gainesville 3/31-4/6	35-81 40-81	1.54 0.25	BL	19	22	1	1	1	1	1
				BL							1
MISSISSIPPI	Stoneville 3/24-30 Stoneville 3/31-4/6	35-81 40-81	1.54 0.25	2BL	19	22	1	1	1	1	1
				2BL							1
MISSOURI	Pemiscot 3/31-4/7			BL							1
TENNESSEE	Hardeman 4/3-6 Haywood 4/3-6 Lake 4/3-6 Madison 4/3-6			BL							1
				BL							1
				BL							1
				BL							1
TEXAS	Waco 3/24-30 Waco 3/31-4/6			BL	10	32	2				4
				BL							32

## Banks Grass Mite Situation in U.S. - 1971

Banks grass mite (Oligonychus pratensis) has been a serious pest in the Trans-Pecos area of Texas since 1967. Although present in the area prior to that time, this mite could be controlled with most miticides cleared for use on grain sorghum. During 1968, control became more difficult in Hudspeth and Pecos Counties. Most materials were ineffective by 1969, and mite damage was heavy on grain sorghum in all parts of the Trans-Pecos area except in the El Paso Valley. During 1970, this mite damaged grain sorghum and ensilage corn throughout the Trans-Pecos area.

Banks grass mite was first observed in scattered fields of grain sorghum in several High Plains Counties, especially Hale, Castro, Parmer, and Deaf Smith, in August 1967. Infestations reoccurred in 1968 and 1969, but were confined mostly to older plants in the dough or later stages. Infestations were again spotty in 1970, but more severe than previously. Infestations were heavy in some localized areas, with extensive leaf damage which may have contributed to reduced grain yields.

The situation was again severe, especially on corn, in the El Paso Valley during 1971. Corn was damaged in the pretassel stage, whereas in past years heavy populations did not normally develop until posttassel and after the boot stage on grain sorghum. Most grain sorghum in the El Paso Valley was planted late, thus Banks grass mite moved from corn into grain sorghum. Although present, this mite was not serious in Hudspeth, Pecos, or Reeves Counties in 1971 as rain and cool, cloudy weather apparently slowed population development.

Banks grass mite began to increase on corn and grain sorghum during early August 1971 in several High Plains counties. Heaviest infestations were reported from Parmer, Castro, Lamb, and Bailey Counties. Cold, wet weather during midsummer reduced infestation. This possibly prevented a heavy mite buildup in this area.

The most important, single factor contributing to the development of Banks grass mite as a serious pest of corn and grain sorghum in the Trans-Pecos area of Texas is the extensive use of insecticides to control insects on grain sorghum and cotton. Chemical control for this mite was initiated in the early 1960's and has continued through the 1971 season. In the Pecos Valley, chemical controls against cotton pests also contributed, to a degree, to the development of resistance by Banks grass mite to various insecticides. Heavy infestations have occurred in some localized areas of the High Plains of Texas since 1970. During 1970 and 1971, observation indicated infestations were most severe in those localized areas where spray programs to control greenbug on grain sorghum were extensive. There was much evidence during the 1970 and 1971 seasons that indicated localized mite populations were resistant to several of the insecticides that had afforded satisfactory control in the past.

Parasites and predators exerted some control of Banks grass mite infestation in the Trans-Pecos area of Texas while cool, wet weather prevailed during 1971. During previous crop seasons and during the 1971 season, predators and parasites did not exert

sufficient control to prevent a rapid Banks grass mite population buildup when dry, hot weather prevailed. Unidentified predaceous thrips were observed in several sections of the High Plains area and appeared to have some definite effect on mite development. Several other predators, including a lady beetle, Stethorus sp., brown lacewing larvae, and others, were also observed.

Banks grass mite has not been observed moving into fall-planted small grains from sorghum or corn in the Trans-Pecos area, but has been observed on volunteer barley where sorghum was planted as a second crop following barley. By the time fall-planted small grains emerge in the Trans-Pecos area, daily temperatures have dropped, slowing mite activity. Heavy mite populations showed no evidence of moving into bordering small grain fields. In the High Plains, no movement of mites into fall-planted, small grain from sorghum or corn was observed.

Controls for Banks grass mite were applied one or more times to approximately 10,000 of the 30,000 acres of grain sorghum in the Trans-Pecos area during 1971. In the High Plains, about 50,000 of the 3,000,000 total acres of grain sorghum were sprayed to control this pest. In the El Paso Valley, nearly 100 percent of the 1,000 acres of corn was treated, while an estimated 60,000 acres of the 325,000 acres of corn in the High Plains was treated for this mite.

Control costs for Banks grass mite on grain sorghum in 1971 averaged 8-10 dollars per acre in the Trans-Pecos area. The estimated cost for control of infestations on corn in the El Paso Valley was about 25 dollars per acre. Control costs per acre in the High Plains were variable, ranging from \$1.90 to \$5.00 per acre, depending on the chemical used.

The loss from Banks grass mite to the 1971 grain sorghum crop in the Trans-Pecos area of Texas is estimated at a 35 percent reduction in yield. Much of the late-planted grain sorghum in the El Paso and Pecos Valleys escaped severe damages. Late grain sorghum was planted in June following the harvest of small grains. Corn yields in the area were reduced about 50 percent. Very little corn in the El Paso area graded number 2 or higher during 1971. Heavy mite infestations resulted in a 30 percent loss in harvest weight in the cleaning process due to small kernels of low test weight. Banks grass mite caused little, if any, economic loss in the High Plains area, where midsummer infestations were reduced by cold, wet weather which possibly prevented a heavy mite population buildup. Many growers in this area feel that much of the lodging during 1971 was an indirect result of mite infestations earlier in the year. Most entomologists, however, feel that much of the lodging of grain sorghum is being caused by charcoal rot.

Due to the difficulty in controlling Banks grass mite in the Pecos and El Paso Valleys of Texas (Pecos, Reeves, and El Paso Counties), corn production appears to be noneconomical and non-practical in the area until the mite can be controlled by cultural methods or by chemical measures. Grain sorghum production in these valleys is in jeopardy until the control of Banks grass mite is developed.

To determine the extent of the Banks grass mite problem on sorghum and corn, inquiries were submitted to entomologists in 22 other States. Responses were received from 17 of these States.

Banks grass mite was first noticed as a problem in the Oklahoma Panhandle during 1969, possibly due to the increase in corn and sorghum acreages in the area over the past few years. This mite was a problem on corn and sorghum in the panhandle area during 1971. During the week ending July 17 this pest was found in scattered cornfields in Beaver and Texas Counties and in a few fields of sorghum in northeastern Cimarron County and northwestern Texas County. Populations ranged light to moderate on both hosts. Populations were heavy on corn and still increasing by August 14, and continued to build up on corn until August 21. Mite populations were decreasing by August 28, due to excess moisture on corn and sorghum, were still moderate to heavy on sorghum on September 4. Infestations were decreasing rapidly on corn by September 11 due to plant maturity, but were still heavy in scattered fields on September 18. About 20,000 acres of corn and 15,000 acres of sorghum were affected by Banks grass mite in Oklahoma during 1971. A predaceous thrips was observed in infested corn and sorghum, but numbers were light and scattered. There was no evidence of movement by Banks grass mite from corn or sorghum to small grains in the area.

Controls were applied to about 3,000 acres of sorghum and about 6,000 acres of corn in the Oklahoma Panhandle during 1971 at a cost of \$2.75 per acre. Damage was estimated at \$75,000 to unsprayed corn and \$48,000 to unsprayed sorghum. Adding control costs of \$16,500 for corn and \$8,250 for sorghum, total losses were \$91,500 to corn and \$56,250 to sorghum in extreme western Oklahoma during 1971.

Banks grass mite was first reported damaging corn in southwest Kansas in 1965. Chemical treatments were made at the time. Increased corn acreage as a result of an increase in irrigation, and/or hot, dry weather have contributed to the development of this problem in Kansas, as well as a possible upset of the natural predator-prey relationship through the use of insecticides. Many predaceous arthropods occur in some fields.

Banks grass mite was noticed on corn and sorghum about the second week of July in 1971. The problem was more intensified on corn than sorghum. Mite populations appeared to develop on the lower leaves of plants with the advent of hot, dry weather, then gradually moved upward on the plants. Mites were apparently present on all corn and much of the sorghum in western Kansas during 1971. Corn was lodged in heavily infested fields. It is unknown what affect parasites and predators had in controlling mite infestations in Kansas. Mites were observed being infected by a fungus in south-central Kansas, and predaceous thrips, mites and dipterous larvae were observed feeding on mites infesting corn at various times during the 1971 growing season. Banks grass mite was observed moving from corn or sorghum into fall-planted wheat, and has been observed in past years in Kansas. A reliable estimate of the sorghum acreage treated for mite control in Kansas cannot be made. However, 180,000 acres of corn were treated at an estimated cost of about \$3.00 per acre. Some growers spent from \$12.00 to \$15.00 per acre in attempts to control mites on this crop.



An estimated dollar loss to sorghum and corn cannot be made for Kansas, as there is no information available on the economic impact of this pest on yield or plant quality. There are at least three species of mites involved in the problem in Kansas, and the distribution and degree of infestation by each species in the State are unknown. The effectiveness of chemical controls has been erratic and often discouraging. The mite problem now appears to be a definite threat to the production of about 577,980 acres of corn and about 1,904,100 acres of sorghum in western Kansas.

Banks grass mite first caused economic losses in Nebraska in 1964, although it was known in the State earlier. This mite was a problem on corn in a few spots in the North Platte Valley during 1971. The problem developed as a result of hot, dry weather during June and became a problem on corn about August 1. Buildup was rapid in areas where control was needed. Mites were present in other areas but populations did not increase for some reason. Climate conditions were similar in areas of buildup and nonbuildup. In fact, in adjacent fields, a buildup would occur in one field but not the other, although corn varieties were the same in both fields. Populations appeared to increase in those fields with more grassy weeds. About 1,500 acres were affected in the North Platte Valley.

Parasites and predators appeared to have very little effect in controlling mite infestations on corn in this area. Very little movement of Banks grass mite from corn to fall-planted small grain was observed in the North Platte Valley of Nebraska in 1971. About 900 acres of corn were treated for mites only, although some combined controls for corn rootworms and mites were applied to about 500 acres. The average cost of controls on corn alone averaged about \$4.25 per acre. Banks grass mite caused no yield loss to corn in Nebraska during 1971 as controls were applied early enough to prevent loss. The only loss was the need to apply controls which added to the production costs of corn in the affected area of the State.

Banks grass mite infested corn in the Arkansas Valley of Colorado as early as the 1930's, but was not reported to have damaged that crop until about 1955. Hot, arid weather in the valley, along with intensive corn production, have probably been the principal factors contributing to the problem in southeastern Colorado.

Banks grass mite was severe on corn in the Arkansas Valley during 1971. Sorghum was infested to some extent but damage was negligible.

The problem on corn was first noted the first week of July, although populations began building up on lower leaves during June. By late July, "burning" was severe through the middle third of the leaves in untreated fields. By mid-August, "firing" top leaves had occurred. Controls were inadequate in several instances. Infestations of this mite infested all planted corn acreage, approximately 125,000 acres, to some extent in southeastern Colorado. No problem developed on the approximately 350,000 acres of sorghum in the area, although mites could be found in all fields. The problem occurred on corn primarily in

Pueblo, Crowley, Otero, Bent, Prowers, and Baca Counties. Sorghum was infested in these counties as well as in Kiowa County.

It is not known if parasites were present in southeastern Colorado, but several predators were observed where Banks grass mite occurred. However, populations of these predators did not develop until the mite was well established and damage was extensive. No movement of Banks grass mite to fall-planted small grains had been observed by the end of October.

Less than one percent of the 350,000 acres of sorghum in southeastern Colorado was treated specifically for mite infestation, although many of the treatments for greenbug would affect mite infestations. Controls were applied to 50-80 percent of the corn in several counties, probably to about 60,000 to 70,000 acres. Losses, not including control costs, were negligible on sorghum but totalled \$800,000 on corn only in the southeastern area of Colorado.

Banks grass mite was a pest of various Gramineae in Nevada prior to 1957. It has developed into a problem in the State primarily due to monoculture of suitable hosts. During 1971, the population began to increase on corn in Churchill County by mid-July. Populations on this host had been fairly constant until that time. Major, rapid increases began in late July and early August, affecting 2,400 to 2,500 acres of corn in the county. Most controls were applied in August. The effect of parasites and predators on mite populations was very minor. Banks grass mite was not a problem on fall-planted small grains in Nevada during 1971.

Controls were applied to 1,800-2,000 acres of corn at a cost of \$6.00 to \$7.00 per acre. No treatments were made on the sorghum acreage grown in 1971. Yield losses to corn were negligible as most growers in Churchill County, where 99 percent of the corn currently is grown in Nevada, treat before damage occurs. The only loss was the cost of treatment. No appreciable corn acreage has been grown in Pershing County since 1968, but when it is grown Banks grass mite is a yearly pest. This mite is also a perennial pest of timothy hay and grasses in Nevada.

Banks grass mite was first noticed as a pest in California during June 1961 where it infested wheatgrass in the Susanville area of Lassen County. Conditions in this area of the State are similar to those that exist in the Great Basin. This mite was not a problem on corn or sorghum in the State as no infestations were observed. Damage has been reported only on scattered wheatgrass plantings prior to 1971, and controls have not been applied for this pest since 1964. Parasites and predators have had very little effect on infestations of this mite. Banks grass mite infestations have occurred only on small grain but not on sorghum. No infestations were known to occur in fall 1971.

Banks grass mite has been a problem in commercial grass seed fields since before 1952. The first publication of its being a pest in the State was in 1955. Very little sorghum is grown in Washington and no mite problems have developed on the crop. Banks grass mite has never been observed as a problem on fall-planted small grains in Washington, although it has been observed

occasionally on wheat in the spring but never in damaging numbers.

Banks grass mite was first noticed in Idaho on dryland cereal crops in the Power County area about 1953. It was considered to be mostly incidental and not a primary problem. In Idaho, this mite develops largely on small grain and grass plantings as they mature or when drought conditions prevail. The mite was not a problem on corn in the State during 1971. Sorghums are not grown in Idaho. Banks grass mite causes damage throughout the State but it is mostly incidental. No infestations have been noted on corn in Idaho.

Banks grass mite is of no economic importance in Montana, South Dakota, or Missouri. Although surveys were conducted for this mite during 1970 and 1971 in Arkansas, no infestations have been detected in that State. Banks grass mite has not developed to pest status on any crop in Louisiana. Although it has been collected from sugarcane, populations have not been sufficiently heavy on this or any other crop to have attracted attention. There has been no evidence of the appearance of Banks grass mite in Mississippi or Alabama. In Florida, there are only 10 reports of Banks grass mite infestations from 1955 through 1967. These were from the lower east coast to the central part of the State on various grasses. This mite apparently does not cause the widespread damage in Florida that is reported from some of the other southern States. The only record of Banks grass mite reported from Georgia was on Johnson grass collected in Clarke County. As far as known, this mite has never been a serious pest in Georgia.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(15):218-223, 1972

# GOLDEN NEMATODE<sup>⊛</sup>



- INFESTED 1949
- INFESTED 1967
- ▲ INFESTED 1969
- ◐ ERADICATED 1970
- ⊛ SPREAD SINCE 1949

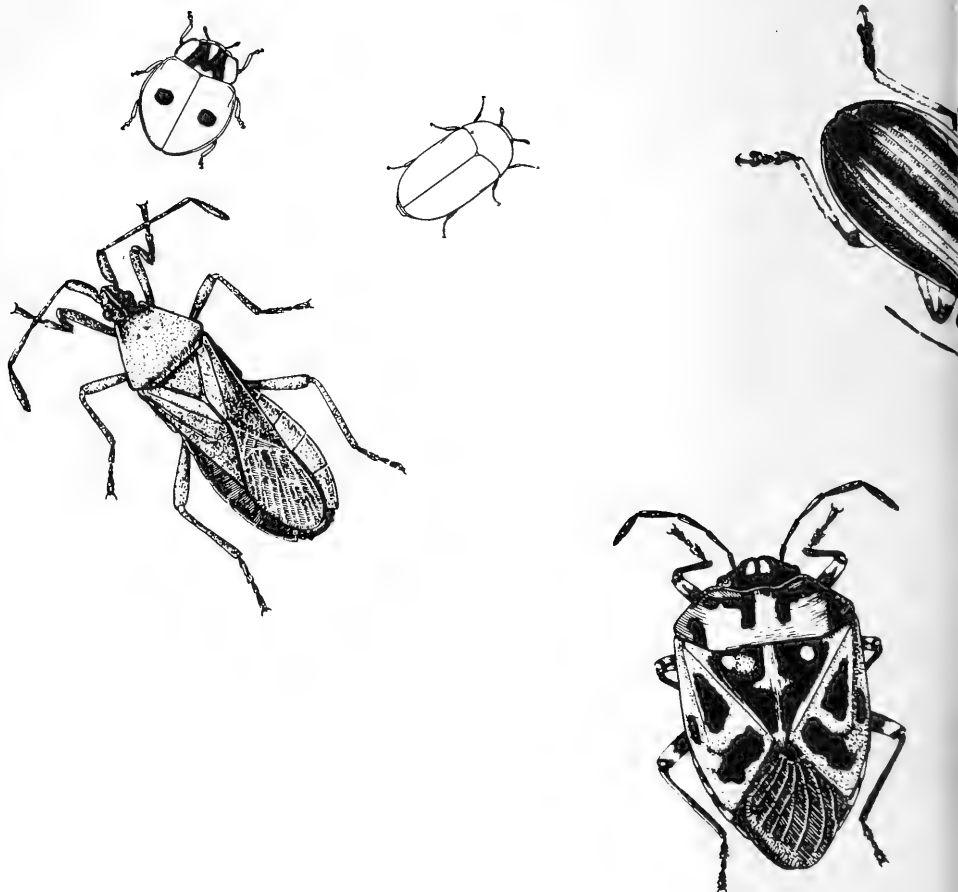
U. S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(15):224, 1972



U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

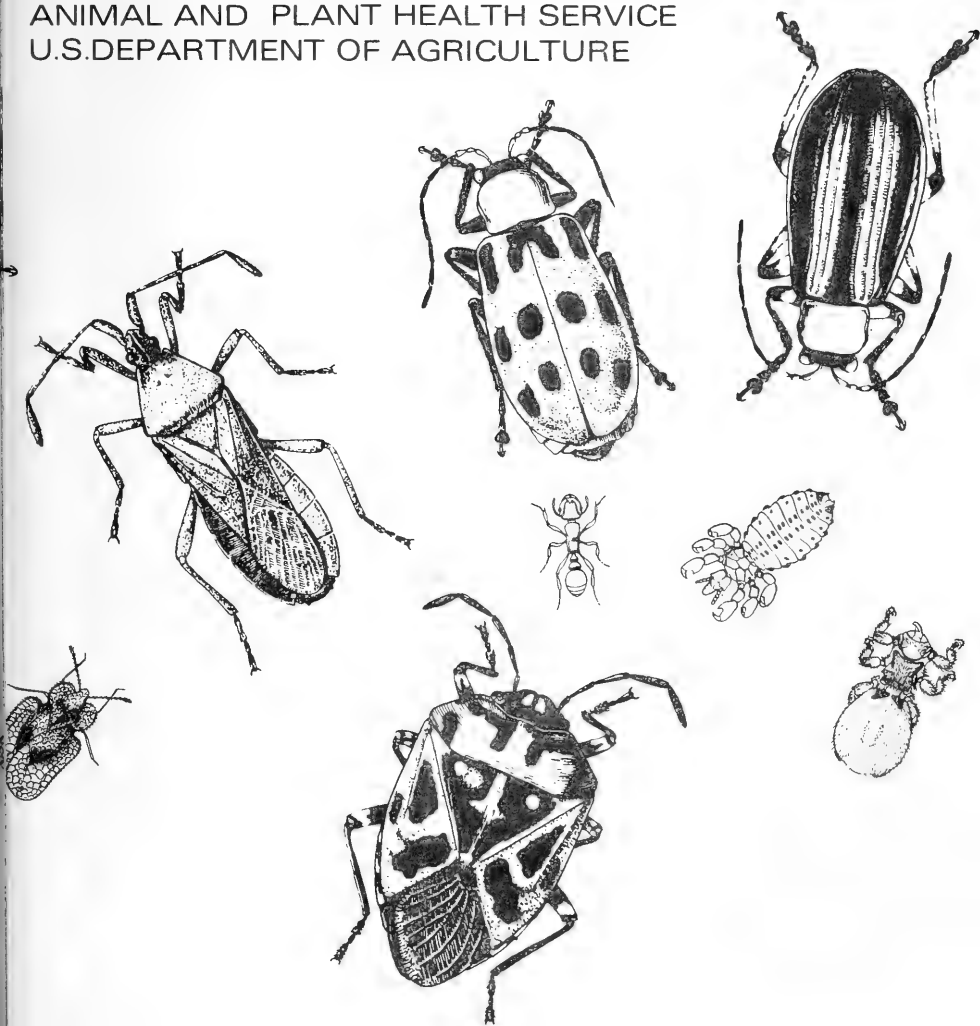
OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



# Cooperative Economic Insect Report

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



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

**The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:**

**Economic Insect Survey and Detection  
Plant Protection and Quarantine Programs  
Animal and Plant Health Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**



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

ARMY CUTWORM larvae damaged some alfalfa in Nebraska. (p. 227).

ALFALFA WEEVIL still heavy in Oklahoma. Damaged alfalfa in south-west Missouri. Increased in southern Illinois and central Maryland. Continues above economic levels in portions of Virginia and Kentucky. Above control levels in west Tennessee and limited area of Arkansas. (pp. 228-229).

SCREWWORM cases continue to increase in the U.S. (p. 230).

Detection

● AN APHID collected for the first time in Tennessee. This is a new North American record. Rare species. Record from Europe and England. (p. 231).

A WEEVIL reported for first time from Mississippi for a new State record. (p. 230).

For<sup>2</sup> new county records see page 232.

Special Reports

Insects Not Known to Occur in the United States

A BARK BEETLE (Tomicus piniperda) (pp. 234-236).

---

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

## CONTENTS

Special Insects of Regional Significance.....	227
Insects Affecting	
Corn, Sorghum, Sugarcane...	227
Small Grains.....	227
Forage Legumes.....	228
Cotton.....	229
Sugar Beets.....	229
Miscellaneous Field Crops..	229
Deciduous Fruits and Nuts..	229
Ornamentals.....	230
Forest and Shade Trees.....	230
Man and Animals.....	230
Households and Structures..	231
Miscellaneous Wild Plants..	231
Beneficial Insects..... 231	
Federal and State Plant Protection Programs..... 231	
Hawaii Insect Report..... 232	
Detection..... 232	
Light Trap Collections..... 233	
Insects Not Known to Occur in the United States	
A BARK BEETLE ( <u>Tomicus piniperda</u> ) .....	234

---

### WEATHER OF THE WEEK ENDING APRIL 17

Reprinted for weekly Weather and Crop Bulletin supplied by environmental Data Service, NOAA.

**PRECIPITATION:** Showers fell Monday from Missouri to Pennsylvania. Light rains fell along the northern Pacific coast and snow flurries occurred in the northern Rocky Mountains. Most of the precipitation early in the week was light. Showery weather occurred Tuesday along a Quasi-stationary front, that stretched from Utah to Maryland. Showers were scattered from Utah to Kansas, but were more general from Missouri to the lower Ohio River Valley. Snow whitened the northern Great Plains. A Pacific storm soaked the coast from Vancouver, Washington, to Brookings, Oregon, with lighter showers southward to San Diego, California. Snow flurries occurred in the higher elevations in Washington. Another low along the eastern slopes of the Rocky Mountains produced a mixture of wet snow and rain in Montana and Wyoming. A band of thunderstorms stretched along the stationary front from the middle Mississippi River Valley to the middle Appalachians. A low developed in Utah Wednesday and crossed the central Rocky Mountain and intensified Thursday. High winds associated with a storm kicked up clouds of dust and sand over parts of the southwest. Gusts peaked at 60 m.p.h. or higher in spots in the interior of southern California and in Arizona, New Mexico, and north western Texas. Low visibility and strong winds slowed highway travel. Meanwhile, blizzards raged in Montana, Wyoming, Colorado, and the northern portions of Nevada and Utah. Six inches of snow fell Thursday forenoon at Owyhee, Nevada. Late Thursday, a storm was centered over western Kansas, a Quasi-stationary front extended from the storm center to another low off the coast of New England. Warm, moist, tropical air covered an area south of the front and arctic air lay north of the front. A long band of thunderstorms marked the frontal zone. Some of the thunderstorms produced hail and high winds. Some of "dry" thunderstorms filled air with dust and sand. Snow and cold rain fell north of the front. A storm centered over western Kansas moved toward the Great Lakes, followed by another, that developed in Texas and moved northeastward over the weekend. Weather of the week continued on page 233.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMY CUTWORM** (*Euxoa auxiliaris*) - WYOMING - Larvae averaged less than 1 per 10 linear feet in 4 wheatfields in Goshen and Platte Counties. Up to 3 per square foot on weeds adjacent to Goshen County fields. Larvae 2 per 10 square feet in Platte County alfalfa field. (Parshall). COLORADO - Larvae light, averaged 1 per linear foot of wheat in Douglas and Elbert Counties. (Marquardt). NEBRASKA - Infested wheat and alfalfa in central and southwest districts. Count of 1.5 per square foot in first year alfalfa in Hitchcock County; about 15 percent of stand destroyed. Up to 4.5 per foot in 2 Lincoln County fields and up to 1.5 per square foot in 6 Dawson County fields. (Manglitz et al.).

**ARMYWORM** (*Pseudaletia unipuncta*) - OHIO - Moths appeared at Wooster, Wayne County and at Reynoldsburg, Franklin County. (Rings). KANSAS - Moths taken at blacklight trap at Manhattan, Riley County. (Bell).

**BEEF LEAFHOPPER** (*Circulifer tenellus*) - WYOMING - Total of 1,280 samples of weed hosts taken during week of April 3-7 in Washakie and Big Horn Counties. Leafhoppers averaged 0.09 per square foot as compared to 0.13 in 1971 and 0.12 in 1970. (Patch et al.).

**GREENBUG** (*Schizaphis graminum*) - OKLAHOMA - Averaged 5 per linear foot in Major County wheatfield. Absent or very light in other fields in Major, Alfalfa, Woods, Woodward, Harper, and Ellis Counties. (Okla. Coop. Sur.). KANSAS - None or very light populations in wheat in southeast, south-central, and southwest districts. (Bell).

**SPOTTED ALFALFA APHID** (*Therioaphis maculata*) - NEW MEXICO - Light in alfalfa in Bernalillo, Eddy, and Chaves Counties, heavy in some isolated fields. (Mathews, Heninger). OKLAHOMA - Ranged 5-250 per 10 sweeps of alfalfa in northwest area. Light parasitism in Alfalfa County field. (Okla. Coop. Sur.).

**TOBACCO BUDWORM** (*Heliothis virescens*) - ALABAMA - First adults of season at lights in Lee County. (McQueen).

## CORN, SORGHUM, SUGARCANE

**CHINCH BUG** (*Blissus leucopterus leucopterus*) - TEXAS - Infestations heavy near Giddings in Lee County on grain sorghum. Infested all grain sorghum checked in Groesbeck area of Limestone County. Heavy on grain sorghum in McLennan County. (Spivey et al.).

**SOUTHWESTERN CORN BORER** (*Diatraea grandiosella*) - ALABAMA - Limited surveys indicate larval survival very high in corn stubble in northern areas. (Murphy et al.).

**MAIZE BILLBUG** (*Sphenophorus maidis*) - ALABAMA - Adults light to moderate in 6 to 8-inch-high corn at Pansey in Houston County. (Roney).

## SMALL GRAINS

**BROWN WHEAT MITE** (*Petrobia latens*) - CALIFORNIA - Counts of 20 per stem of barley at Paso Robles, San Luis Obispo County. (Cal. Coop. Rpt.). NEVADA - Heavy on grain at Lovelock, Pershing County.

About 500 acres (not irrigated) involved, mites moving from grain to alfalfa. In similar irrigated fields, mites no problem. (Stitt). OKLAHOMA - Counts in most fields ranged 5-50 per linear foot and up to 200 in some northwest area wheatfields. (Okla. Coop. Sur.). TEXAS - Heavy on small grains in some panhandle counties. (Green).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - IDAHO - First eggs of season at Melba, Canyon County. (Homan). UTAH - Adults noted in Cache and in Davis Counties. (Knowlton, Thornley). Damage light in Grand and San Juan Counties. (Jones). COLORADO - Larvae up to 6 per 10 sweeps in Prowers County, up to 10 in Otero County alfalfa. (Schweissing). NEW MEXICO - Light in alfalfa at Albuquerque, Bernalillo County. (Heninger). TEXAS - Infested alfalfa in Wilbarger and Motley Counties past 14 days. Larvae ranged 1-3 per bud in Motley County. Apparently declining in these counties. (Pallmeyer, Boring). OKLAHOMA - Declined in southern area alfalfa. Infestations still heavy in other counties and in east-central, central, southwest, west-central, and north-central areas. Light to moderate (larvae ranged 10-100 per 10 sweeps) in northwest area with only occasional adults noted. (Okla. Coop. Sur.).

KANSAS - H. postica generally light in alfalfa in south-central, southwest, and northeast districts. (Bell). MISSOURI - Heavy throughout southern half of State. Some alfalfa fields defoliated in southwest area. Controls applied throughout southern areas. (Munson). ILLINOIS - Populations increased almost ten times in southern one-fourth of State. Counts of 1,300 larvae per 100 sweeps in Jackson and Perry County area. Damage economic south of Washington and White Counties. (Ill. Ins. Sur.). INDIANA - Larval feeding light on 2 to 6-inch-tall alfalfa in southern district. Larvae in all fields examined, as far north as Vigo and Morgan Counties, with first instars dominant. As oviposition continues, first instar larval numbers expected to increase. (Meyer). MARYLAND - Increased in central areas. First and second instar larvae damage ranged 2-10 percent in most fields in Harford, Baltimore, Montgomery, and Prince Georges Counties. One field showed 90 percent of tips injured. (U. Md., Ent. Dept.).

VIRGINIA - Sampled 20 fields (196 acres), 56 percent of tips infested and defoliation averaged 17.7 percent. Increased from previous week, indicates problem increasing in Coastal Plain and southern Piedmont. Larval populations in northern Piedmont should not be economic for few weeks. Damage in mountain regions remains light. Twelve of 20 fields sampled; 60 percent exceeded economic threshold. (Allen). KENTUCKY - Percent tips of alfalfa infested by larvae ranged by county: 40-100 in Warren and 68-85 in Barren as of April 7. Currently in Warren County 90-100 percent of tips infested in fields surveyed. (Scheibner, Barnett). Infested 25+ percent of tips in Hardin and Caldwell Counties; controls applied. (Raney, Barnett). H. postica larvae averaged 46.2 and eggs 180 per square foot in some Fayette County fields. (Parr, Barnett).

TENNESSEE - Adults 4-5 per stalk in alfalfa surveyed in south-central areas. (Cagle). Populations at control levels in older western area fields. (Locke). ALABAMA - Larval feeding on 50-80 percent of leaves on untreated alfalfa in small field in Marshall County. (Murphy et al.). ARKANSAS - Increased in Fayetteville,

Washington County. Previous surveys in this field show counts of 300-1,200 per 100 sweeps past 21 days. Currently 150 larvae in single sweep in this field. (Boyer).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Populations reduced to 10 per sweep of alfalfa by predators. (Hoff, et al.). NEW MEXICO - Light in alfalfa in Eddy and Chaves Counties. (Mathews). Ranged 10-30 per 25 sweeps in Bernalillo County. (Heninger). KANSAS - Generally light in alfalfa in southeast, south-central, southwest, and northeast districts, except one field in Sumner County where infestation 1,000+ per 10 sweeps and plant yellowing noted. (Bell). OKLAHOMA - Averaged 800 per 10 sweeps on alfalfa in Garfield County. Ranged 5-200 per 10 sweeps in northwest area, parasitism light in most fields. Moderate still in most areas with only few scattered reports of heavy numbers. (Okla. Coop. Sur.).

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - WASHINGTON - Moths ranged 1-17 in 19 of 50 pheromone traps in Walla Walla County. (Halfhill).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Moths ranged 1-50 in 36 of 50 pheromone traps in Walla Walla County. (Halfhill, Apr. 5).

ALFALFA CATERPILLAR (Colias eurytheme) - COLORADO - Larvae ranged 1-10 per 10 sweeps of alfalfa in Prowers County. (Schweissing).

ALFALFA WEBWORM (Loxostege commixtalis) - IDAHO - Damage light on 300 acres of alfalfa in Canyon County. (Homan).

## COTTON

BEE T ARMYWORM (Spodoptera exigua) CALIFORNIA - Counts of this species and Frankliniella occidentalis (western flower thrips) damaging in Imperial County. (Cal. Coop. Rpt.).

## SUGAR BEETS

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Populations unusually heavy with some root damage in some Imperial County fields. (Cal. Coop. Rpt.).

## MISCELLANEOUS FIELD CROPS

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Populations heavy in safflower fields in Maricopa and Yuma Counties; no damage. (Ariz. Coop. Sur.).

## DECIDUOUS FRUITS AND NUTS

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Eggs noted on apple trees at green tip stage in Clermont County. Eggs ranged 30-40 per bud on Cumberland variety and 100-125 per half inch of stem; 10-15 per bud on Colorado red delicious and 60-80 per half inch of stem; 8-15 per bud of Colorado red yolk and 40-60 per half inch of roughened stem. Eggs 50 per bud and 150 per half inch of peach stem in Clermont County. Cold weather destroyed most peach buds in southern areas. (Fox).

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - Egg laying underway in Berrien, Van Buren, and southern Allegan Counties. Optimum control may be too late for adults in this area. (Sauer).

## ORNAMENTALS

A WEEVIL (Scyphophorus acupunctatus) - MISSISSIPPI - Specimens collected from century plants in Mississippi City, Harrison County, by M. M. Price on March 23, 1972. Determined by V. H. Owens, confirmed by R. E. Warner. This is a new State record. This species native of southwestern U.S. and northern Mexico. Reported from California, New Mexico, Texas, Oklahoma, Arkansas, and Hawaii. (Robinson).

## FOREST AND SHADE TREES

ELM LEAF BEETLE (Pyrrhalta luteola) - OKLAHOMA - Adults on Siberian elm in Payne County and egg laying underway. First report of season. Adults in Major and Cleveland Counties. (Okla. Coop. Sur.). KANSAS - Adults, no eggs, on leaves of Siberian elm at Manhattan, Riley County. First of season. (Bell).

A TENT CATERPILLAR (Malacosoma incurvum discoloratum) - NEVADA - Control needed on cottonwoods at Mesquite, Clark County (Williams) light in Moapa Valley, Clark County. (Zoller).

MOURNINGCLOAK BUTTERFLY (Nymphalis antiopa) - NEVADA - Heavy and scattered on elm trees at Las Vegas, Clark County. (Zoller).

## MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 160 cases reported in U.S. April 9-15 as follows: TEXAS: Atascosa 5, Bandera 2, Bexar 1, Brewster 1, Brooks 2, Cameron 1, Dimmit 4, Duval 4, Bee 12, Caldwell 1, Colorado 1, Comal 2, De Witt 5, Frio 1, Hidalgo 7, Jim Hogg 12, Kenedy 2, Kinney 2, La Salle 1, Live Oak 5, Maverick 6, Fayette 1, Goliad 9, Gonzales 4, Guadalupe 1, Jim Wells 4, McMullen 3, Medina 7, Starr 6, Terrell 3, Uvalde 1, Webb 10, Zapata 7, Zavala 1, Karnes 10, Kleberg 1, Lee 1, Mills 1, San Patricio 3, Wilson 2. ARIZONA: Cochise 7, Pinal 1. Total of 304 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 149, Chihuahua 29, Coahuila 25, Nuevo Leon 45, Tamaulipas 56. Total of 65 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 screwworm flies released: Texas 92,702,000; Arizona 6,680,000; Mexico 16,570,000. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 500-800 per head on cattle in Major County and 150-300 per head in Payne and Noble Counties. Heavy in Marshall and Cotton Counties and moderate in Garvin and Garfield Counties. (Okla. Coop. Sur.).

SHEEP BOT FLY (Oestrus ovis) - INDIANA - First larva recovered on April 13 in Warren County. (Chandler).

MOSQUITOES - MINNESOTA - General hatch of Aedes abserratus, A. excrucians, A. fitchii and A. stimulans in Ramsey and Hennepin Counties. (Minn. Pest Rpt.).

HOUSE FLY (Musca domestica) - OKLAHOMA - Increasing in untreated barns in Payne County. Averaged 9 per Scudder grid. (Okla. Coop. Sur.).

### HOUSEHOLDS AND STRUCTURES

BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Collected in home at Alden, Hardin County, April 7. This is a new county record. (Iowa Ins. Sur.).

### MISCELLANEOUS WILD PLANTS

AN APHID (Decorosiphon corynothrix) - TENNESSEE - Specimens collected near Roan Mountain, Carter County, June 4, 1971 by W. Tolbert. Host Polytrichum sp. (probably commune or juniperinum). Determined by L. M. Russell. This is a new North American record. Recorded in Europe and England. Nothing known of biology. (PP).

### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARKANSAS - Continues dominant in northwest areas. Reproduction underway, larvae found in most green vegetation. (Boyer). OKLAHOMA - All stages common in alfalfa in northwest area. Ranged 2-40 per 10 sweeps. Present in most wheatfields checked. (Okla. Coop. Sur.). KANSAS - Adults in alfalfa. Populations (average per 10 sweeps) as follows in counties indicated (fields per county in parentheses): Butler 2-14 (2); Cowley 9-9 (2); Sumner 2-15 (5); Sedgwick 1-7 (5); Harper 1-2 (2); Kingman 6-13 (3); Harvey 13 (1); Riley 1-3 (3); Ford 7 (1); Meade 5 (1); and Gray 9 (1). (Bell). COLORADO - Adults of this species and H. parenthesis in alfalfa of Prowers County. (Schweissing).

DAMSEL BUGS (Nabis spp.) - KANSAS - Ranged 2-6 per 10 sweeps in 3 Riley County alfalfa fields. (Bell). OKLAHOMA - Mostly adults, ranged 1-2 per 10 sweeps in most alfalfa in northwest area. (Okla. Coop. Sur.).

HONEY BEE (Apis mellifera) - UTAH - Noted at apricot blossoms in Cache County, April 6 and at cherry blossoms in Box Elder County, April 1. (Knowlton). OHIO - Lost 5 out of 55 colonies during winter in Cuyahoga County. Adults noted in few abandoned buildings in Portage County. (Custer).

A BRACONID (Microctonus colesi) - OHIO - Specimens recovered in Meigs County. This is a new county record. (Flessel).

A FLOWER BUG (Orius insidiosus) - OKLAHOMA - Adults up to 1 per 10 sweeps in most northwest area alfalfa fields. (Okla. Coop. Sur.).

### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

A GRASS BUG (Labops sp.) - UTAH - Moderate on 640 acres of crested wheatgrass in Millard County. (Judd).

MORMON CRICKET (Anabrus simplex) - UTAH - Outbreak of first and second instar nymphs on 160 acres of rangeland in Juab County. (Judd).

## HAWAII INSECT REPORT

General Vegetables - CARMINE SPIDER MITE (Tetranychus cinnabarinus) eggs, nymphs, and adults 200+ per square inch on older leaves in 0.5 acre of eggplant at Kahaluu, Oahu. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) generally trace in commercial papaya plantings in windward Oahu. About 50 percent of trees in one acre plantings at Kahaluu and Kaaawa, Oahu with small, spotty colonies on 5 percent of leaves. Collected 400+ larvae of a NOCTUID MOTH (Melipotis indomita) under loose bark and debris at base of 3 kiawe trees at Sand Island and one at Hickam, Oahu first week of April. Light trap collections indicates adult population heavy during last week of March (182 from one trap) but declined during first two weeks of April. (Kahale).

Beneficial Insects - A BLACKBERRY SKELETONIZER (Schreckensteinia festaliella) larvae and eggs on terminal leaves of blackberry. Larvae of Apotoforma sp. (a tortricid moth) infested 75 percent of the terminal leaves also. Percent of internodes of puncture vine infested by a PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) on Maui as follows: Waikapu 66, Puunene 89, Kihei 42, and Lahaina none. (Miyahira). Infestation of fruits and terminals of Indian rhododendron (Melastoma malabathricum) during March by MELASTOMA BORER (Selca brunella) averaged 21 percent. On Kauai, 4 and 39 percent of fruits infested at Knudsen Gap and Hanahanapuni, respectively. (Sugawa).

---

### DETECTION

New North American Record - AN APHID (Decorosiphon corynothrix) - TENNESSEE - Carter County. (p. 231).

New State Record - A WEEVIL (Scyphophorus acupunctatus) - MISSISSIPPI - Harrison County. (p. 230).

New County Records - A BRACONID (Microctonus colesi) - OHIO Meigs (p. 231). BROWN SPIDER BEETLE (Ptinus clavipes) - IOWA - Hardin (p. 231).





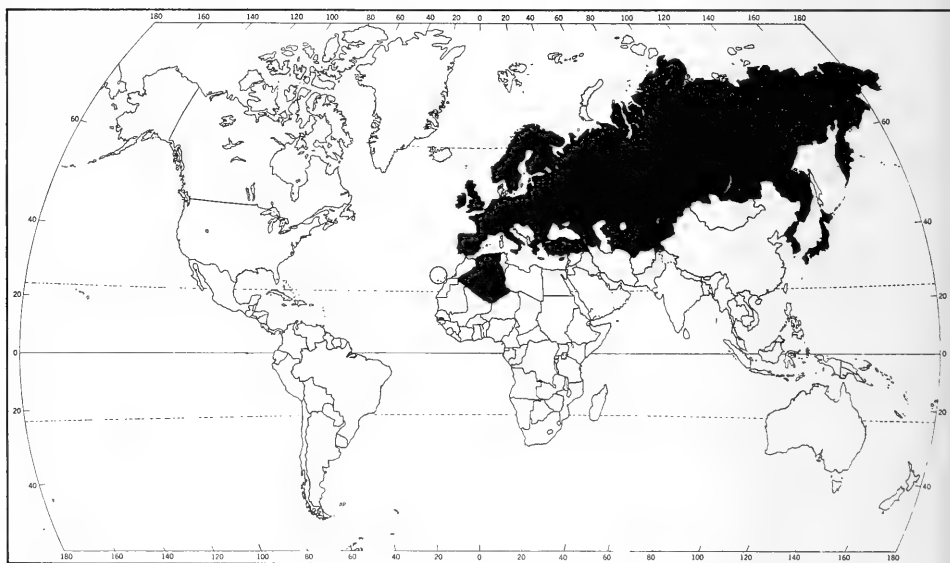
# INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

## A BARK BEETLE (Tomicus piniperda (Linnaeus))

**Economic Importance:** An important pest of pine, this scolytid beetle can quickly build up to outbreak numbers lasting many years. One of the most serious outbreaks in central Europe built up to a peak in 4 years. An outbreak in Great Britain devastated pines for 25 years. High populations are made possible by abundant breeding material. Buildups are aggravated by high temperatures and droughts which accelerate beetle development and which lower tree resistance.

Damage is caused by the feeding on phloem under thick bark at the base of the tree and by the feeding on pith in young shoots at the top of the tree. Bark feeding separates the bark from the tree, eventually killing the tree. Shoot feeding deforms the tree, making it grow forked or crooked, or permanently cropping it. Trees near Poznan, Poland, lost about 34 percent in girth increment, 25 percent in height, and 39 percent in volume in six years.

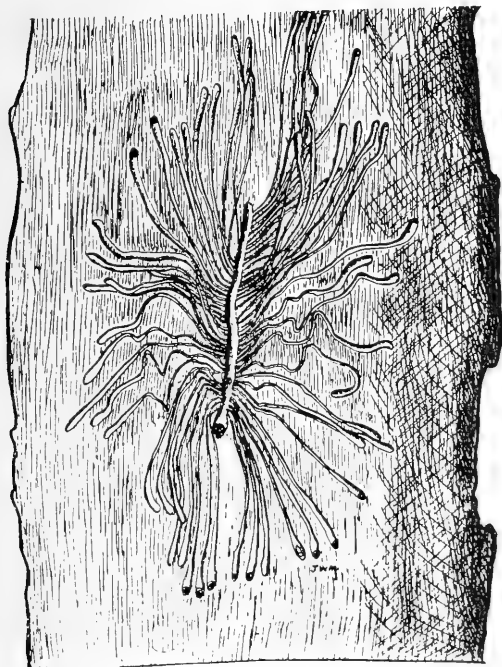
**Distribution:** Algeria, Austria, Belgium, Bulgaria, Canary Islands, Cyprus, Czechoslovakia, Finland, France, Germany, Great Britain, Greece, Hungary, Italy, Japan, Korea, Madeira, Netherlands, Norway, Poland, Portugal, Rumania, Russia, Spain, Sweden, Switzerland, and Turkey. In the United States this species has been intercepted with packing and crating materials, particularly dunnage, at ports of entry on many occasions since 1946. A find in a New Jersey nursery in 1913-1914 was eradicated. An adult was collected from a detection light trap at Savannah, Georgia, on June 23, 1971. A subsequent cooperative survey did not disclose additional beetles.



General Distribution of Tomicus piniperda

**Hosts:** Pines, especially Scotch pine. Chararas reported that Picea excelsa was a minor secondary host and that reports on Abies pectinata and Larix europea were rare.

**Life History and Habits:** This beetle overwinters as a fully grown larva, pupa, or adult. The last two stages have the highest survival rates. An adult may pass the winter in a pine shoot in Italy, under thick bark in France, or well below the snow line in Finland. During winter, adults may continue to feed in the shoots or in the bark. Emergence begins very early in the spring. In France, adults emerged at 54°F. and as early as February 29. The male and female build an egg gallery under thick bark in a weakened tree, fresh stump, or recently cut material. Healthy trees are attacked by breeding adults if population pressures are heavy. The egg gallery is 3 to 7 inches long, longitudinal, and shaped like a golf club. The larval galleries are 1.5 to 3.5 inches long, irregularly arranged, and often intermingled. Both types of galleries may score the sapwood slightly. Brown and white boring dust from the excavation lies in the bark fissures. From 60 to 160 eggs are laid singly on both walls of the gallery. Hatch is staggered over 14 to 21 days. In France, development from egg to adult averages 85 days, ranging from 55 to 130 days. The new adult cuts an exit hole and flies to the top of a pine tree to feed. It bores into a tender shoot, tunnels toward the tip, and seeks a fresh shoot after 1 to 2 weeks. The shoots quickly wither and brown. Snapped off by wind or rain, the hollow shoots litter the ground beneath the tree.

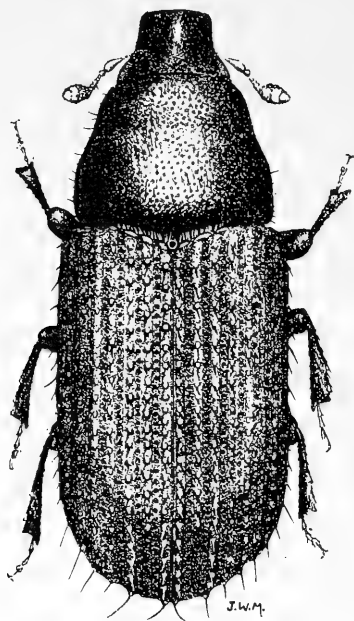


Gallery of  
Tomicus piniperda



Pine shoot  
tunneled by adult

The number of generations appears to vary. In Scotland, this species produced only one generation consisting of a major spring brood and a minor fall brood. Neither brood bred until the next year. In France at 64° F. and 76 percent relative humidity, this species produced two generations.



Adult

**Description:** ADULT - Length 3.4-4.5 mm., cylindrical, and dull brown or black with a glossy black thorax. On the declivity of the elytra, rows of tubercles bearing fine hairs alternate with rows of punctures. The second row of tubercles from the junction of the elytra is absent except at the top of the declivity. Beak finely, not densely punctate. LARVA - Length up to 5 mm. fully grown, slightly curved, legless, and white with a yellowish head. EGG - Length 1 mm., oval, smooth, and shining white.

**Selected References:** 1. Chararas, C. 1962. Scolytides des Conifères. pp. 226-241, Paris. 2. Great Britain For. Comm. 1921. Lflt. #3. 3. Hanson, H.S. 1937. Bul. Ent. Res. 28(2):185-236. 4. Hanson, H.S. 1940. Bul. Ent. Res. 31(3):247-251. 5. Ritchie, W. 1917. Trans. R. Soc. Edinburgh. 52(10):213-234. 6. Russo, G. 1946. Boll. Ist. Ent. Bologna. 15:297-310. Illustrations from Great Britain For. Comm.

Prepared in Economic Insect Survey  
and Detection in cooperation with  
other agencies.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(16):234-236, 1972



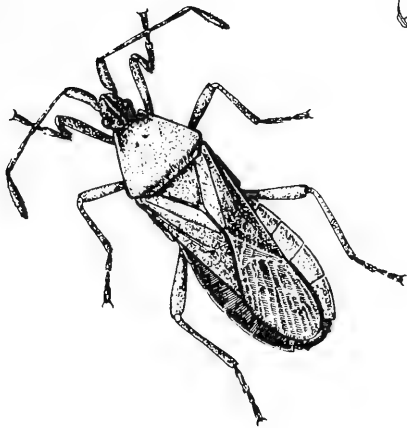
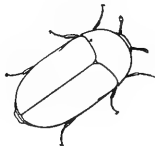
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

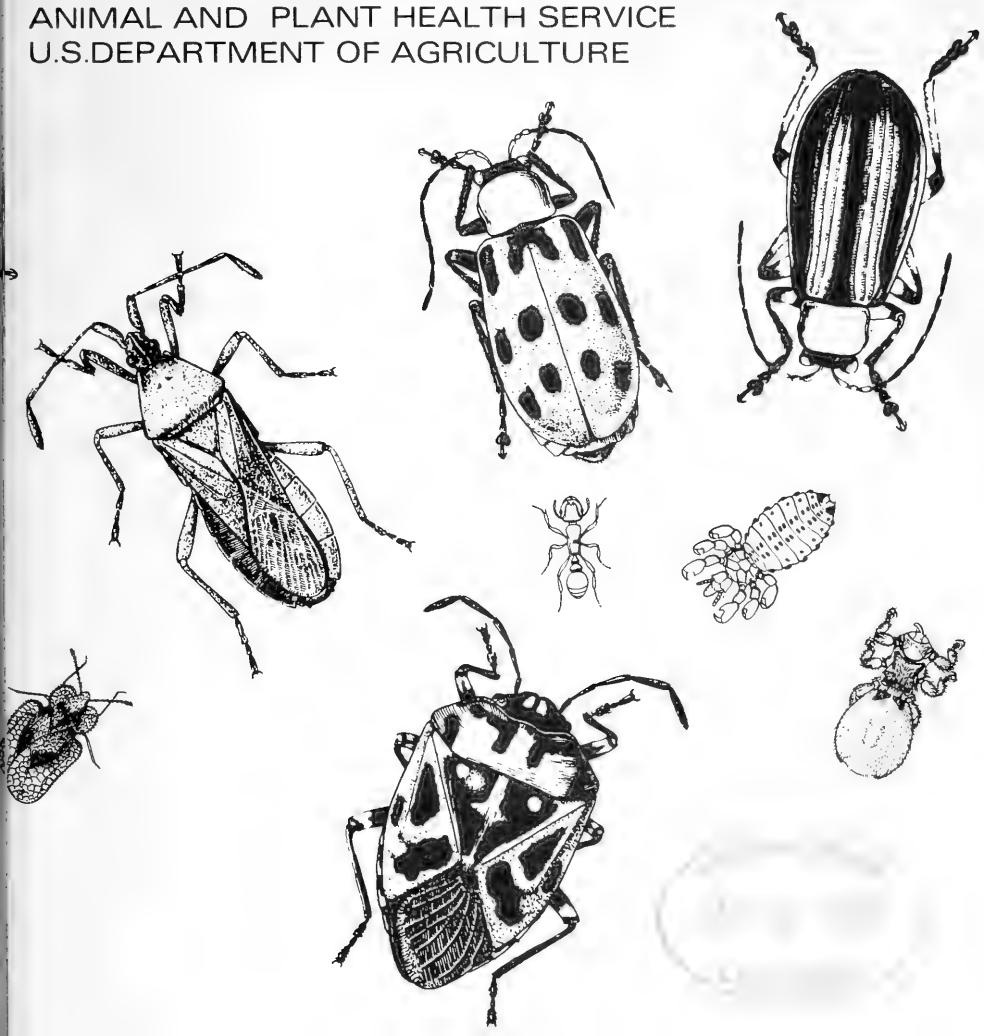


1004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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



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

ALFALFA WEEVIL larvae heavy on alfalfa in Oklahoma. Economic in Kansas. Larvae damaged alfalfa in southern Missouri, Illinois, Indiana, and west Tennessee. (pp. 240-241).

SPOTTED CUTWORM damaged apple trees in Washington. (p. 242).

Number of SCREWWORM cases reported in U.S. increased from 160 last period to 232 this period. (p. 244).

Detection

For new county records see page 245.

Special Reports

Distribution of Hessian Fly. Map. (p. 248).

---

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

## CONTENTS

Special Insects of Regional Significance.....	239
Insects Affecting	
Corn, Sorghum, Sugarcane...239	Potatoes, Tomatoes, Peppers..242
Turf, Pastures, Rangeland..239	General Vegetables.....242
Small Grains.....240	Deciduous Fruits and Nuts...242
Forage Legumes.....240	Citrus.....243
Cotton.....242	Forest and Shade Trees.....244
Miscellaneous Field Crops..242	Man and Animals.....244
Beneficial Insects.....	245
Federal and State Plant Protection Programs.....	245
Detection.....	245
Hawaii Insect Report.....	246
National Weather Service's 30-Day Outlook.....	246
Light Trap Collections.....	247
Distribution of Hessian Fly. Map.....	248

---

### WEATHER OF THE WEEK ENDING APRIL 24

Reprinted for weekly Weather and Crop Bulletin supplied by environmental Data Service, NOAA.

PRECIPITATION: Winter lingered over the Northern States early in the week. Stormy weather prevailed over the northwestern quarter of the Nation. Light rain fell along the Pacific coast. Snow and cold rain fell in the nearby hills and mountains, and eastward to the upper Mississippi River Valley. Some of the showers in the northern Great Plains were accompanied by lightning, thunder, and some places hail, and gusty winds. Several inches of snow whitened the central Rocky Mountains and the western edge of the Great Plains, South Dakota, and the Nebraska Panhandle. Highway travel was difficult and young livestock required more attention and care, because of continuing wintry weather. A few tornadoes were seen in Oklahoma, Missouri, and Arkansas. Reports were scanty, however, and effects cannot be evaluated at this time. About midweek, a Quasi-stationary front stretched from the Texas Panhandle to Pennsylvania. A band of wet and windy weather occurred along the front. Rain or drizzle fell in Kansas, thunderstorms popped up from Nebraska and the Texas Panhandle to the western portions of Kentucky and Tennessee. Rains fell from the Ohio River Valley to southern New England and snow whitened much of Vermont, New Hampshire, and western and northern Maine. Cyclogenesis occurred in southeastern Kansas shortly after midweek. The storm intensified and moved northeastward to the Great Lakes and into Canada. It produced generous precipitation over Missouri and nearby States Thursday, and over the eastern third of the Nation over the weekend. Hail pelted portions of northern Texas and northwestern Arkansas. Tornadoes occurred in Arkansas, Illinois, Kentucky, and Tennessee. Several inches of wet snow fell in Minnesota, Wisconsin, and Upper Michigan. A 5-inch snow at Minneapolis, Minnesota, prevented playing of a major league baseball game. At Marquette, Michigan, 6 inches of new snow brought the total snow cover to 21 inches. The snow storm weakened as it moved into Canada. Weekly precipitation totals exceeded 2 inches over an irregular area from southern

Weather of the week continued on page 247.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - WYOMING - Larvae ranged 1-2 per 10 linear feet in Platte County wheatfields. (Burkhardt). COLORADO - Ranged up to 1 per linear foot in winter wheat in Logan and Sedgwick Counties. (Marquardt). KANSAS - Adults appearing in Finney County. (Bell). NEBRASKA - Larvae declining in southwest and panhandle districts. Larval counts of 0.4 and 2 per square foot in 2 Hitchcock and Lincoln County fields; larvae constructing pupal cells from 2-4 inches deep. Pupation less than 1 percent; feeding damage very light. Time for effective treatment past. (Manglitz et al.). Most larvae in last instar in panhandle; no damage reported. (Hagen).

ARMYWORM (Pseudaletia unipuncta) - DELAWARE - Few adults collected in blacklight trap in Sussex County. (Burbutis). ALABAMA - Larvae light in several wheatfields in Monroe County. (McQueen).

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae increased on untreated sweet corn in field plots; first of season on corn in Manatee County area. (Poe). ALABAMA - Larvae 1 per 5 sweeps on crimson clover in Monroe, Dallas, and Montgomery Counties. Few adults in flight in Dallas County. Most larvae third to fourth instar. (McQueen).

GREENBUG (Schizaphis graminum) - KANSAS - Light infestations in wheat in southern areas. (Bell). NEBRASKA - Surveys negative in 2 Clay County fields. (Keith, Roselle).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Ranged 1-200 per 10 sweeps of alfalfa in Alfalfa County. (Okla. Coop. Sur.).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - Pupation less than 50 percent in Queen Annes, Talbot, Dorchester, Wicomico, and Somerset Counties. (U. Md., Ent. Dept.). WISCONSIN - Corn-stalk dissection showed 93-100 percent larval survival in State. (Wis. Ins. Sur.). NORTH DAKOTA - Winter mortality ranged 0-50 (averaged 25) percent in Cass, Dickey, Ransom, Richland, and Sargent Counties. Increase from 1971. (Brandvik).

FALL ARMYWORM (Spodoptera frugiperda) - FLORIDA - Larvae appeared in buds of sweet corn at Belle Glade, Palm Beach County; 19 percent of buds infested in unsprayed check plots. (Janes).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MISSOURI - Adults, light to moderate, ranged 2-12 per plant on small corn in southwestern area. Feeding damage light to moderate. (Munson).

### TURF, PASTURES, RANGELAND

BLUEGRASS BILLBUG (Sphenophorus parvulus) NEBRASKA - First adults of season collected in pitfall traps on golf course in Douglas County, April 11. (Kindler).



percent of alfalfa terminals showed feeding; alfalfa height 5 to 11 inches. Chemical treatment advised for much of this area, but excess soil moisture and continuing rains hindered controls. North of this line, up to U.S. Highway 50, maximum tip damage 40 percent. (Wilson, Meyer). NEW JERSEY - No larval activity in southern counties to date. No widespread problems expected in 1972. (Ins.-Dis. Newsltr.). MARYLAND - First and second instar larval damage ranged 2-8 percent in Frederick, Montgomery, and Washington Counties. H. postica tip damage ranged 0-5 percent in Howard, Carroll, Baltimore, and Harford Counties. On Eastern Shore, damage ranged 0-4 percent. Heaviest populations expected in western and west-central areas. (U. Md., Ent. Dept.).

WEST VIRGINIA - H. postica larvae averaged 3 per tip on 75 percent of tips in Monroe County field, less than 1 on 20 percent of tips in Summers County field, and 1 larva per tip on 90 percent of tips in Mercer County alfalfa field. (W. Va. Ins. Sur.). VIRGINIA - Based on 15 fields sampled, (178 acres) 71.14 percent of tips infested; defoliation averaged 15 percent. Pupation started in southern Piedmont and Coastal Plain. Of all fields surveyed, 86 percent exceeded economic threshold. (Allen). KENTUCKY - Larval counts of 260 per 100 sweeps of alfalfa in Warren County; 80 in Logan County; and 2.3 in Nelson County. Infested tips ranged 20-100 percent in Harrison County and 20-40 percent in Pendleton County. (Barnett). TENNESSEE - H. postica damage moderate to heavy in older alfalfa in middle and west areas. In untreated older fields damage very heavy and 5+ adults per stalk common. Some of these fields beyond economic control. (Cagle et al.). ARKANSAS - Wet weather hindered survey in north-west areas. Reports of as high as 3 applications of insecticides applied in Logan County. (Boyer).

PEA APHID (Acyrtosiphon pisum) TENNESSEE - This species and Therioaphis maculata (spotted alfalfa aphid) building up in alfalfa in west areas. Many fields with populations near control levels. (Locke). KANSAS - A. pisum populations increased in alfalfa in southern areas. Lady beetle adults and often larvae abundant in fields surveyed and some parasitism evident in south-east district. Will give adequate control in many cases. Heaviest pea aphid infestation noted in western Sedgwick County field; as high as 2,500 per 10 sweeps in droughty alfalfa which showed yellowing and some leaf shedding on lower portions of stems. (Bell). NEW MEXICO - Buildup of this species and Therioaphis maculata (spotted alfalfa aphid) and Petrobia latens (brown wheat mite) noted past 21 days in alfalfa in Chaves and northern Eddy Counties. Controls applied to 10,000 acres of alfalfa since April 1. (N.M. Coop. Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - First nymphs of season ranged 0-2 per square yard on alfalfa in Frederick and Carroll Counties. Increase expected next 14 days. Egg hatch underway in central areas. (U. Md., Ent. Dept.). ILLINOIS - Nymphs averaged 1 per 100 stems in Champaign County and 1 per 50 stems of alfalfa in Jasper County. (Ill. Ins. Sur.).

ALFALFA BLOTCH-MINER (Agromyza frontella) - MARYLAND - Survey negative to date. (U. Md., Ent. Dept.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Ranged 1-4 per 10 sweeps of alfalfa in Alfalfa County; nymphs appearing. (Okla. Coop. Sur.).

## COTTON

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Controls required in 3 cotton fields at Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - MISSISSIPPI - Recovered 27 adults in 300 Leggett pheromone traps in Copiah County. (Schuster et al.).

STRAWBERRY SPIDER MITE (Tetranychus turkestanii) - TENNESSEE - Building up on host plants, especially wild aster, in and around environs of cotton fields in west areas. Counts (25-30 per leaf) heavy, unusual for time of year. (Locke).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Treatments necessary on some cotton fields at Yuma, Yuma County. Many fields previously treated with systemics growing normally. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - ALABAMA - Nymphs ranged 2-10 on 5-20 percent of young cotton plants in 5 fields in Henry, Monroe, Covington, and Montgomery Counties. Some adults noted. (Pike et al.).

## MISCELLANEOUS FIELD CROPS

SPOTTED CUTWORM (Amathes c-nigrum) - WASHINGTON - Larvae 1-2 per square foot in 45 acres of spearmint at Prosser, Benton County. (Klostermeyer).

## POTATOES, TOMATOES, PEPPERS

A THRIPS (Frankliniella bispinosa) - FLORIDA - Ranged 2-15 per blossom on tomato plants; population at estimated peak in Manatee County. (Poe).

## GENERAL VEGETABLES

BLACK CUTWORM (Agrotis ipsilon) - OKLAHOMA - Larvae damaged carrots at King City, Monterey County. (Okla. Coop. Sur.).

SPOTTED CUTWORM (Amathes c-nigrum) - WASHINGTON - Overwintering larvae noted in Yakima County. More abundant than in 1971. Potential threat to asparagus and other crops. (Tamaki, Landis).

## DECIDUOUS FRUITS AND NUTS

PEACHTREE BORER (Sanninoidea exitiosa) - PENNSYLVANIA - Larvae heavy in peach trees at Waynesboro, Franklin County. Damaged 90 percent of trees in 2 year-old planting. (Tetrault, Apr. 13).

SPOTTED CUTWORM (Amathes c-nigrum) - WASHINGTON - Larvae caused 33 percent damage to 30 acres of young red and golden delicious apple trees near Buena, Yakima County, and up to 50 percent damage to 15 acres of Ryan red delicious and golden delicious trees at Zillah. (Johnson et al.).

CODLING MOTH (Laspeyresia pomonella) - COLORADO - First moths taken in pheromone traps April 5 in Mesa County. Main flight expected April 15 to May 30. (Bulla).

A TORTRICID MOTH (Archips rosanus) - OREGON - Larvae started to roll filbert leaves in Willamette Valley. (Jones). Populations light in commercial orchards in Marion County. (Penrose).

FILBERT APHID (Myzocallis coryli) - OREGON - Appearing in filbert orchards in Willamette Valley. (Jones). Light populations in western Marion County. (Penrose).

APPLE APHID (Aphis pomi) - VIRGINIA - This species and Dysaphis plantaginea (rosy apple aphid) appeared in many Frederick County apple orchards. (Hill).

EUROPEAN RED MITE (Panonychus ulmi) - VIRGINIA - Appearing at Clearbrook, Frederick County on apple. (Hill).

## CITRUS

Insect Situation in Florida - Mid-April - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 70 (norm 64) percent of groves; economic in 47 (norm 43) percent. Increased slightly and again above normal and in high range. Further increase expected. Highest districts west, south, and central. CITRUS RED MITE (Panonychus citri) infested 25 (norm 45) percent of groves; economic in 6 (norm 16) percent. Increased abruptly indicating start of spring buildup from record low March level. Further increase predicted. Highest district west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 35 (norm 38) percent; economic in 11 (norm 17) percent. Increased sharply. Further expected increase to bring population above normal and into moderate range. Some heavy infestations will develop in all districts. Highest districts south and east. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) population below normal and very low. Gradual increase expected; very few groves will have important infestations. GLOVER SCALE (Lepidosaphes gloverii) infested 82 (norm 80) percent; economic in 2 (norm 17) percent. Increased, but below normal and at moderate level. Further increase expected. Highest district south. PURPLE SCALE (L. beckii) infested 75 (norm 78) percent; economic in 6 (norm 10) percent. At moderate level and near normal abundance. Little change expected. Highest district west. CHAFF SCALE (Parlatoria pergandii) infested 46 (norm 57) percent; economic 2 (norm 8) percent. YELLOW SCALE (Aonidiella citrina) infested 39 (norm 63) percent; none economic (norm 8) percent. Will remain below normal and near current low levels in all districts. BLACK SCALE (Saissetia oleae) infested 44 (norm 22) percent; economic in 2 (norm 8) percent. In low range but highest for April in 21 years of record. Varies greatly. Population heavy and increasing in east and central districts; light and still decreasing in north and south districts. General increase expected in May; will cause important infestations in all districts. AN ARMORED SCALE (Unaspis citri) infested 31 percent; economic in 20 percent. Slight temporary decrease expected. WHITEFLY larvae and adults above normal. Abnormally heavy populations of larvae predicted for May and June. APHIDS increased early in April from below normal to above normal. Further increase expected in April followed by rapid decrease in May. MEALYBUGS increased from low March level. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

MULBERRY WHITEFLY (Tetraleurodes mori) - CALIFORNIA - Nymphs 2 per leaf of orange at El Cajon, San Diego County. This is a new county record. Previously on lemon at Long Beach, Los Angeles County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Lemon grove at Yuma Mesa with 42.96 per leaf 17 days ago and treated, currently with 6.52 per leaf in Yuma County. (Ariz. Coop. Sur.).

#### FOREST AND SHADE TREES

ELM LEAF BEETLE (Pyrrhalta luteola) - IOWA - Adults collected in Guthrie County, April 19. This is a new county record. (Iowa Ins. Sur.).

CALIFORNIA FIVESPINED IPS (Ips confusus) - CALIFORNIA - Infested ponderosa pine in Mendocino County. About 12 trees in 5-acre stand affected. (Young, USFS).

CALIFORNIA FLATHEADED BORER (Melanophila californica) - CALIFORNIA - Infested pine trees in Trinity National Forest. About 20 trees in 10-acre stand involved. (Severson, USFS).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Medium to heavy early instar larvae ranged 10-20 per branch, on junipers and shade trees in Brazoria County. Lighter on pecan trees. (Green).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - WEST VIRGINIA - Larvae appearing in Monroe and Mercer Counties. (W. Va. Ins. Sur.).

#### MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 232 cases reported in U.S. April 16-22 as follows: TEXAS: Atascosa 8, Bandera 2, Brewster 1, Brooks 1, Cameron 2, Dimmit 8, Duval 15, Bastrop 2, Bee 13, Caldwell 1, Colorado 1, Comal 2, De Witt 2, Freestone 1, Edwards 1, Frio 5, Hidalgo 20, Jeff Davis 1, Jim Hogg 14, Kenedy 2, Kinney 1, Gillespie 1, Goliad 8, Gonzales 3, Guadalupe 1, Hays 1, Jackson 1, Jim Wells 3, La Salle 2, Live Oak 8, Maverick 1, McMullen 1, Medina 6, Pecos 3, Presidio 1, Karnes 6, Kendall 2, Kimble 2, Kleberg 1, Lavaca 3, Llano 1, Nueces 3, Starr 17, Uvalde 4, Val Verde 1, Webb 12, Willacy 2, Zapata 11, Zavala 1, Polk 1, Refugio 1, San Patricio 2, Schleicher 1, Tom Green 1, Victoria 1, Williamson 2, Wilson 6. ARIZONA: Cochise 4, Gila 1, Santa Cruz 2. NEW MEXICO: Otero 1. Total of 348 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 116, Chihuahua 30, Coahuila 55, Nuevo Leon 54, Tamaulipas 93. Total of 39 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 screwworm flies released: Texas 138,344,000; New Mexico 200,000; ARIZONA 11,670,000; Mexico 29,220,000. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Counts of 500 per head on cows and 2,000 per head on bulls in Payne County. Heavy in Marshall County and moderate in McCurtain, Nowata, and Craig Counties. (Okla. Coop. Sur.).



STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 5 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.).

HORSE FLIES (Hybomitra spp.) - OKLAHOMA - H. nigricans ranged 1-4 per head on deer in Cherokee County and in Heavener area, Le Flore County. H. lasiophthalmua on cattle and horses in Okfuskee County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MARYLAND - Ranged 5-60 per head on cattle and horses. Most averaged 10 per head in Montgomery, Frederick, Baltimore, and Harford Counties. (U. Md., Ent. Dept.).

#### BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - All stages ranged 25-45 per 10 sweeps of alfalfa in Alfalfa County. (Okla. Coop. Sur.).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Adults taken at Gull Lake, Kalamazoo County, April 17 in emergence traps at end of woodlot. First emergence from field April 19. (Haynes, Gage). OHIO - Adults per 50 sweeps in wheat (8-13 inches) by county: Delaware 4; Pickaway 12; Ross 3; and Pike 3. (Fox).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Native male adult (non-reared) collected at Lower Matecumbe Key, Monroe County April 3. (Determined by V.H. Owens).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae damaged roots of commercial planting of tomatoes in Houston County. (Wilson, Curtis). Damaged vegetable plants in garden in Houston County. (Wilson, Roney).

#### DETECTION

New County Records - ALFALFA WEEVIL (Hypera postica) - TEXAS - Camp, Cass, Jack, Swisher, Carson, and Gary (p. 240). ELM LEAF BEETLE (Pyrrhalta luteola) - IOWA - Guthrie (p. 244). MULBERRY WHITEFLY (Tetraleurodes mori) - CALIFORNIA - Los Angeles (p. 244).

## HAWAII INSECT REPORT

General Vegetables - All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) heavy in 0.25 acre of young snap bean seedlings and in 0.1 acre of zucchini at Pupukea; light in one acre of cucumber at Waialua, Oahu. CORN EARWORM (Heliothis zea) light in 6 acres of corn at Kahuku, Oahu; about 15 percent of ears with early instar larvae. All stages of a MEMBRACID BUG (Antianthe expansa) light in yard plantings of solanaceous plants at Ewa and Pupukea, Oahu; populations apparently decreased during March in these unsprayed plantings. Adults of Zelus renardii (a reduviid) preying on nymphs of A. expansa on eggplant at Ewa and possible factor in decline at this locale. (Kawamura).

General Pests - Larvae of a GEOMETRID MOTH (Semiothisa santaremaria) and KOA HAOLE LOOPER (Anacamptodes fragilaria) severely defoliated about 2 square miles of kiawe trees at Honouliuli, Oahu; S. santaremaria was dominant. Larvae of S. santaremaria, A. fragilaria, and Epiphyas postvittana (a tortricid moth) found feeding on Litchi blossoms at Hawaii Kai, Oahu; first report of S. santaremaria feeding on nonleguminous host in Hawaii. (Davis et al.). AN ARMORED SCALE (Phenacaspis cockerelli) moderate on 100+ coconut trees and 1,000 feet of oleander hedge at Lahaina, Maui. Infested 25 percent of coconut fronds; scales ranged 10-40 per leaflet. Older oleander leaves with 5-25 scales per leaf. (Miyahira).

Miscellaneous Pests - During April, GIANT AFRICAN SNAIL (Achatina fulica) activity limited on Kauai. Collected and destroyed 36 snails at Poipu, none at Wahiawa. Surveillance and hand-baiting continue at Poipu and Wahiawa; similar plans for Kona. (Sugawa, Yoshioka).

---

### NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

#### MID-APRIL TO MID-MAY 1972

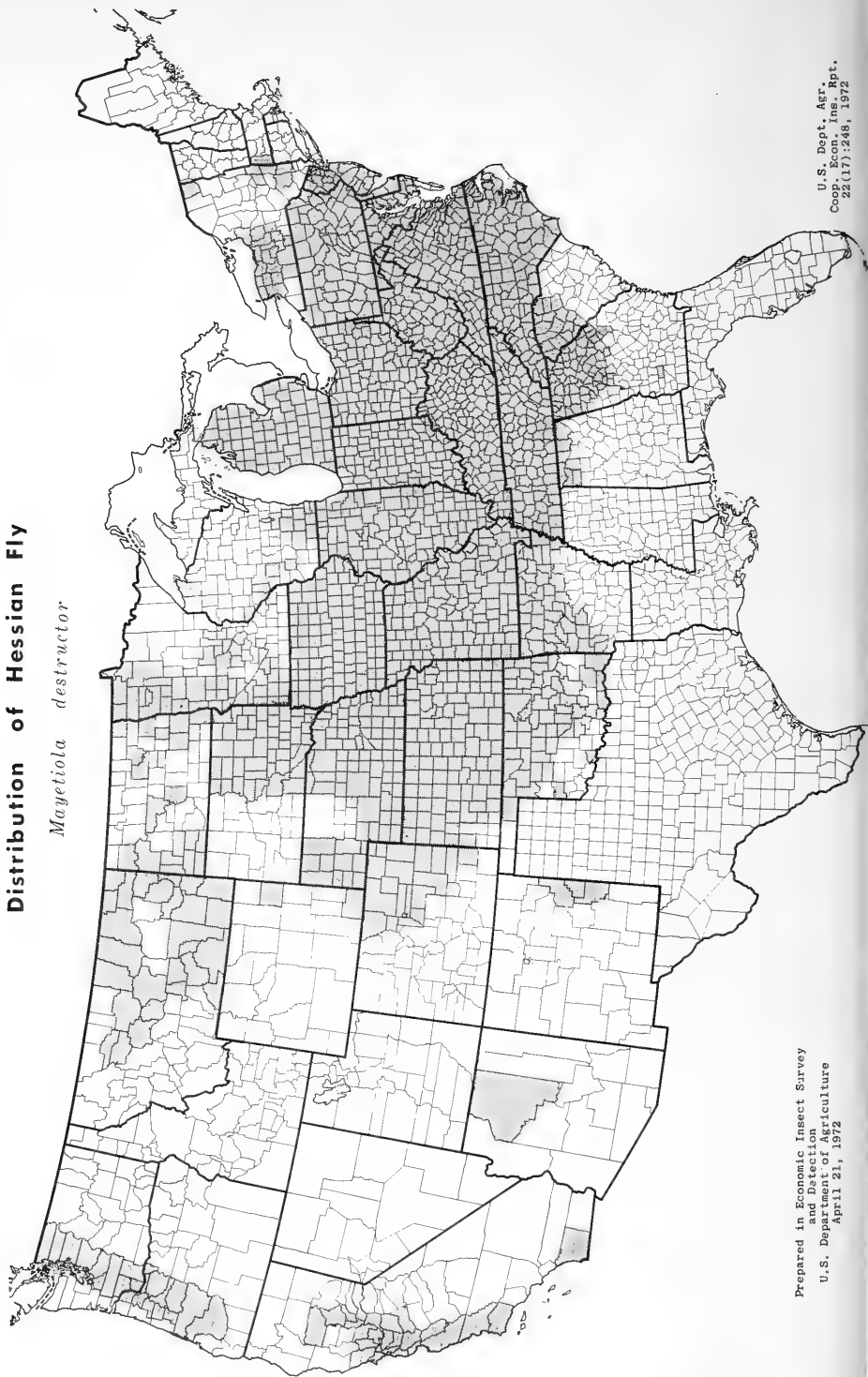
The National Weather Service's 30-day outlook for mid-April to mid-May is for temperatures to average above seasonal normals over the southern half of the Nation east of the Divide and also over the southern Plateau region and the southern Rockies. Below normal averages are indicated for the Northeast, the Great Lakes region, the Northwest and California. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over the central Pacific coast, the Northwest, the northern Plains and much of the Midwest. Subnormal totals are indicated for most of the Southwest, the central and southern Plains and the lower Mississippi Valley. In unspecified areas near normal precipitation is in prospect.

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



# Distribution of Hessian Fly

*Mayetiola destructor*



Prepared in Economic Insect Survey  
and Detection  
U.S. Department of Agriculture  
April 21, 1972

U.S. Dept. Agr.  
Economic Entomology  
Proc. Ent. Soc. Wash.  
22 (17):248, 1972



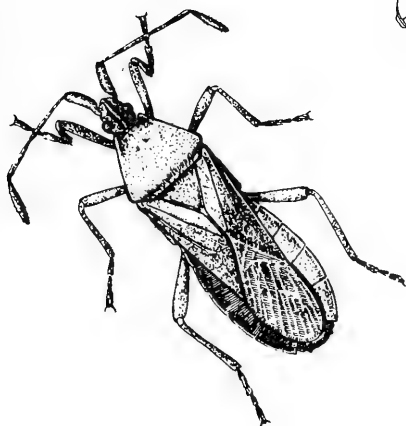
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



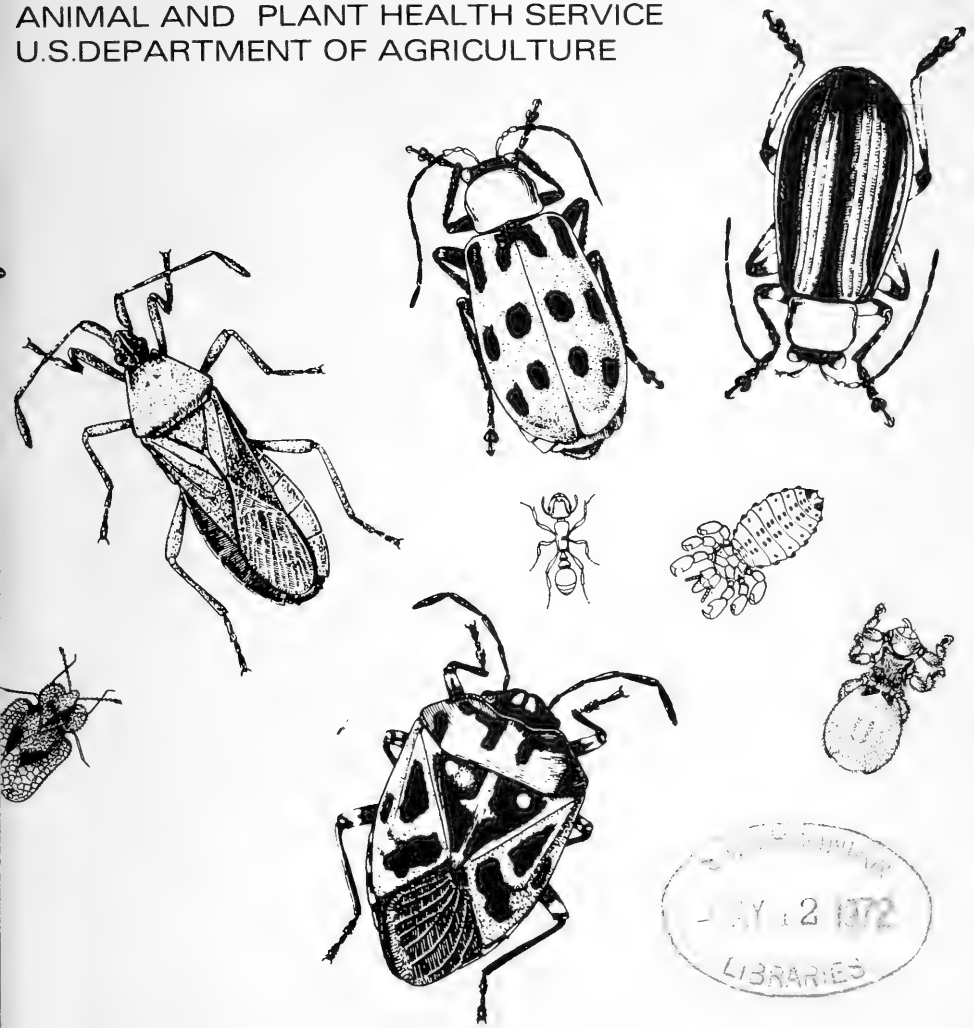
0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



823  
077  
ENT

# Cooperative Economic Insect Report

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



ENTOMOLOGICAL  
 - MAY 12 1972  
 LIBRARIES

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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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



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

ALFALFA WEEVIL continues heavy in Oklahoma, Arkansas, Missouri, and Illinois. (p. 252).

BEE T ARMYWORM larvae and WESTERN FLOWER THRIPS need controls in cotton in Arizona. (p. 253).

SOUTHERN PINE BEETLE at outbreak levels in portions of southern United States. (p. 255). Map on page 254.

Number of SCREWWORM cases continues to increase in the United States. (p. 256).

Detection

For new county records see page 257.

Special Reports

Boll Weevil Survival Surveys - Spring 1972 (pp. 259-262).  
Golden Nematode in the United States (p. 264).

---

Reports in this issue are for week ending April 28 unless otherwise indicated.

## CONTENTS

Special Insects of Regional Significance.....	251
Insects Affecting	
Corn, Sorghum, Sugarcane ....	251
Small Grains.....	251
Forage Legumes.....	252
Cotton.....	253
Potatoes, Tomatoes, Peppers..	253
Cucurbits.....	253
General Vegetables.....	253
Deciduous Fruits and Nuts..	253
Citrus.....	255
Small Fruits.....	255
Ornamentals.....	255
Forest and Shade Trees....	255
Man and Animals.....	256
Beneficial Insects.....	256
Federal and State Plant Protection Programs.....	256
Detection.....	257
Hawaii Insect Report.....	258
National Weather Service's 30-Day Outlook.....	258
Boll Weevil Survival Surveys - Spring 1972.....	259
Light Trap Collections.....	263
Golden Nematode in the United States.....	264

---

### WEATHER OF THE WEEK ENDING MAY 1

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

**PRECIPITATION:** Early in the week a cold front stretched from a storm centered north of Maine southward to Georgia, thence westward to the Lower Rio Grande. Showers dampened an area from the lower Great Lakes to New England and southward to the Florida Peninsula. Showers fell in the Far West from Vancouver to middle California coast with snow in the higher elevations in the north. Strong winds raised clouds of dust and sand in the California deserts. Winds at Palm Springs, California, gusted to 61 m.p.h. Monday afternoon. A slow moving storm crossed the central Rocky Mountains to the western Great Plains about midweek. Heavy snow fell at Denver, Colorado, Wednesday, accumulating to 12 inches by evening. Snow was accompanied by strong gusty winds. Winds at Colorado Springs, Colorado, gusted to 60 m.p.h. Cold fronts stretched northward from a storm center to Lake Manitoba and southward to the Trans-Pecos in Texas. Generous rains fell along the fronts. Precipitation was especially heavy from eastern Nebraska to north-central Texas. Fair weather prevailed over most areas away from the storm center and fronts. A storm dissipated over the Great Plains over the weekend, but another storm developed in the central Rocky Mountains and moved to the nearby Great Plains. This storm brought several inches of snow to some localities in the northern Rocky Mountains, severe thunderstorms and a few tornadoes in the central Great Plains. Some of thunderstorms were accompanied by damaging winds and large hail. Kansas was especially hard hit by severe storms. Hail over 2 inches in diameter fell in parts of Butler and Anderson Counties. Strong winds damaged roofs and store fronts in Abilene. Scattered thundershowers also occurred elsewhere in the Great Plains and across the Mississippi River Valley to the Great Lakes region.

Weather of the week continued on page 263.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - WYOMING - Larvae 1 per square foot of alfalfa near Powell, Park County. (Pike). COLORADO - Larvae in winter wheat in La Plata County. (Lorenz). KANSAS - Few late instar larvae still in northwest district. (Bell).

ARMYWORM (Pseudaletia unipuncta) - MISSOURI - Larvae ranged 0.5-2.5 per row foot of wheat in southeastern area. (Houser). Light, ranged 0-6 per square foot southwestern and south-central areas in fescue and orchard grass. (Munson). ARKANSAS - Few light infestations in Crittenden and St. Francis Counties. (Sterling). MISSISSIPPI - Larvae ranged 3-15 per square foot in wheat and oats in many delta counties. (Young).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Counts of 2 per 100 sweeps in bluegrass, rye, and quackgrass in Dakota County, April 20. (Minn. Pest Rpt.). WISCONSIN - Appears to be dispersed statewide and few areas showed populations of 0.5 per 100 sweeps in western Waushara County, 6 per 100 sweeps in western Fond du Lac County, and 37 per 100 sweeps in southern Trempealeau County. (Wis. Ins. Sur.).

CORN EARWORM (Heliothis zea) - TEXAS - Larvae moderate to heavy on corn in Harris County. Larvae 1 per stalk on corn 36 inches tall. No economic damage expected. (Green).

GREENBUG (Schizaphis graminum) - WASHINGTON - Single specimen collected in wheat near Prosser, Benton County, April 26. Populations almost eliminated by high winds and cold temperatures during January. None found in February and March. (Klostermeyer). ARKANSAS - Infestations in two fields of wheat and one field of oats in Craighead County; few small spots of oats damaged but no damage in wheat. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - UTAH - Appeared in Washington County alfalfa fields. (Huber). KANSAS - Averaged 1 per 10 sweeps in alfalfa in Rawlins County, first of season. (Bell).

### CORN, SORGHUM, SUGARCANE

MAIZE BILLBUG (Sphenophorus maidis) - ALABAMA - Adults damaged 70+ percent of young corn plants in large cornfield in Houston County. (Roney).

### SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Continues heavy on winter wheat in Pershing County; additional 100 acres treated. (Stitt). COLORADO - Damaging infestations in southeast and south-central areas on winter wheat. (Hantsbarger). OKLAHOMA - Populations still scattered and heavy in Cotton County wheat. (Okla. Coop. Sur.). KANSAS - Heaviest count, 500 per row foot of wheat, in Rawlins County, light foliar damage noted in this field. (Bell).

CHINCH BUG (Blissus leucopterus leucopterus) - OKLAHOMA - First of season in wheat. Ranged 0-12 per linear foot in Craig County and 0-1 in Mayes County. (Okla. Coop. Sur.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEW MEXICO - Larvae light to heavy, ranged 10-75 per 25 sweeps, in alfalfa at Albuquerque, Bernalillo County. (Heninger). OKLAHOMA - Larvae still in northern area alfalfa (up to 150 per 10 sweeps in some fields) but generally decreasing. Adults increasing, ranged 8-45 per sweep in Stephens County and averaged 25 per square foot in Lincoln County. Continues moderate to heavy in most southern areas. (Okla. Coop. Sur.). ARKANSAS - Populations still heavy, but declined from previous levels. Ranged 500-600 per 100 sweeps of alfalfa at Fayetteville, Washington County. Specimens collected from crimson clover in Drew County. This is a new county record. (Boyer). MISSOURI - Larval counts of H. postica still heavy in southern areas. Newly emerged adults ranged 0-4 per sweep in some fields in southwestern and south-central areas. (Munson).

INDIANA - Larval damage ranged 12-58 percent of total leaf surface in some southern areas. Generally, larval damage ranged 1-12 percent on alfalfa. Feeding in the central district still confined to tips, but sometimes involves 50 percent of plants. Northern portion of central district feeding very light. Plant growth in southern districts variable. Larval development advanced in this area and more damage results. Larval parasitism this year, compared with 1971, is less. Adults of an ichneumon wasp (Bathyplectes sp.) observed in every field surveyed in southern districts, population less than in fall of 1971. (Meyer). ILLINOIS - H. postica larval counts of 1+ per sweep found throughout southern two-thirds of State. Economic populations of 20+ larvae per sweep recovered south of a line from Hancock County in west to Coles County in east. Heaviest counts in southwestern area. Many untreated fields nearly destroyed. (Ill. Ins. Sur.).

OHIO - Surveys one hour after dark revealed adult H. postica counts of 5-6 per 50 sweeps of alfalfa in Athens County and 0-1 per 50 sweeps in Auglaize County. Hatch noted in Allen County; feeding noted on 30 percent of foliage. (Fox). DELAWARE - Some feeding noted on 10-50 percent of stalks in Kent and Sussex Counties. First to third instar larvae ranged 1-3 per stalk. (Burbutis). MARYLAND - H. postica populations increasing slowly. First, second, and few third instar larval damage ranged 1-10 percent in all fields surveyed. Development affected by three unusually cool days. In most fields, alfalfa growing out of early injury. All fields throughout State below economic thresholds. (U. Md., Ent. Dept.). VIRGINIA - Based on 25 fields surveyed (193 acres) tip infestation of alfalfa less than 6 inches tall declined to 27.9 percent. Most tip samples taken in mountain areas; infestations had been predicted to be light. Average defoliation 7.3 percent in these areas; 57 percent of fields in mountains exceeded treatment threshold. Damage may still occur. (Allen).

KENTUCKY - Eggs averaged 182 per square foot in Fayette County alfalfa. Adult Bathyplectes curculionis (an ichneumon wasp) averaged 4-5 per 100 sweeps. Larvae of H. postica ranged 0-3 per tip and 60 percent of tips infested in Bourbon County. Larvae averaged 380 per 100 sweeps in grassy stand. Larvae ranged 0-4

per tip with 80 percent of tips infested in Scott County. Larvae averaged 260 per 100 sweeps in Clark County. (Barnett, Parr).  
TENNESSEE - Most older alfalfa fields at control levels in middle and west areas; controls not practical in most of these fields. Surveys indicate controls moderately effective where applied in these areas. (Gordon et al.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Mixed populations of this species and Therioaphis maculata (spotted alfalfa aphid) and Petrobia latens (brown wheat mite) required controls in many alfalfa fields in Chaves and Eddy Counties. (Mathews). Brown wheat mite light to heavy on alfalfa in Bernalillo County. (Heninger).  
MISSOURI - Moderate to heavy, ranged 100-200 per 10 sweeps of alfalfa and red clover in southwestern and south-central areas. (Munson).

## COTTON

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae heavy in some fields at Parker Valley, Yuma County. Some treatments necessary. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Treatment applied to some fields at Parker Valley and Yuma Valley in Yuma County. Some fields formerly treated with systemics show damage, indicating chemicals expended or cultural and weather conditions inhibiting uptake of material. (Ariz. Coop. Sur.).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MISSISSIPPI - Heavy on Irish potatoes in Jones and Covington Counties. (Pepper).  
OKLAHOMA - Heavy on potatoes in Marshall County; also reported in Garvin County. First of season. (Okla. Coop. Sur.).

## CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - FLORIDA - Adults severe on squash near Chipley, Washington County. (Newsome).

## GENERAL VEGETABLES

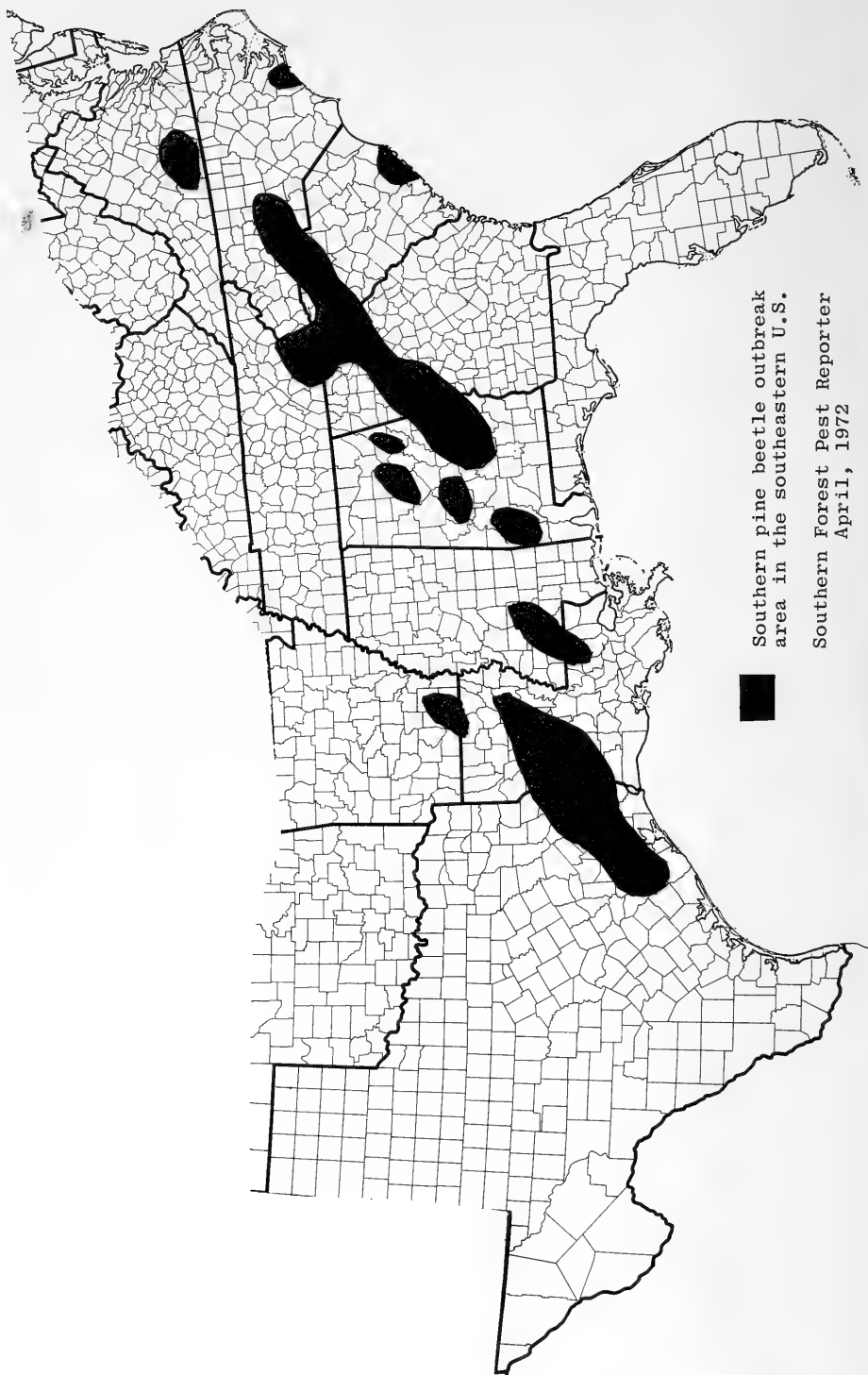
REDBACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - Light to moderate larval damage on 10+ acres of asparagus at Sunnyside, Yakima County. (Togashi, Johansen).

ONION THRIPS (Thrips tabaci) - ALABAMA - Adults and nymphs heavy and damaging onions in Mobile County field. (Driskell, Farrar).

## DECIDUOUS FRUITS AND NUTS

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Damage moderate in peach orchards in Washington County. (Huber).

SPOTTED CUTWORM (Amathes c-nigrum) - WASHINGTON - Mainly larvae of this species infested 8 acres of pears, caused 5-10 percent damage, and infested 2 acres of 3-4 year old apples, with 15-25 percent damage at Selah, Yakima County. (Johnson, Johansen).



Southern pine beetle outbreak  
area in the southeastern U.S.  
Southern Forest Pest Reporter  
April, 1972

FOREST TENT CATERPILLAR (Malacosoma disstria) - ALABAMA - First larvae of season on pecans in Mobile County. (Deakle).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Overwintering larvae reported in pecan terminals in Atoka County, April 19. (Okla. Coop. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Overwintering eggs on apple trees in Auglaize and Hardin Counties. Most buds at tight cluster stage. (Fox).

GREEN PEACH APHID (Myzus persicae) - UTAH - Caused moderate curling of peach foliage in Washington County. (Huber).

## CITRUS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Heavy, adults 100+ per leaf at Sacramento, Sacramento County. (Cal. Coop. Rpt.).

## SMALL FRUITS

WHITELINED SPHINX (Hyles lineata) - CALIFORNIA - Larvae heavy on new grape plantings in Santa Barbara County. (Cal. Coop. Rpt.).

## ORNAMENTALS

IVY APHID (Aphis hederæ) - OKLAHOMA - Specimens from English ivy in Muskogee, Muskogee County. This is a new county record. (Okla. Coop. Sur.).

## FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - Population increase noted in southeastern United States. Populations at serious outbreak levels in portions of LOUISIANA, MISSISSIPPI, ALABAMA, SOUTH CAROLINA, and GEORGIA. Infestations increasing in TEXAS, ARKANSAS, NORTH CAROLINA, and VIRGINIA. (South. For. Pest. Rptr., Apr.) See map on page 254. (PP).

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Larvae, up to 12 per tip, defoliated 2,500-3,000 acres of oak in Contra Costa County. Very little biological control effects this pest. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Very heavy on elms in Topeka, Shawnee County; 25-50 percent foliage consumed on leafed out trees. On many trees not yet leafed out, larvae damaged buds so many of these trees may not leaf out for some time. Early instars heavy on elm in Seneca, Nemaha County. Trace in Thomas, Ness, and Hodgeman Counties. Many trees in Topeka banded with sticky compound to deter moths from climbing trunks. Infestations still heavy. (Bell).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - WISCONSIN - Hatch on April 27, 10 days later than in 1971. (Wis. Ins. Sur.).

COOLEY SPRUCE GALL APHID (Adelges cooleyi) - PENNSYLVANIA - Egg laying underway at Mifflintown, Juniata County. Needles heavily infested in several acres of Christmas tree plantings; twisted needles abundant on 1971 growth. (Adams).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 421 cases reported in U.S. April 23-29 as follows: TEXAS: Atascosa 12, Bandera 4, Bastrop 2, Bee 13, Bexar 2, Brooks 19, Burleson 1, Burnet 1, Cameron 4, Comal 2, Coryell 2, De Witt 6, Dimmit 12, Duval 14, Frio 9, Goliad 13, Gonzales 5, Guadalupe 1, Hays 1, Hidalgo 28, Hill 1, Hudspeth 1, Jackson 1, Jim Hogg 19, Jim Wells 13, Karnes 6, Kendall 2, Kenedy 14, Kerr 2, Kinney 9, Kleberg 6, La Salle 13, Lavaca 1, Live Oak 9, Maverick 8, McMullen 6, Medina 12, Nueces 4, Patricio 11, Presidio 1, Reagan 1, Real 4, Refugio 7, Schleicher 1, Sterling 1, Starr 24, Terrell 1, Uvalde 11, Val Verde 4, Victoria 8, Webb 23, Willacy 4, Wilson 5, Williamson 1, Winkler 1, Zapata 26, Zavala 2. ARIZONA: Cochise 3, Pinal 2. NEW MEXICO: Hidalgo 1. CALIFORNIA: Riverside 1. Total of 451 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 9, Sonora 190, Chihuahua 47, Coahuila 55, Nuevo Leon 89, Tamaulipas 61. Total of 52 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 screwworm flies released: Texas 116,284,000; New Mexico 200,000; Arizona 11,280,000; California 200,000; Mexico 40,980,000. (Anim. Health).

HORN FLY (Haematobia irritans) - TEXAS - Heavy, ranged 400-3,000 per head of cattle in Presidio County. These populations abnormally heavy for this dry season. (Neeb). OKLAHOMA - Counts declined on Payne County cattle due to cool, rainy weather. Ranged 200-250 per head. Moderate in Craig, Tulsa, Lincoln, and Garvin Counties. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - Larval collections week ending April 22 contained mostly spring Aedes in Ramsey and Hennepin Counties. Fifteen percent of collections contained A. excrucians, 8.6 percent A. stimulans, 3 percent A. spencerii, 2.6 percent A. fitchii, and 1.6 percent A. abserratus. (Minn. Pest Rpt.).

CATTLE LICE - OKLAHOMA - Mainly Haematopinus eurysternus (short-nosed cattle louse) continue heavy on cattle in Pontotoc, Lincoln, and Hughes Counties. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - NEBRASKA - Single specimen collected in office in Grand Island, Hall County, on March 16, by L. Opp. Determined by R.E. Roselle. This is a new county record. (Keith).

## BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - All stages found in northeast area alfalfa. Ranged 8-15 per 10 sweeps in most fields. (Okla. Coop. Sur.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Eggs observed on wheat in Franklin County. (Clark). First egg observed in northern district on April 19. (Gutierrez). OHIO - Adult counts per 50 sweeps of 8 to 12-inch tall wheat by county: Van Wert 1; Paulding 1; Putnam 1; Allen 3-4; and Hancock 0-1. Adult in 1 of



25 cornstalks dissected in Wyandot County. Light infestations in these areas may be attributable to fewer wooded overwintering sites. (Fox). PENNSYLVANIA - First of season April 1, in Mercer County. (Shiner). Some damage on wheat in Lawrence County. (Burger, Murnigham, Apr. 18).

GRASSHOPPERS - NORTH DAKOTA - Egg surveys in Cass County show 2 percent of eggs in clear stage, 11 percent coagulated, 50 percent eye spot and 37 percent segmented. Melanoplus bivittatus dominant. Eggs not developed in Ransom and Richland Counties. Development ranged from clear to segmented with 4 percent clear, 27 percent coagulated, 36 percent eye spot and 33 percent segmented. M. sanguinipes dominant in Ransom and Richland Counties. Hatch will probably be later than 1971. Eggs ranged up to 20 pods per square foot in favorable egg laying sites. Very little predator activity evident. No desiccated eggs present. (Brandvik). WYOMING - Situation at Lusk, Niobrara County, study site: Arphia conspersa, Psoloessa delicatula, and Xanthippus corallipes mainly adults observed. (Pfadt).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Hatch noted. First observed in Milford, Pike County. (Gesell, Apr. 26).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Native (non-reared, nondyed) adult male collected at Tavernier, Monroe County, April 17 by H.S. Creamer. Determined by V.H. Owens. (Fla. Coop. Sur.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - ALABAMA - Larvae and adults found during routine surveys in medium to heavy populations on two separate farms in Geneva County in stored sweetpotatoes. (Stephenson).

## DETECTION

New County Records - ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Drew (p. 252). BROWN RECLUSE SPIDER (Loxosceles reclusa) - NEBRASKA - Hall (p. 256). IVY APHID (Aphis hederarum) - OKLAHOMA - Muskogee (p. 255).

## HAWAII INSECT REPORT

General Vegetables - PEPPER WEEVIL (Anthonomus eugenii) adults and larval infestation severe in 4+ acres of peppers at Makaha, Oahu. A. eugenii first reported in Hawaii in 1933 and isolated reports previously were light. SOUTHERN GREEN STINK BUG (Nezara viridula) infestation heavy in yard planting of broccoli and lima beans at Waihee, Maui; damage negligible and light, respectively. All stages trace in 4+ acres of sweet peppers at Makaha, Oahu. Adults of Trichopoda pennipes (a tachina fly), light at Waihee; nil at Makaha. (Ah Sam, Kawamura). GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) eggs and nymphs heavy in 5,000 square feet of see-qua (Luffa acutangula) at Waianae, Oahu; adults trace. (Kawamura).

Forest and Shade Trees - AN EURASIAN PINE APHID (Pineus pini) damaged about 800 Pinus spp. trees along Saddle Road during March on Hawaii. At Waikii, noticeable buildup noted on Pinus radiata trees. Release of chamaemyiid flies, Leucopis militaria and L. nigriluna, purposely introduced from Pakistan for control of P. pini made at these sites in mid-March. (Yoshioka).

Beneficial Insects - Parasitism of cowpea and snap bean material infested by BEAN FLY (Melanagromyza phaseoli) ranged 83-100 percent on Kauai. Opius phaseoli and O. importatus (braconids) species involved at this location. Adults of Opius spp. moderate in infested yard planting of snap bean on Maui. (Sugawa, Miyahira).

---

## NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MAY 1972

The National Weather Service's 30-day outlook for May is for temperatures to average above seasonal normals from the Great Plains to the Atlantic coast except for near normal in western portions of the northern and central Plains and along the east coast from the Carolinas to southern New England. Below normal averages are indicated for the western quarter of the Nation. Precipitation is expected to exceed normal over the northern Plains. Subnormal totals are indicated for the eastern quarter of the Nation as well as the south Pacific coast, the southern Plateau and the Rio Grande Valley. Elsewhere near normal precipitation is in prospect.

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

## Boll Weevil Survival Surveys - Spring 1972

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 fall 1971. The number of boll weevil (*Anthonomus grandis*) adults per acre of ground trash examined and the percent survival are reported in the following paragraphs. For details of the fall (1971) hibernation survey in these six States, see CEIR 22(6):35-38.

In NORTH and SOUTH CAROLINA, samples were collected during the period March 14-April 3 in the same four representative areas in which examinations were made in fall 1971. In each area, 30 locations (farm sites) were sampled with 3 samples taken at each location. 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, Halifax, and Edgecombe Counties). The average number of live weevils per acre in these areas was 161, 1,747, 1,963, and 215, respectively. Percent survival for these areas was 5.0, 39.8, 28.3, and 12.5, respectively. Percent survival was lowest in South-central South Carolina and highest in the Coastal Plains of South and North Carolina. In Florence County, South Carolina, where spring examinations have been made since 1938, an average of 1,668 weevils per acre was found in spring, 1972. This is a winter survival of 38.8 percent, 61 percent lower than 1971. (Taft, Hopkins).

Survey in TENNESSEE was conducted in Hardin, McNairy, Hardeman, and Fayette Counties. Spring counts indicate an average of 1,120 live weevils per acre. There are enough weevils to cause concern during the 1972 season if weather conditions are favorable for weevil reproduction. (Locke).

Collections in MISSISSIPPI were started February 28 and all examinations completed by March 7. Three samples were taken from each location, and 7 or 8 locations were sampled in each county. Two counties made up each area and the State was divided into the following four areas: South Delta (Sharkey and Yazoo Counties), Central Delta (Washington and Leflore Counties), North Delta (Coahoma and Panola Counties), and Hill Section (Holmes and Tate Counties). Forty-five samples were taken from 15 locations in each of the 4 areas. The average number of weevils per acre was 918 in the South Delta, 324 in the Central Delta, 432 in the North Delta, and 1,458 in the Hill Section. The State average for 1972 was 783 compared with 864 in 1971, 229 in 1970, 810 in 1969, 540 in 1968, and 1,525 in 1967. Percent survival by area was: South Delta 30.91, Central Delta 25.00, North Delta 6.61, and Hill Section 16.56. The State average percent survival was 15.98 compared with 29.77 in 1971, 7.39 in 1970, 29.27 in 1969, 8.57 in 1968, and 51.60 in 1967. (Pfrimmer).

Survey in northeast LOUISIANA was conducted March 6-15. Collections were made at 45 locations in the 5-parish area as follows: Madison

20 locations, Tensas 10 locations, and 5 locations each in East Carroll, West Carroll, and Richland Parishes. A total of 135 samples was taken. The average number of weevils per acre of trash was 2,985 in Madison Parish, 888 in Tensas Parish, 968 in East Carroll Parish, 1,291 in West Carroll Parish, and 6,131 in Richland Parish, or an average of 2,456 weevils per acre for the 5-parish area. Winter survival in the area was 40.05 percent compared with 48.3 percent in spring 1971. In Madison Parish, where the records have been made for the past 37 years, there have been only five years when the number of weevils has been higher than in spring 1972. The 2,985 weevils per acre is a 49 percent survival of the 6,090 weevils per acre entering hibernation in the fall of 1971.

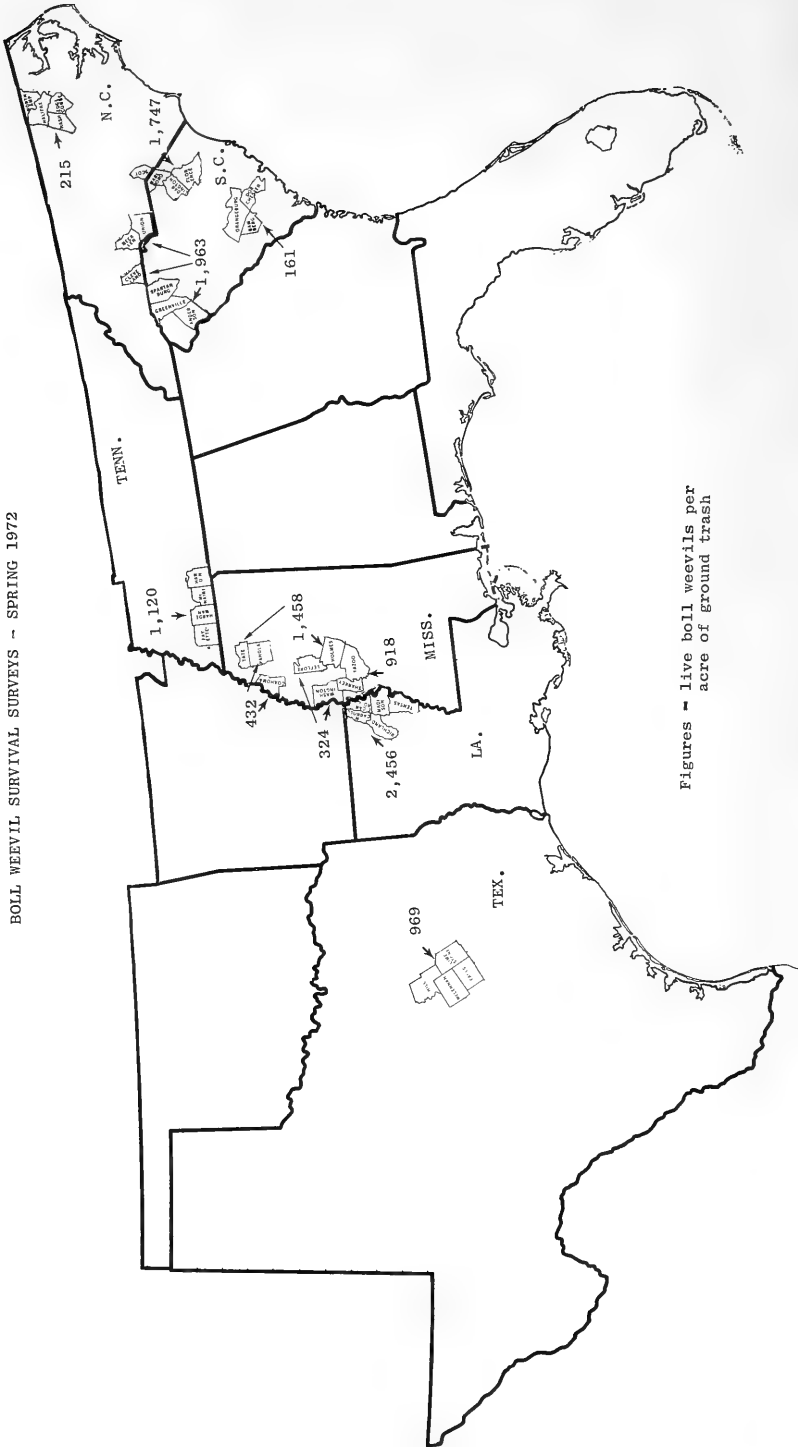
There were only 20 days during this period when the temperature was 32 degrees F. or less and seven days when the temperature was 25 degrees F. or less. There were two days when the temperature did not exceed 32 degrees F. The lowest temperature recorded was 17 degrees F. on January 16. (Cleveland et al.).

In central TEXAS, spring collections were started March 7 and all examinations completed by March 10 in Falls, Hill, Limestone, and McLennan Counties. Three samples were taken from each location and 6 or 7 locations were sampled in each county; 75 samples were taken from 25 locations in the 4 counties. The average number of weevils found per acre was 538 in Falls County, 1,075 in Hill County, 672 in Limestone County, and 1,490 in McLennan County, with an area average of 969. Winter survival was 23.3 percent compared with 59.8 in 1971, 15.7 in 1970, 70 in 1969, 14.4 in 1968, and 26.5 in 1967. In the 13 years the survey has been conducted, only 4 years (1963, 1964, 1968, and 1970) had a lower indicated spring survival than 1972. Percent survival was lower in 1972 than any year except 1964, 1968, and 1970. Winter weather was mild with subfreezing temperatures on only 19 days. A minimum of 18 degrees F. was recorded January 5. For the period November 1, 1971, through March 7, 1972, rainfall totaled 8.65 inches, or 0.97 inches below normal for the period. (Cowan).

## BOLL WEEVIL SURVIVAL SURVEYS - SPRING 1972

Area (County and State)	Number of Weevils per Acre	
	1971	1972
<u>NORTH and SOUTH CAROLINA</u>		
South-central South Carolina (Orangeburg, Bamberg, and Dorchester Counties).	484	161
Coastal Plain of South and North Carolina (Florence, Darlington, and Marlboro Counties, S.C.; Scotland County, N.C.).	2,500	1,747
Piedmont of South and North Carolina (Anderson, Greenville, and Spartanburg Counties, S.C.; Mecklenburg, Cleveland, and Union Counties, N.C.).	726	1,963
North Central North Carolina (Nash, Halifax, Northampton, and Edgecombe Counties).	80	215
<u>TENNESSEE</u>		
Southern Tier of Counties (Fayette, Hardeman, McNairy, and Hardin Counties).	747	1,120
<u>MISSISSIPPI</u>		
South Delta (Sharkey and Yazoo Counties).	1,026	918
Central Delta (Washington and Leflore Counties).	378	324
North Delta (Coahoma and Panola Counties).	594	432
Hill Section (Holmes and Tate Counties).	1,458	1,458
<u>LOUISIANA</u>		
Northeastern (Madison, Tensas, East Carroll, West Carroll, and Richland Parishes).	4,087	2,456
<u>TEXAS</u>		
Central (Falls, Hill, Limestone, and McLennan Counties).	2,030	969

BOLL WEEVIL SURVIVAL SURVEYS - SPRING 1972

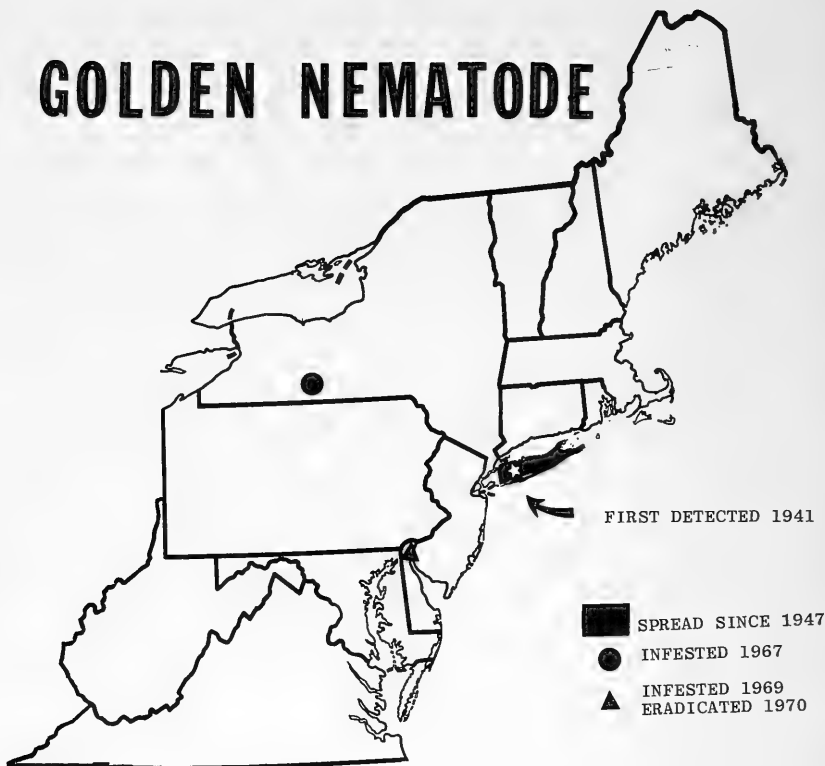


Figures - live boll weevils per acre of ground trash

U. S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(18):262, 1972



# GOLDEN NEMATODE



The first record of the GOLDEN NEMATODE (Heterodera rostochiensis) was from Germany in 1881, and at that time it was considered a strain of H. schachtii. In 1909 it was established that potatoes were hosts of this nematode, but not until 1923 was it described as a completely different species by Wollenweber. This nematode attracted little attention until 1913, when it was found in Scotland. It has been found in most of the European countries and parts of South America and Asia. It is now recognized as a major potato pest in Europe, especially England, where it is prevalent in 65 to 75 percent of the fields in the important potato-growing areas.

The golden nematode was first discovered in North America in 1941, when it was found to be responsible for damage in a field of potatoes south of Hicksville, Nassau County, Long Island, New York. The source and time of introduction of the pest in this country is not known. Infestations have been found in Nassau, Suffolk, and Steuben Counties, New York, and in New Castle County, Delaware, in the United States. Plant material imported from Europe has been required to be free from soil since June 1, 1919. However, in recent years golden nematode cysts have been recovered and identified from numerous interceptions made by plant quarantine inspectors of soil particles and debris contained in shipments of plants, bulbs, packing material, burlap bags and many other articles originating in various countries. (PP).





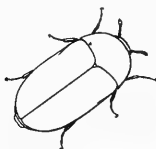
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

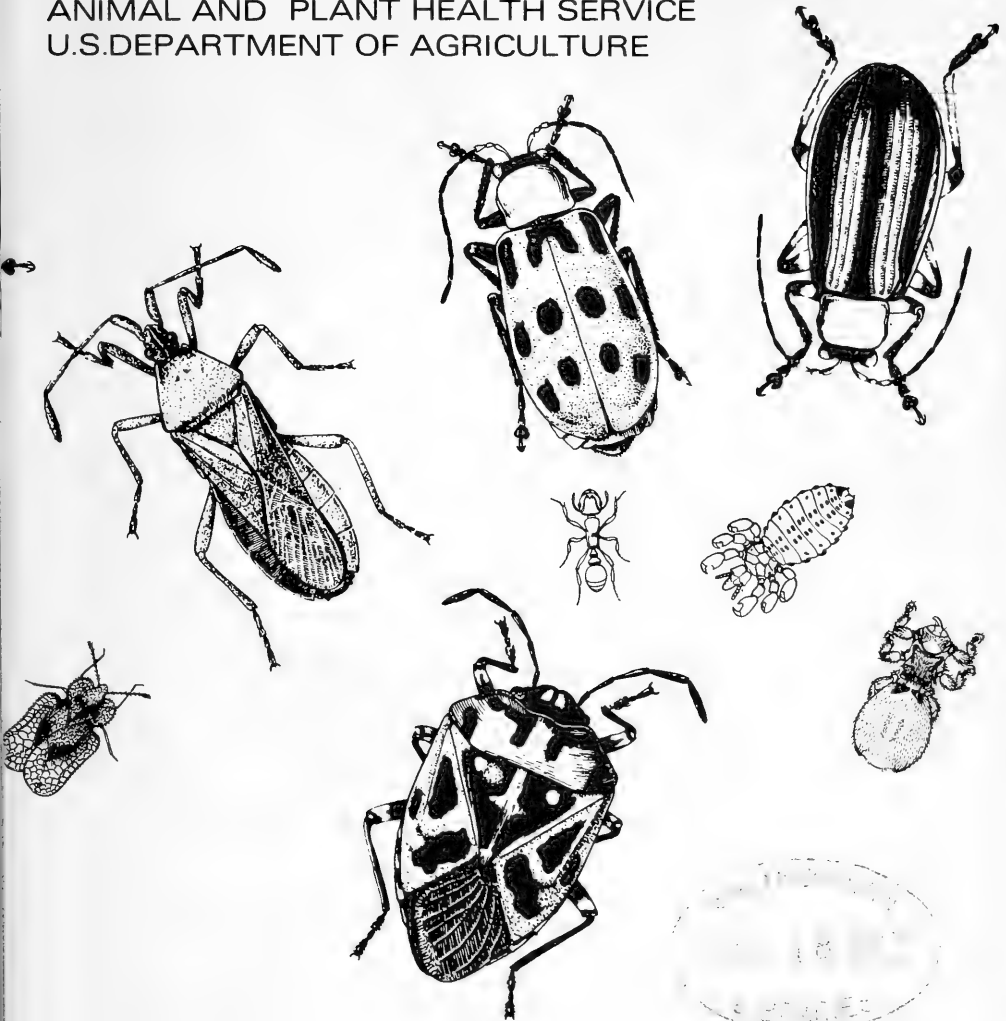


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



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

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

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

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

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

ARMYWORM larvae appearing in alfalfa in Nevada and Illinois; in small grains in Mississippi. Moths increased in Delaware and Wisconsin. (pp. 267-268).

ALFALFA WEEVIL continues to damage alfalfa in Kansas, southern Missouri, southern Illinois, and Tennessee. Increased in Maryland. (pp. 268-269).

VARIEGATED CUTWORM damaged cotton in Mississippi Delta area. (p. 269).

Number of SCREWWORM cases reported continues to increase in the United States. (p. 271).

Detection

For new county records see page 273.

Special Reports

Beet Leafhopper Survey - 1972. (p. 267).

---

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

## CONTENTS

Special Insects of Regional Significance.....	267
Insects Affecting	
Corn, Sorghum, Sugarcane...268	Small Fruits.....270
Small Grains.....268	Ornamentals.....270
Forage Legumes.....268	Forest and Shade Trees.....271
Cotton.....269	Man and Animals.....271
Deciduous Fruits and Nuts..269	Households and Structures...272
Citrus.....270	
Beneficial Insects.....272	
Federal and State Plant Protection Programs.....272	
Hawaii Insect Report.....273	
Detection.....273	
Light Trap Collections.....274	

---

### WEATHER OF THE WEEK ENDING MAY 8

**PRECIPITATION:** Early in the week a storm centered over the central Great Plains moved toward the Great Lakes. A cold front stretching from the storm center to Texas moved eastward to the Atlantic coast by Thursday morning. At that time a large high sprawled across the Great Plains and a new low developed over the northern and central Rocky Mountains. Heavy thunderstorms occurred Monday over the eastern portions of Kansas and Oklahoma, and over Missouri and Arkansas in connection with eastward moving storm. Wet snow and cold rain fell over the northern Great Plains. Sioux Falls, South Dakota, received 3.26 inches rain in 12 hours Monday. Winds gusted 40-60 m.p.h. over much of the northern and central Great Plains Monday, reaching 75 m.p.h. at Alliance and Chadron in northwestern Nebraska. Thunderstorms increased over a wide area from the Great Plains to the Ohio River Valley and along a cold front that stretched southward to Texas. Thundershowers were especially heavy in eastern and parts of southern Texas, with 2-4 inches in some places on Monday. The storm weakened Tuesday forenoon, but still produced heavy showers along the western gulf coast and light rain as far away as New England. Showers dotted much of the eastern third of the Nation Tuesday afternoon. Hail large as golf balls fell at Massillon, Ohio, about 15 miles west of Akron. As the cold front continued slowly eastward, heavy rain preceded it soaking coastal States from New York to Florida. Light rains fell in the Far Northwest several days. Elsewhere the West was mostly dry. Phoenix, Arizona, has not received more than a few drops of rain in 130 days. As the weekend approached, a high pressure ridge stretched from the North to the South across the Great Plains and a new storm was developing in the northern and central Rocky Mountains. A storm center moved to the central Great Plains and dumped generous rains from Minnesota and Wisconsin to central and eastern Texas. Fair skies prevailed over the West and East. Weekly precipitation totals exceeded 4 inches over south-central Texas and the upper coast. A long area from Chattanooga, Tennessee, to Scranton, Pennsylvania, received more than 2 inches of rain during the week. Most of the western half of the Nation received less than 0.50 inch. No rain fell over much of the Southwest, continuing the rainless spell which began late in December 1971. Weather of the week continued on page 274.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

### Beet Leafhopper Survey in Texas

BEEF LEAFHOPPER (Circulifer tenellus) survey in TEXAS was accomplished during period February 22-24. Twenty-six counties were included with a total of 58 stops. Host plants were present at 98 percent of these stops. Beet leafhoppers averaged 26 per 100 square feet.

Significant Observations: Winter temperatures were lower in the survey area this year. Host plants were widespread. Beet leafhopper counts were slightly heavier this year. The entire survey area received more summer and fall moisture in 1971.

Current Conditions: In order that the survey information be more specific, the following breakdown is presented:

High Plains Area - Beet leafhopper counts increased in 1972. Populations are found at Channing, Hereford, Dawn, Morton, Dimitt and Ralls. Flixweed is the primary host present. Host plants are more numerous and in better condition; except town mustard which was damaged by cold temperatures.

Rolling Plains and Edwards Plateau Area - Populations decreased in this area. Host plants are in good condition and distributed throughout the area.

El Paso and Trans-Pecos Area - Beet leafhopper counts are heavier this year. Populations more concentrated in the El Paso Valley. Some droughty conditions persist in Dell City area. Host plants are widespread.

Beet leafhopper survey in the desert areas of central ARIZONA, southeastern CALIFORNIA, southern NEVADA, and southern UTAH, during the period February 29 to March 9.

Beet leafhoppers averaged 0.24 per square foot in the survey area. An estimated 39.8 billion leafhoppers were present at the time of the March survey.

Surveys indicated a light to moderate movement of beet leafhoppers can be expected from the desert breeding grounds to cultivated districts in central Arizona, southeastern California, southern Nevada, western Colorado, and Utah.

About 17 percent of the 50,000 square mile potential host area had suitable annual plant cover for leafhopper propagation. Lack of winter rain and low temperatures prevented plant growth in many areas. Few or no annual weed hosts found in survey areas in southeastern California and southern Nevada; principal area of plant development noted in Arizona and southern Utah. (PP and cooperating agencies).

---

ARMYWORM (Pseudaletia unipuncta) - NEVADA - Immatures, up to 25 per square yard, caused heavy damage on 300 acres of alfalfa hay in Diamond Valley, Eureka County. (Harms). WISCONSIN - Adults

heavier than normal in some areas. Outbreak conditions favorable this year. (Wis. Ins. Sur.). ILLINOIS - Early instar larvae noted in grassy alfalfa in Pulaski and Washington Counties. (Ill. Ins. Sur.). DELAWARE - Adults increased in blacklight trap collections in Sussex County. (Burbutis). MISSISSIPPI - Larvae light to moderate in wheat and oats statewide. Controls applied in some delta areas. Larvae ranged 4-6 per square foot in Washington County. (Miller). Larvae ranged 1-2 per square foot of wheat in Leflore County field (200 acres). (Fleming). Light in 300 acres of oats and wheat in Tallahatchie County. (Walton). Larvae moving to cotton near small grain. (Fleming).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MISSOURI - Counts ranged light to heavy on wheat in south-central area. Yellowing of foliage in selected fields did not appear typical. (Craig). WISCONSIN - Still light but increased in some areas. (Wis. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Light to heavy in whorls of grain sorghum in south-central and central areas. Lady beetles heavy in all fields surveyed. (Green).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Percent pupation by county: 10 in New Castle, 35 in Kent, and 48 in Sussex. (Burbutis). MARYLAND - Pupation ranged 20-60 percent in several fields on Eastern Shore. Pupation ranged 0-5 percent in central areas. (U. Md., Ent. Dept.).

BANKS GRASS MITE (Oligonychus pratensis) - KANSAS - Some on volunteer corn seedlings (2-4 leaf stage) in Stevens County; possible source of infestation for corn and sorghum planted in area. (Bell).

### SMALL GRAINS

CHINCH BUG (Blissus leucopterus leucopterus) - TEXAS - Moderate to heavy on sorghum in McLennan, Hill, Falls, and Limestone Counties. (Hoelscher).

### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WYOMING - Adult counts less than one per square foot of alfalfa near Riverton, Fremont County, April 21. (Pike). IDAHO - Single adult in flight trap in Twin Falls County. (Carpenter). COLORADO - Larvae increased in alfalfa in Pueblo, Crowley, and Otero Counties. Range per 100 sweeps by county: 40-500 in Otero, 40-200 in Crowley, and 10-50 in Pueblo. (Schweissing). TEXAS - Infestations light to heavy on alfalfa in Lipscomb, Ochiltree, and Hemphill Counties. These are new county records. (Clymer, Ehler). OKLAHOMA - Adults declining in south-east area alfalfa, still moderate to heavy in most other areas. Adults more common than larvae. Damage light in panhandle. (Okla. Coop. Sur.).

KANSAS - H. postica continues to damage alfalfa in southeast district; some treating reported in area. Populations in south-central and central districts significantly heavier than 1971. (Bell). MISSOURI - Still heavy in southern area and near control



levels in some northern areas. (Craig). ILLINOIS - Early instar larvae found as far north as Henderson County in west and Iroquois County in east. Counts in these areas less than 1 per sweep. Economic populations of 20 larvae per sweep found throughout area south of line from Adams County in west to Coles County in east. Pupation observed throughout southern one-third of State. Pupae ranged 5-20 per square foot in Johnson County. First cutting of alfalfa expected within 14 days. (Ill. Ins. Sur.). INDIANA - Larvae peaked in southern areas by May 5. Larvae still feeding on alfalfa in central districts south of Indianapolis; larval counts of up to 2 per terminal noted. Larvae trace in most fields surveyed in northern portion of central district. Parasites noted in most fields but counts light. (Wilson, Meyer).

OHIO - H. postica adults 1 per 100 sweeps of sweet clover and 3 per 50 sweeps of alfalfa in Holmes County; ranged 18-20 per 50 sweeps in Carroll County. First larvae found in Wayne County. (Fox, Flessel). MARYLAND - Continues to increase; heaviest damage ranged 10-60 percent. Elsewhere, populations below economic levels. (U. Md., Ent. Dept.). WEST VIRGINIA - Larvae caused 20 percent tip damage to 50 of 50 tips sampled in 5 acres of alfalfa in Mason County. Tip damage 90 percent to 50 of 50 tips sampled in 6 acres of alfalfa; larvae 2 per tip and adults 7 per 100 sweeps in Pleasants County. (W. Va. Ins. Sur.). KENTUCKY - Eggs averaged 208 per square foot in Fayette County alfalfa. (Parr, Barnett). Larvae up to 50+ per sweep in Harrison County and 1,200 per 100 sweeps in Warren County. These fields treated 14 days ago. (Barnett). TENNESSEE - Still heavy in alfalfa in middle and western areas, slight increase in some alfalfa fields noted. (Gordon).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Moths ranged 1-40 in 46 of 51 pheromone traps in Walla Walla County. Third flight underway. (Halfhill).

PEA APHID (Acyrtosiphon pisum) - KANSAS - Populations in alfalfa stabilized or declining in areas surveyed; Hippodamia convergens (convergent lady beetle) thought responsible. (Bell).

## COTTON

VARIEGATED CUTWORM (Peridroma saucia) - MISSISSIPPI - Larvae causing most damage where cotton seeded in fields with rank winter vegetation. (Pfrimmer). In some delta areas, controls applied. (Robinson).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - ARIZONA - Controls needed on cotton at Maricopa, Pinal, and Yuma Counties. (Ariz. Coop. Sur.).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - Adult males collected in pheromone traps in apple orchards in Yakima County. (Johnson et al.). COLORADO - Moths ranged up to 40 per trap per day, April 22-25, in Mesa County. (Bulla).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - Adult males collected in pheromone traps in peach orchards in Yakima County. (Johnson).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - PENNSYLVANIA - Adult males collected in pheromone traps in Adams County. Apple trees not yet in bloom. (Bode).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Larvae heavy in pecan terminals in Mayes County. (Okla. Coop. Sur.). TEXAS - Emergence and egg laying continues on pecans in south-central areas. (Green).

## CITRUS

Insect Situation in Florida - End of April - CITRUS RUST MITE (Phyllocoptura oleivora) infested 75 (norm 65) percent of groves; economic in 56 (norm 44) percent. Population increased and again above normal and in high range. Further increase expected. Highest districts south, central, and west. CITRUS RED MITE (Panonychus citri) infested 32 (norm 47) percent of groves; economic in 7 (norm 19) percent. Population to stay below normal and in low range until mid-May; then increase. Highest district south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 39 (norm 44) percent of groves; economic in 19 (norm 21) percent. Increase will continue, population expected to be below normal and in moderate range through May. Heavy infestations will develop in scattered groves in most districts. Highest districts south and east. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 4 (norm 8) percent groves; none economic (norm 1 percent). Population below normal and will remain very low. GLOVER SCALE (Lepidosaphes gloverii) infested 81 (norm 81) percent of groves; economic in 3 (norm 20) percent. Population below normal and nearly all infestations light. Gradual increase predicted. Highest district west. PURPLE SCALE (L. beckii) infested 72 (norm 79) percent of groves; economic in 6 (norm 10) percent. Below normal abundance and at moderate level. Little change expected. Highest district north. CHAFF SCALE (Parlatoria pergandii) infested 50 (norm 57) percent of groves; economic in 2 (norm 9) percent. YELLOW SCALE (Aonidiella citrina) infested 34 (norm 62) percent of groves; none economic (norm 7 percent). BLACK SCALE (Saissetia oleae) infested 44 (norm 22) percent of groves; economic in 25 (norm 8) percent. Population above normal and will continue near present level until end of May when expected to increase to high range. Highest districts east and central. AN ARMORED SCALE (Unaspis citri) infested 32 percent of groves; economic in 23 percent. Slight increase expected. WHITEFLIES more abundant than average for April. All districts have similar degree of infestation. Increase is predicted. APHIDS increased to above normal numbers until late April, two weeks later than average. Decrease to low level underway. MEALYBUGS at very low level, a strong increase expected in May. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

## SMALL FRUITS

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - UTAH - Larvae heavy in St. George area vineyards, Washington County. (Huber).

## ORNAMENTALS

A SOFT SCALE (Lecanium kunoensis) - CALIFORNIA - Counts of 10 per inch on pyracantha at San Jose, Santa Clara County. This is a new county record. (Cal. Coop. Rpt.).

## FOREST AND SHADE TREES

FOREST TENT CATERPILLAR (Malacosoma disstria) - KENTUCKY - Larval defoliation 100 percent on some oak trees in Hopkins and McLean Counties. Increased defoliation expected. (Nordin, Barnett).

PENNSYLVANIA - Egg mass and first instar larvae found on sugar maple in Somerset County. Many sugar maples showing dead branches and limbs due to damage of past two years. (Mallis).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MASSACHUSETTS - Hatch on April 19 in Hampden County. (Rose).

SPRING CANKERWORM (Paleacrita vernata) - TENNESSEE - Moderate to heavy on hackberry and elm trees in central areas. Some trees almost completely defoliated. (Gordon). Immatures feeding in Knox County. (Hammett).

CONIFER SAWFLIES (Neodiprion spp.) - KENTUCKY - N. pratti pratti larval defoliation 40-50 percent on Virginia and short leaf pines in Pulaski and Russell Counties. N. taedae linearis larval defoliation 30 percent on loblolly pines in Calloway County. Light infestations in McCracken County. (Nordin, Barnett).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Adult damage heavy on some Siberian elms in Clark and Meade Counties. Egg masses observed on leaves of Siberian elms in Meade, Riley, and Shawnee Counties. No egg hatch noted. (Bell).

PERIODICAL CICADA (Magicicada septendecim) - MISSISSIPPI - Expect emergence late May or early June. (Robinson).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 434 cases reported in U.S. April 30 to May 6 as follows: TEXAS: Atascosa 11, Bandera 7, Bastrop 1, Bee 17, Bexar 2, Borden 1, Brazos 1, Brooks 15, Calhoun 1, Cameron 2, Comal 1, Coryell 1, Crockett 1, De Witt 6, Dickens 1, Dimmit 13, Duval 14, Edwards 4, Fisher 1, Frio 14, Gillespie 1, Goliad 18, Gonzales 1, Guadalupe 3, Hidalgo 32, Hill 1, Irion 1, Jackson 2, Jim Hogg 15, Jim Wells 13, Karnes 1, Kenedy 14, Kerr 2, Kimble 1, Kinney 14, Kleberg 4, La Salle 12, Lavaca 4, Live Oak 10, Maverick 8, McMullen 4, Medina 11, Nueces 3, Pecos 1, Presidio 1, Real 5, Refugio 3, San Patricio 3, Starr 35, Terrell 2, Travis 1, Upton 1, Uvalde 9, Val Verde 9, Victoria 11, Webb 27, Willacy 5, Wilson 6, Zapata 16, Zavala 4. ARIZONA: Cochise 1, Maricopa 1, Pima 1, Pinal 1, Santa Cruz 1. NEW MEXICO: Hidalgo 1. Total of 467 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 0, Territorio sur de Baja California 0, Senora 102, Chihuahua 27, Coahuila 87, Nuevo Leon 137, Tamaulipas 114. 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. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 385-400 per head on cattle in Payne County. Averaged 1,500 per head on 4 bulls. Moderate to heavy in Garvin County and moderate in Craig County. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - During period ending April 29, of 1,563 larval collections, 33 percent contained Aedes excrucians and 24 percent contained A. stimulans in Ramsey and Hennepin Counties. (Minn. Pest Rpt.).

NORTHERN CATTLE GRUB (Hypoderma bovis) - VERMONT - Larvae averaged 4.24 per animal in 677 cattle examined on 9 farms in southern Rutland County. First appeared April 16. (Loomis).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - VIRGINIA - Light to medium on 30,000 hens on farm in Frederick County, April 18. (Roberts).

SHEEP KED (Melophagus ovinus) - VIRGINIA - Ranged 10-25 per head on 200 sheep on farm in Washington County. Another flock of 50 sheep averaged 5 per head. (Roberts, Egan).

### HOUSEHOLDS AND STRUCTURES

AMERICAN BLACK FLOUR BEETLE (Tribolium audax) - SOUTH DAKOTA - Specimens collected at Doland, Spink County for a new county record. (Jones).

### BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Adults per 100 sweeps of alfalfa: 35 in east-southeast district, 80 in west-southwest district, 30 in west district, and 60 in central district. Larval populations averaged 50 per 100 sweeps in one field in Perry County. (Ill. Ins. Sur.). OKLAHOMA - Hippodamia convergens (convergent lady beetle) ranged 30-60 per 10 sweeps of alfalfa in Alfalfa County. Lady beetles ranged 4-40 per 10 sweeps in Cimarron, Texas, and Beaver Counties. (Okla. Coop. Sur.).

### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Eggs, moderate, ranged 0-44 (averaged 8) per square foot of wheat in Berrien County field. (PP). INDIANA - Eggs up to 3.5 per square foot in 2 oatfields in Franklin County; and 18 per 500 stems in northwest district. (Cummings, Gutierrez). OHIO - Eggs increased in wheat in many central and northwestern areas. (Fox). WEST VIRGINIA - Adults 14 per 100 sweeps on wheat and wild grasses in Putnam County. Adults, eggs, and first instar larvae in wild grasses and volunteer oats in Mason County. Adults 3 per 100 sweeps in wheat and adult feeding light. Adults 138 per 100 sweeps and eggs 39 per square foot in 3 acres of oats in Pleasants County. Adults, eggs, and larvae in wheat in Wood County. Adults beginning to move into oats. Cool temperatures retarded oviposition. (W. Va. Ins. Sur.).

A GRASS BUG (Labops hesperius) - UTAH - Population 98 percent adult, many mating in Cedar City and Pinto Mountain area of Iron County. Adults range various stages in Bryce Canyon and East Fork areas of Garfield County, 5 to 25 percent adult, depending on location. Some grass dead. (Haws).

GRASSHOPPERS - NEVADA - First and second instar nymphs of Melanoplus sanguinipes and M. bivittatus ranged 30-40 per square yard in weedy rangeland areas near cropland in Kings River Valley, Humboldt County. Nymphs (first and second instar) of these species

and Ageneotettix deorum ranged 5-45 per square yard on 4,000 acres of rangeland in Pumpernickel Valley, Humboldt County. (Martinelli et al.).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Hatch noted in Bucks, Northampton, and Monroe Counties. (Cameron, Raub). NEW JERSEY - Hatch noted in Middlesex and Monmouth Counties. (Ins. Dis. Newsltr.).

JAPANESE BEETLE (Popillia japonica) - OHIO - Third instar larval counts of 12+ per square foot on 2 golf courses in Trumbull and Guernsey Counties. (Custer).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae damaged commercial tomato plantings, corn, and beans in Houston County. Heavy larval infestation serious in bean and okra planting in Mobile County. (Wilson et al.).

---

#### HAWAII INSECT REPORT

Corn - Larvae of CORN EARWORM (Heliothis zea) heavy in 4 acres of corn at Waianae, Oahu; 80 percent of ears with 1+ early instar larvae. Nymphs and adults of CORN PLANTHOPPER (Peregrinus maidis) light, 1-7 per plant. (Kawamura).

General Vegetables - A TOMATO BUG (Cyrtopeltis modestus) moderate on terminals in 5,000 square feet of commercial tomato plants at Waianae, Oahu. Adults of a MEMBRACID BUG (Antianthe expansa) trace (less than 1 per 10 plants) also in this planting. M. antianthe first reported in State in June 1971 and became widespread through most of Oahu in yard plantings of solanaceous plants; first report in commercial planting. (Kawamura).

Fruits and Nuts - Larvae of LARGE MANGO TIP BORER (Bombotelia jocosatrix) light on terminal mango leaves at Kona, Hawaii. (Yoshioka).

Forest and Shade Trees - Larval infestations of a NOCTUID MOTH (Melipotis indomita) continued heavy on kiawe trees at Puako, Hawaii throughout April. Larvae collected in this host situation show parasitism by Meteorus laphygmae (a braconid) of 5 percent. Heavy larval populations of M. indomita noted under bark in about 100 acres of kiawe trees at Ulupalakua, Maui; 90-100 percent of each canopy affected. (Yoshioka, Miyahira).

General Pests - Larvae of a GEOMETRID MOTH (Semiothisa santaremaria) heavy on koa haole, kiawe, and monkeypod trees at Kihei, Ulupalakua, and Kahului, Maui, during April. Heavy damage noted on kiawe trees and about 75 percent of leaves on koa haole shrubs affected. Adults heavy in all areas. On Hawaii, moderate to heavy larval populations observed in koa. (Miyahira, Yoshioka).

---

#### DETECTION

New County Records - ALFALFA WEEVIL (Hypera postica) TEXAS - Lipscomb, Ochiltree, Hemphill (p. 268). AMERICAN BLACK FLOUR BEETLE (Tribolium audax) SOUTH DAKOTA - Spink (p. 272). A SOFT SCALE (Lecanium kunoensis) CALIFORNIA - Santa Clara (p. 270).











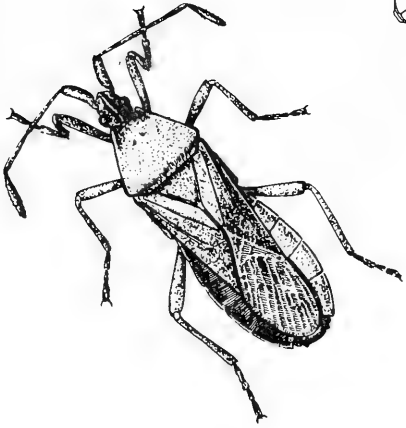
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE

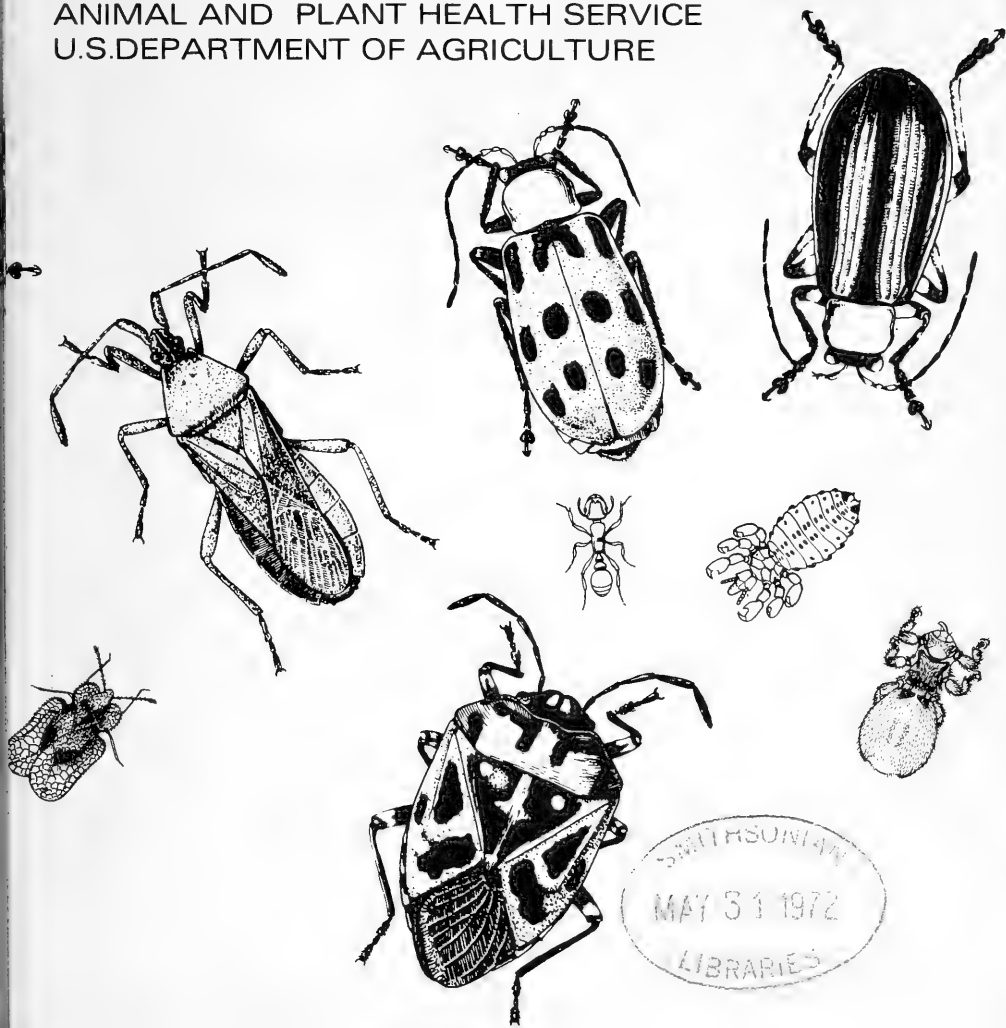


0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

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



SMITHSONIAN  
MAY 31 1972  
LIBRARIES

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

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

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

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

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

ARMYWORM larvae heavy in fescue grass in portion of Alabama, continue heavy in Mississippi Delta areas. Damaged pastures in limited area of Tennessee. Heavy in eastern Arkansas. Controls applied in small grain fields with heavy growth in Missouri. (p. 277).

CORN LEAF APHID heavy in grain sorghum in north-central Texas. (p. 277).

ALFALFA WEEVIL damage to alfalfa heavier than expected in portions of Virginia; about 30 percent of alfalfa fields in central Maryland need controls. Continues heavy in southern Missouri, still heavy in some areas of Oklahoma. Damage expected in some areas of South Dakota. (pp. 278-279).

Number of SCREWWORM cases reported in the United States increased from 434 past period to 609. (p. 281).

● Heavy population of CEREAL LEAF BEETLE reported in Ohio. (p. 282).

Detection

New State records include 5 ICHNEUMONS from North Dakota. (p. 282).

For new county records see page 282.

Special Reports

Survey Methods. Selected References for Last Half of 1970. Part XXXV. (pp. 285-298).

Imported Fire Ant Quarantines. Map. Centerfold.

Reports in this issue are for week ending May 12 unless otherwise indicated.

## CONTENTS

Special Insects of Regional Significance.....	277
Insects Affecting	
Corn, Sorghum, Sugarcane....	277
Turf, Pastures, Rangeland...	278
Forage Legumes.....	278
Cotton.....	279
Sugar Beets.....	279
Miscellaneous Field Crops...	280
Potatoes, Tomatoes, Peppers.....	280
General Vegetables.....	280
Deciduous Fruits and Nuts.	280
Small Fruits.....	280
Forest and Shade Trees...	280
Man and Animals.....	281
Beneficial Insects.....	282
Federal and State Plant Protection Programs.....	282
Detection.....	282
Hawaii Insect Report.....	283
Light Trap Collections.....	284
Survey Methods. Selected References for Last Half of 1970. Part XXXV.....	285
Imported Fire Ant Quarantines. Map. Centerfold.	

### WEATHER OF THE WEEK ENDING MAY 15

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

**PRECIPITATION:** Rain fell over most of the eastern third of the Nation Monday April 8. Precipitation was especially generous along a quasi-stationary front that stretched from Illinois to Maryland. This front separated cool air to the north from warm, humid air south of the front. One heavy downpour at Lincoln, Illinois, dumped 5.01 inches of rain in 6 hours. Scattered showers occurred also from the Pacific Northwest to the northern and central Great Plains. As the storm system producing rains east of the Mississippi River moved eastward, it was followed by a large high that brought sunny skies. New storms developed west of the high. One of these dampened much of South Dakota, eastern Wyoming, and parts of Nebraska. The other soaked parts of Texas. Over 6 inches of rain splashed down on Beeville, Texas, Wednesday afternoon. Beeville is about 35 miles northwest of Corpus Christi. As thunderstorms, some accompanied by hail and high winds, dotted the central and southern High Plains, snow fell in the central Rocky Mountains accumulating to 3 inches at Rock Springs, Wyoming. Generous rains fell late in the week and over the weekend from the Great Plains to the Atlantic Ocean. A "cloudburst" of up to 10 inches north of New Braunfels, Texas, Thursday night sent a wall of water estimated at 30 feet in height down Blueders Creek into the Comal and Guadalupe Rivers washing away people, houses, and automobiles. Sixteen persons were drowned, 9 still missing, and property damage has been estimated at \$20 million. Weekly totals exceeded 1 inch over much of the eastern half of the Nation. Stations along the Ohio River received from 1 to over 4 inches. Totals in Texas ranged from none in the extreme west to over 10 inches in the Guadalupe River Basin. This is the 20th week with no rain or only light sprinkles in the Far Southwest. Weather of the week continued on page 283.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (Pseudaletia unipuncta)** - ALABAMA - Larvae ranged 2-10 per square foot in no-till corn in Morgan County, 2-4 per square yard of wheat in Colbert County, where damage light, and 10-30 per square foot of fescue in southern Limestone County. (Rutledge et al.). MISSISSIPPI - Still heavy in some delta counties. Heavy in Tallahatchie County, light to heavy in Tunica County, light in Washington County, and spotty in Quitman County. (Robinson). TENNESSEE - Larvae heavy and damaging alfalfa and pastures in Obion County. Controls planned. (Mullett, Martin). ARKANSAS - Scattered larval infestations continued and few fields treated in eastern areas. Heaviest larval count of 8-10 per square foot in Clay County. (Boyer et al.). MISSOURI - Larvae ranged 1-17 per square foot in wheat and barley fields with heavy growth; noneconomic in thin stands. Chemical controls applied. (Houser). Larvae ranged 3-10 per square foot in orchard grass and fescue in southwest area. Heavier counts (5-16) found in few dense stands of barley in this area. Larvae in southwest area still too small to treat. (Munson). KANSAS - Very light, less than 0.5 per row foot of up to half-grown larvae in wheat in Montgomery, Labette, and Crawford Counties. (Bell). DELAWARE - Adults continue to increase in blacklight trap in Sussex County. (Burbutis).

**ARMY CUTWORM (Euxoa auxiliaris)** - WYOMING - Larvae ranged 0-3 (averaged less than 1) per square foot in 2 alfalfa fields in Park County. None in 3 fields in Washakie and Hot Springs Counties. (Burkhardt). NEVADA - Counts of 2-4 per alfalfa crown in Diamond Valley, Eureka County, and 1 per alfalfa crown on scattered plants in Grass Valley, Lander County. (Peters, Wilson).

**CORN LEAF APHID (Rhopalosiphum maidis)** - TEXAS - Scattered and heavy infestations throughout north-central area. Infestations continue heavy in Bell, Hill, McLennan, and Falls Counties. Beneficial insects beginning to increase; control measures have not been applied. (Hoelscher, Turney).

**SPOTTED ALFALFA APHID (Therioaphis maculata)** - KANSAS - Ranged 300-400 per 10 sweeps in Barber County alfalfa. (Bell).

### CORN, SORGHUM, SUGARCANE

**EUROPEAN CORN BORER (Ostrinia nubilalis)** - MINNESOTA - Potential for heavy first generation continues for 1972. Overwintering populations in southwest, south-central, southeast, and west-central districts heavy enough to cause damage. Winter larval mortality light and not expected to change outlook. Weather conditions in June will determine intensity of infestation. (Minn. Pest. Rpt.). IOWA - Spring survey of oatfields with cornstalk debris completed May 10. Sample of 5 square yards at each stop. Total of 45 stops and live borers 282. Live borers per acre 6,074 compared with 6,375 in 1971. (Iowa Ins. Sur.). DELAWARE - First adults of season in blacklight traps in Sussex County on May 7; pupation 60 percent in this area. (Burbutis).

**FALL ARMYWORM (Spodoptera frugiperda)** - FLORIDA - Unusually abundant for time of year; comprised 84 percent of larvae on unsprayed check plants of sweet corn at Belle Glade, Palm Beach County, with 56 percent of ears damaged. (Janes).

CORN ROOTWORMS (Diabrotica spp.) - MINNESOTA - Populations heavy enough in some districts to cause damage in 1972, especially in southeast and south-central districts, and to lesser extent in southwest and east-central districts. (Minn. Pest Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MISSOURI - Adults ranged 1-11 per small corn plant in southwest area. Some controls applied. (Munson).

A WIREWORM (Melanotus communis) - NORTH DAKOTA - Larvae ranged 1-2 per square foot in Ransom County field. Economic damage occurred to corn in same field in 1971. (McBride).

#### TURF, PASTURES, RANGELAND

BROWN WHEAT MITE (Petrobia latens) - WASHINGTON - Nymph and adult damage ranged 20-30 percent to orchard grass in several fields in Grant County. (Foepfel).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Based on 11 fields sampled (89 acres), 94 percent of tips infested in alfalfa less than 7 inches tall. Average defoliation 21.5 percent with 54.4 percent of fields surveyed exceeding treatment threshold. Damage in Shenandoah Valley area heavier than expected. (Allen).

MARYLAND - Current damage above 1971 level at this time. Damaged tips ranged 10-80 percent, averaged 30 percent in most fields in Frederick, Baltimore, and Prince Georges Counties. Percent tip damage ranged 0-70 in Queen Annes, Talbot, Dorchester, and Somerset Counties, averaged below 30 percent in most fields. Pupation noted in Eastern Shore. Estimated 30 percent of fields in central areas may require controls. Most growers on Eastern Shore should be able to avoid sprays by cutting early. (U. Md. Ent. Dept.). OHIO - Larval populations light to moderate. Counts per 50 sweeps by county: Morgan 2-5; Washington 0-1; Perry 0-2; Vinton 0-1; Athens 5; Noble 30-50. Less than one bud per 100 plants damaged in Seneca County; about 1 per 100 noted in Franklin County. (Blair, Eisely). MICHIGAN - Adults 6 per 100 sweeps in Ingham County alfalfa. Egg laying underway in some southern counties. (Ruppel, Sauer). ILLINOIS - Area of potential economic damage (20 larvae per sweep) south of line from Hancock County in west to Douglas County in east. Larval populations apparently heavier in western areas than eastern areas of same latitude. (Ill. Ins. Sur.).

MISSOURI - Most H. postica pupated and emerged in southeast area and alfalfa cut. (Houser). Larvae ranged 20-500 per 10 sweeps in southwest area. All larval stages present and adult emergence underway. Chemical controls still being applied in this area. Harvest started. (Munson). ARKANSAS - Declined to 800 per 100 sweeps from 2,000 per 100 sweeps previous week in field checked weekly in Washington County. (Boyer). OKLAHOMA - Adults decreased in Garvin and Choctaw Counties. Still heavy in alfalfa in Payne (20-50 per square foot), Kay, Osage, and Cleveland Counties. Moderate to heavy in Wagoner County. (Okla. Coop. Sur.). KANSAS - Larval counts decreased in alfalfa in southeast areas. Counts of 200+ per 10 sweeps continue in some fields in Crawford and



Bourbon Counties. Larvae ranged 10-175 per 10 sweeps in other counties in this area. Pupation underway. Adult emergence noted. Many fields cut show no signs of infestation on regrowth. Generally in eastern and western areas no economic damage reported. (Gates). SOUTH DAKOTA - Expect damaging infestations in alfalfa in Fall River, Custer, Pennington, Lawrence, Butte, and Meade Counties. (Jones et al.). NEVADA - H. postica larvae ranged 1-15 per sweep of alfalfa in Pershing County. (Stitt). Ranged 4-10 per sweep of alfalfa hay in Churchill County. About 300 acres treated. (Adams, Arnett).

PEA APHID (Acyrtosiphon pisum) - SOUTH DAKOTA - Weather conditions could influence outbreak on alfalfa in southern areas next few weeks. (Jones et al.). KANSAS - Increased in central area alfalfa. Up to 2,200 per 10 sweeps noted in Barber County field, with 10 percent parasitized. Trace parasitism noted in other fields. Currently alfalfa statewide could withstand heavy populations without serious damage, depending on weather conditions. (Gates). ARIZONA - Counts ranged 180 to 10,050 per 100 sweeps of alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Rpt.).

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Larvae heavy, ranged 25-30 per square foot of seed alfalfa in Madras area of Jefferson County. More widespread than in 1971. (Robinson, Berry).

LYGUS BUGS (Lygus spp.) - NEVADA - Nymphs averaged 1 per sweep on alfalfa at Lovelock and ranged 1-10 per sweep in seed fields in Dixie Valley, Pershing County. Treatments applied in latter area. (Stitt).

GRASSHOPPERS - MINNESOTA - Moderate to heavy infestations expected in 1972 in east-central, central, west-central, and south-central areas. Alfalfa and other forage crops will be primary host crops. (Minn. Pest Rpt.).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Heavy on alfalfa hay in sandy soil or dry fields in Churchill County. Some chemical treatments applied. (Adams).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Trapped 55 weevils in 24 of 27 traps in McNairy and Hardeman Counties. Weevils moving from hibernation sites into fields. (Cherry).

## SUGAR BEETS

BEET WEBWORM (Loxostege sticticalis) - COLORADO - Adult flight heavy in Larimer County early May. (Thatcher).

SUGARBEET ROOT MAGGOT (Tetanops myopaeformis) - WYOMING - First adult emergence in Powell area, Park County, May 12. (Burkhardt). COLORADO - Adults appeared early May in northeastern area. (Marquardt, Jenkins).

## MISCELLANEOUS FIELD CROPS

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Larvae ranged 2-5 per square foot in new and established mint plantings in Culver area of Jefferson County. (Robinson, Berry).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - TENNESSEE - Populations light to heavy statewide on potatoes. Controls, when applied, effective. (Gordon).

## GENERAL VEGETABLES

REDBACKED CUTWORM (Euxoa ochrogaster) - WASHINGTON - Second and third instar larvae caused 10-15 percent damage to 20 acres of asparagus at Sunnyside, Yakima County. Control difficult. (Cone).

GRANULATE CUTWORM (Feltia subterranea) - FLORIDA - Larvae damaged 55 percent of celery in unsprayed check plots at Belle Glade, Palm Beach County, April 29. Stalks unmarketable. (Janes).

## DECIDUOUS FRUITS AND NUTS

COTTON SQUARE BORER (Strymon melinus) - TEXAS - Light to moderate on pecan nutlets in 2 large orchards in El Paso County. Estimated 30-40 nutlets destroyed per larva. Controls applied. (Neeb).

CODLING MOTH (Laspeyresia pomonella) - CALIFORNIA - Moth flights peaked April 28; second treatments underway on apples and pears in Sacramento and Yolo Counties. (Cal. Coop. Rpt.).

REDBANDED LEAFROLLER (Argyrotaenia velutinana) - OHIO - Adults emerged April 29-30 in Wayne County. (Hall).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Ranged 1-37 per apple leaf in untreated trees in Madison County. None noted in treated trees. (Matthew). OHIO - Hatch began May 4 in Wayne County. (Hall).

## SMALL FRUITS

A FLEA BEETLE (Altica ignita) - ARKANSAS - Heavy in Scott County strawberries. (Boyer).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Adults increased. Particularly numerous in and about strawberry plantings, but also in many apple, peach, and pear orchards in southern counties. (Thompson).

## FOREST AND SHADE TREES

CONIFER SAWFLIES (Neodiprion spp.) - KENTUCKY - N. taedae linearis larval defoliation 30-40 percent on loblolly pines in Calloway, Graves, and Marshall Counties. Defoliation 10-20 percent to loblolly pines in Hickman, Fulton, and Carlisle Counties. (Barnett). TENNESSEE - Early instar larvae of N. pratti pratti on pine in Knox County for a new county record. Specimens also noted in Lincoln County. (Mullett).

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

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

PLANT BUGS (Tropidosteptes spp.) - CALIFORNIA - Heavy populations of T. illitus defoliated, or nearly defoliated 3,500 ash trees in Santa Barbara County. T. pacificus appearing on new foliage, nearly 30 days early. Increased past 3 years and now in epidemic populations in several areas of State. (Cal. Coop. Rpt.).

PERIODICAL CICADA (Magicicada septendecim) - MISSISSIPPI - Emergence noted in many areas of State. (Robinson). ALABAMA - Adult emergence heavy and widespread in Montgomery County. (McCabe).

#### MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 609 cases reported in U.S. May 7-13 as follows: TEXAS: Atascosa 10, Bandera 4, Bastrop 1, Bee 14, Bexar 3, Blanco 1, Brewster 3, Brooks 31, Caldwell 6, Cameron 3, Coleman 1, Crockett 1, De Witt 9, Dimmit 29, Duval 15, Edwards 2, Fayette 1, Frio 16, Gillespie 2, Goliad 17, Gonzales 3, Guadalupe 1, Hidalgo 38, Hudspeth 1, Jackson 2, Jim Hogg 18, Jim Wells 30, Karnes 6, Kendall 2, Kenedy 16, Kerr 3, Kinney 13, Kleberg 11, La Salle 15, Lavaca 17, Live Oak 33, Maverick 7, McMullen 9, Medina 9, Nueces 4, Pecos 2, Presidio 2, Real 7, Refugio 8, San Patricio 5, Starr 48, Sutton 1, Terrell 1, Tyler 1, Upton 1, Uvalde 8, Val Verde 5, Victoria 12, Washington 3, Webb 38, Willacy 2, Wilson 18, Zapata 23, Zavala 8.

ARIZONA: Cochise 1, Maricopa 1, Pima 4, Pinal 1, Santa Cruz 1.

OKLAHOMA: Jefferson 1. Total of 430 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 132, Chihuahua 29, Coahuila 119, Nuevo Leon 48, Tamaulipas 102. Total of 50 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. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Ranged 250-300 per head on cattle in Payne and Mayes Counties. Heavy in Marshall County, moderate to heavy in Garvin County, and moderate in Seminole and Cleveland Counties. (Okla. Coop. Sur.). MISSISSIPPI - Populations at highest peak of season. Beef cattle in Marion County averaged 175 per animal; in Oktibbeha and Monroe Counties, averaged less than 100. (Robinson).

MOSQUITOES - MINNESOTA - Percent larval samples in Ramsey and Hennipen Counties show Aedes excrucians in 37, A. fitchii in 24, A. cinereus and A. stimulans in 17, A. vexans in 9, A. flavescens in 5, A. riparius and A. canadensis in 3, and A. spenceri and A. abserratus in 2. Culiseta inornata in 57 percent of larval collections and increasing. Week ending May 12 A. vexans and A. cinereus increased sharply. Early spring single-brood Aedes such as A. excrucians, A. stimulans, A. fitchii pupating. No adults collected to date. (Minn. Pest Rpt.). INDIANA - Adults of Aedes vexans and A. sticticus numerous and annoying in southwest district, landing at rate of 8-10 per minute on arm. (Sanders).

A BLACK FLY (Simulium venustum) - NORTH DAKOTA - Adults emerged May 7 in Cass County. (Brandvik).

GULF COAST TICK (Amblyomma maculatum) - OKLAHOMA - Infested 14 of 40 cattle from Mayes, Rogers, and northern Wagoner Counties. Wagoner and Rogers Counties are new records. (Okla. Coop. Sur.).

### BENEFICIAL INSECTS

ICHNEUMONS - NORTH DAKOTA - Specimens collected in Benson County from Malacosoma disstria (forest tent caterpillar) July 1, 1971. by D. A. Ramse as follows: Theronia atalantae fulvescens; Scambus (Scambus) tecumseh; Coccygomimus pedalis; Itopectis conquisitor; and Hyposoter fugitivus (June 20). Determinations by M. Wasbauer. These are new State records. (Brandvik).

### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Adults 610 per 100 sweeps, eggs ranged 300-500 per square foot and larvae 120 per square foot in Fairfield County. Heaviest population ever reported outside of southwest Michigan. (PP).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Larvae 150 per square foot of pasture in Blaine area of Whatcom County; damage heavy early May. (Rosander et al.).

A GRASS BUG (Irbisia brachycera) - NEVADA - Heavy populations of adults migrated from drying rangeland and infested bluegrass lawns at Reno, Washoe County; damage heavy. (Foster, Wilcox).

GRASSHOPPERS - NEVADA - First to third instar nymphs of Melanoplus sanguinipes ranged 5-70 per square yard on 5,000 acres of alfalfa hay in Hualapai Valley, Washoe County. (Adams, Murphy). Mostly first instar nymphs of this species and M. bivittatus ranged 27-36 per square yard in localized areas of Diamond Valley, Eureka County. (Peters, Wilson). Nymphs, mostly Oedaleonotus enigma, ranged 8-10 per square yard on unspecified acreage in Humboldt County. (Rowe). IDAHO - First instar hatch in rangeland April 30 in Adams County. First and second instar nymphs of Oedaleonotus enigma ranged 5-35 per square yard in 60,000 acres of Owyhee County rangeland. (Pollard, Gibson).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - First egg hatch in Washington County, May 10. (Relli).

### DETECTION

New State Records - ICHNEUMONS - NORTH DAKOTA - Theronia atalantae fulvescens; Scambus (Scambus) tecumseh; Coccygomimus pedalis; Itopectis conquisitor; Hyposoter fugitivus, Benson County. (p.282).

New County Records - A CONIFER SAWFLY (Neodiprion pratti pratti) - TENNESSEE - Knox (p.282). GULF COAST TICK (Amblyomma maculatum) - OKLAHOMA - Rogers, Wagoner (p.280).

New State Record - Collected 2 females of a CERATOPOGONID FLY (Forcipomyia (Pterobosca) fusicornis) in Palolo Valley, Oahu, on April 5, 1972, by S.F. Wong. Specimens found clinging to forewing of a damselfly (Megalagrion sp.). Determined by G. Y. Funasaki and F. G. Howarth, confirmed by W. W. Wirth. Reported from Florida, Louisiana, Puerto Rico, and Brazil. (Kawamura).

Corn - CORN PLANTHOPPER (Peregrinus maidis) light, as many as 8 nymphs and adults per seedling, in whorls and leaf axils in 0.5 acre of corn at Waialua, Oahu. No predators. (Kawamura).

Turf and Pasture - Larval infestations on Maui of GRASS WEBWORM (Herpetogramma licarsisalis) moderate and LAWN ARMYWORM (Spodoptera mauritia) light on Bermuda grass at Lahaina. H. licarsisalis larvae trace on Kikuyu grass pastures at Hana and Kipahulu. Less than 1 larva per square foot on grass at Kaneohe, Oahu. (Miyahira, Kawamura).

Fruits and Nuts - COCONUT LEAFROLLER (Hedylepta blackburni) moderate on about 75 percent of 100+ coconut trees at Lahaina, Maui. Larvae 3-4 per infested pinna and 25 percent of leaflets affected. Hymenopterous pupae light in leaflets. H. blackburni severe on about 1,000 coconut trees at Kahuku, Oahu. Skeletonized 90 percent of leaves. Larvae light on Kauai. (Sugawa, Kawamura).

Beneficial Insects - Larvae of LANTANA DEFOLIATOR CATERPILLAR (Hypena strigata) heavy in 1,000+ acres of lantana at Ulupalakua and Auwahi, Maui; defoliation near 100 percent. LANTANA LACE BUG (Teleonemia scrupulosa) also heavy in this area. Nymphs and adults of a TINGID BUG (Leptobyrsa decora) heavy at release site at Ulupalakua. LANTANA HISPID (Uroplata girardi) moderate to heavy on scattered lantana on Oahu. (Miyahira et al.).

---

Weather of the week continued from page 276.

TEMPERATURE: Hot weather continued in the southwestern deserts with afternoon temperatures reaching the 90's most days. Afternoon readings in the 70's and 80's were common elsewhere along the South. Cool air spilled southward from the Great Plains to New England. Subfreezing temperatures occurred over the Great Basin and the northern and central Rocky Mountains on one or two mornings. Flagstaff, Arizona, registered 22 degrees Wednesday morning and Elkins, West Virginia, recorded 28 degrees Thursday. Two large highs brought a pleasant weekend to much of the Nation. The western high brought sunny skies to the Pacific Coast and eastward to the western edge of the Great Plains. The eastern high brought sunny weather to the upper Mississippi River Valley and eastward to New England. Rochester, New York, warmed to 85 degrees Saturday afternoon. As highs brought fair weather to the west and the east, stormy weather with clouds and rain covered mid-America. Most of the Nation averaged cooler than normal in the second week of May. Spots in the Great Plains averaged 3 to 6 degrees cooler than normal.



## SURVEY METHODS

### Selected References for Last Half of 1970

#### Part XXXV

Additional copies of Parts I through XXXV of this bibliography are available from Economic Insect Survey and Detection.

#### POPULATION MEASUREMENT

- Fye, R. E. and Bonham, C. D. 1970. Analysis of populations of the boll weevil in one acre of cotton at Florence, South Carolina, in 1957-59. *J. Econ. Ent.* 63(5):1505-1510.
- Leigh, T. F., Gonzalez, D., and van den Bosch, R. 1970. A sampling device for estimating absolute insect populations on cotton. *J. Econ. Ent.* 63(5):1704-1706.
- Mason, R. R. 1970. Development of sampling methods for the Douglas-fir tussock moth, Hemerocampa pseudotsugata (Lepidoptera: Lymantriidae). *Canad. Ent.* 102(7):836-845.

#### FORECASTING

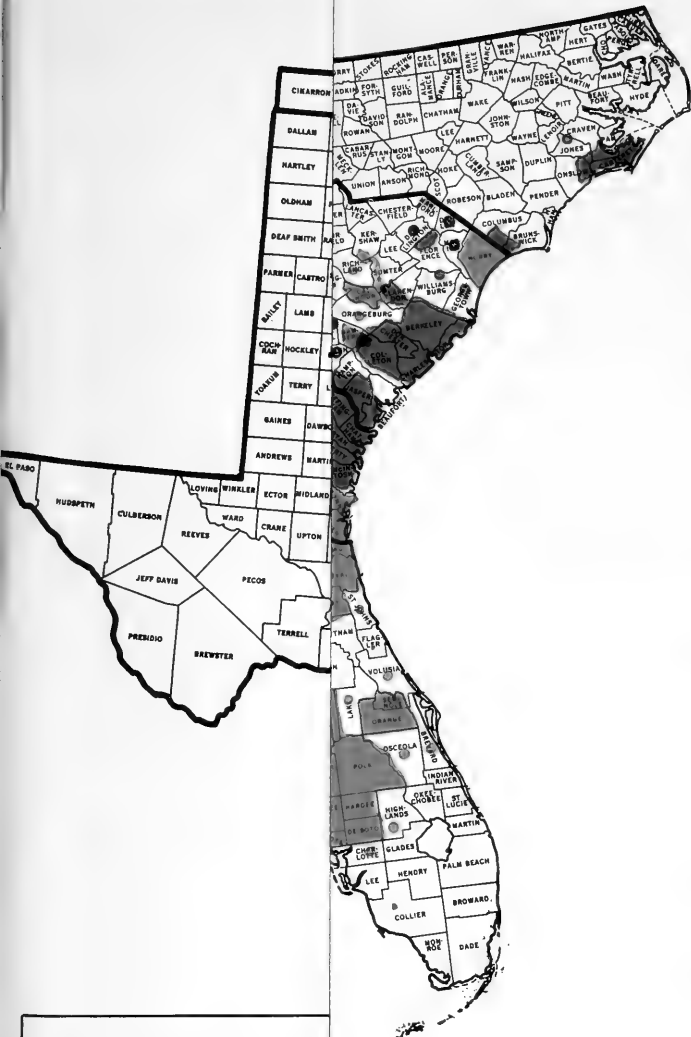
- Sepros, I. 1970. The present system of forecasting in Hungary. *Eur. Mediterr. Plant Protect. Organ. Pub. Ser. A* 57:191-194. Shorter version in French, pp. 193-194.
- Szalay-Marzsó, L. 1970. The Myzus persicae Sulz. observation network and forecasting in seed potato production in Hungary. *Eur. Mediterr. Plant Protect. Organ. Pub. Ser. A* 57:159-161. Shorter version in French, pp. 160-161.

#### REARING

- Abasa, R. O. 1970. Reproductive biology of Sarcophaga tibialis (Diptera: Sarcophagidae). I. Life history with notes on pre-pupation mortality and pupation habits. *Ent. Soc. Amer. Ann.* 63(2):466-469.
- Allen, W. R. and Askew, W. L. 1970. A simple technique for mass-rearing the onion maggot (Diptera: Anthomyiidae) on an artificial diet. *Canad. Ent.* 102(12):1554-1558.
- Amin, O. M. and Sonenshine, D. E. 1970. Development of the American dog tick, Dermacentor variabilis, following partial feeding by immatures. *Ent. Soc. Amer. Ann.* 63(1):128-133.
- Ben-Dov, Y. 1970. Laboratory rearing of wax scales. *J. Econ. Ent.* 63(6):1998-1999.
- Bjarnov, N. and Thorup, J. 1970. A simple method for rearing running-water insects, with some preliminary results. *Arch. f. Hydrobiol.* 67(2):201-209.

- Burton, R. L. 1970. A low-cost artificial diet for the corn earworm. *J. Econ. Ent.* 63(6):1969-1970.
- Cannon, W. N., Jr. 1970. A disposable insulated container for rearing fall webworm larvae in the laboratory. *Res. Note NE. Forest Expt. Sta. No. NE-123.* 3 pp.
- Chamberlain, W. F. and Hopkins, D. E. 1970. Morphological and physiological changes in Bovicola limbata (Mallophaga: Trichodectidae) reared on diet containing synthetic juvenile hormone. *Ent. Soc. Amer. Ann.* 63(5):1363-1365.
- Colburn, R. and Asquith, D. 1970. A cage used to study the finding of a host by the ladybird beetle, Stethorus punctum. *J. Econ. Ent.* 63(4):1376-1377.
- Davis, N. T. and Usinger, R. L. 1970. The biology and relationships of the Joppeicidae (Heteroptera). *Ent. Soc. Amer. Ann.* 63(2):577-587.
- Downes, J. A. 1970. The feeding and mating behaviour of the specialized Empidinae (Diptera); observations on four species of Rhamphomyia in the high Arctic and a general discussion. *Canad. Ent.* 102(7):769-791.
- Drooz, A. T. 1970. Rearing the elm spanworm on oak or hickory. *J. Econ. Ent.* 63(5):1581-1585.
- Drooz, A. T. 1970. The elm spanworm (Lepidoptera: Geometridae): how several natural diets affect its biology. *Ent. Soc. Amer. Ann.* 63(2):391-397.
- DuBose, W. P., Jr. 1970. Aerial spray tests with caged filth flies. *Mosquito News* 30(2):266.
- Dupnik, T. D. and Kamm, J. A. 1970. Development of an artificial diet for Crambus trisectus. *J. Econ. Ent.* 63(5):1578-1581.
- Dupnik, T. D. and Kamm, J. A. 1970. Notes on the biology and rearing of Euchromius ocellus. *J. Econ. Ent.* 63(5):1677-1678.
- Elsey, K. D. and Rabb, R. L. 1970. Biology of Voria ruralis (Diptera: Tachinidae). *Ent. Soc. Amer. Ann.* 63(1):216-222.
- Fatzinger, C. W. 1970. Aseptic techniques for rearing Dioryctria abietella (Lepidoptera: Pyralidae, Phycitinae) on artificial medium. *Ent. Soc. Amer. Ann.* 63(6):1716-1718.
- Graham, C. L. and Capelle, K. J. 1970. Redescription of Cuterebra polita (Diptera: Cuterebridae) with notes on its taxonomy and biology. *Ent. Soc. Amer. Ann.* 63(6):1569-1573.
- Greenberg, B., Kowalski, J., and Karpus, J. 1970. Micro-potentiometric pH determinations of the gut of Periplaneta americana fed three different diets. *J. Econ. Ent.* 63(6):1795-1797.
- Grisdale, D. 1970. An improved laboratory method for rearing large numbers of spruce budworm, Choristoneura fumiferana (Lepidoptera: Tortricidae). *Canad. Ent.* 102(9):1111-1117.





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

treated and the stumpwood is consigned to a processing plant.\*\*

6. Used mechanized soil-moving equipment is exempt\*\*\*if cleaned and repainted.
7. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the imported fire ant and the person in possession thereof has been so notified.

THE FOLLOWING REGULATED ARTICLES MOVED FROM GENERALLY INTERESTED AREAS (RED) REQUIRE A CERTIFICATE OR PERMIT WHEN MOVED AS INDICATED:

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

Soil samples shipped to approved laboratories do not require attachment of certificate or permit.\*\*  
Compost, decomposed manure, humus, and peat are exempt\*\*if dehydrated, ground, pulverized, or compressed.

2. Plants with roots.

3. Grass sod.

4. Hay and straw.

Hay and straw are exempt\*\*if used for packing or bedding.

5. Logs, pulpwood, and stumpwood.

Logs and pulpwood are exempt\*\*provided the railroad loading site has been treated.

Stumpwood, if free of excessive amounts of soil, is exempt\*\*provided the railroad loading site has been treated and the stumpwood is consigned to a processing plant.\*\*

6. Used mechanized soil-moving equipment.

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

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

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:\*

1. Bulk soil.

2. Used mechanized soil-moving equipment.

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

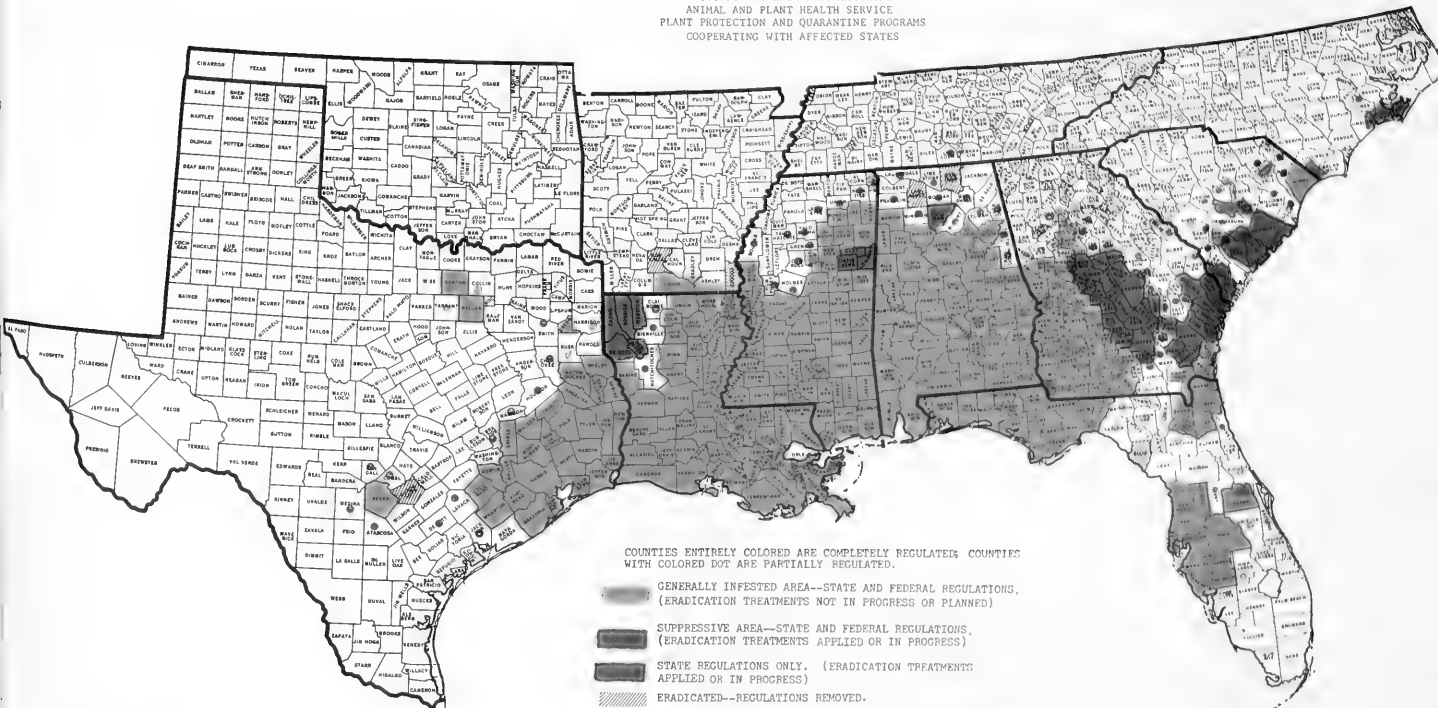
\* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

\*\* Information as to designated laboratories and processing plants may be obtained from an inspector.

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

# IMPORTED FIRE ANT QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH SERVICE  
PLANT PROTECTION AND QUARANTINE PROGRAMS  
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 AND FEDERAL REGULATIONS. (ERADICATION TREATMENTS APPLIED OR IN PROGRESS)

STATE REGULATIONS ONLY. (ERADICATION TREATMENTS APPLIED OR IN PROGRESS)

ERADICATED--REGULATIONS REMOVED.

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

1. RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN.\*
5. BLUE INTO ANY OTHER AREA.\*\*

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

\*\*ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

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

(SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES)

REVISED September 1971

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED:\*

1. Bulk soil.
2. Used mechanized soil-moving equipment.
3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the imported fire ant and the person in possession thereof has been so notified.

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

\*\* Information as to designated laboratories and processing plants may be obtained from an inspector.

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

- Guerra, A. A. 1970. Effect of biologically active substances in the diet on development and reproduction of Heliothis spp. J. Econ. Ent. 63(5):1518-1521.
- Harrell, E. A., Burton, R. L., and Sparks, A. N. 1970. A machine to manipulate corn earworm eggs in a mass-rearing program. J. Econ. Ent. 63(4):1362-1363.
- Harris, R. L. and Frazar, E. D. 1970. Intake of blood by adult horn flies reared in the laboratory. Ent. Soc. Amer. Ann. 63(5):1475-1476.
- Howell, J. F. 1970. Rearing the codling moth on an artificial diet. J. Econ. Ent. 63(4):1148-1150.
- Ignoffo, C. M. and Gard, I. 1970. Use of an agar-base diet and house fly larvae to assay  $\beta$ -exotoxin activity of Bacillus thuringiensis. J. Econ. Ent. 63(6):1987-1989.
- Jones, R. G. and Brindley, W. A. 1970. Tests of eight rearing media for the mountain pine beetle, Dendroctonus ponderosae (Coleoptera: Scolytidae), from lodgepole pine. Ent. Soc. Amer. Ann. 63(1):313-316.
- Joseph, S. A. 1970. Laboratory rearing of fleas. Indian Vet. J. 47(1):89-90.
- Kogan, M. and Goeden, R. D. 1970. The biology of Lema trilineata daturaphila, (Coleoptera: Chrysomelidae) with notes on efficiency of food utilization by larvae. Ent. Soc. Amer. Ann. 63(2):537-546.
- Loor, K. A. and DeFoliart, G. R. 1970. Field observations on the biology of Aedes triseriatus. Mosquito News 30(1):60-64.
- Mangat, B. S. 1970. Rearing the black cutworm in the laboratory. J. Econ. Ent. 63(4):1325-1326.
- McDonald, I. C. 1970. Population cage studies with wild-type and mutant strains of the house fly. Ent. Soc. Amer. Ann. 63(1):187-191.
- Mitsubishi, J. 1970. A device for collecting planthopper and leafhopper eggs (Hemiptera: Delphacidae and Deltocephalidae). Appl. Ent. and Zool. 5(1):47-49.
- Mittler, T. E. 1970. Uptake rates of plant sap and synthetic diet by the aphid Myzus persicae. Ent. Soc. Amer. Ann. 63(6):1701-1705.
- Miura, T. 1970. A simple scum-free rearing technique for mosquito larvae. Ent. Soc. Amer. Ann. 63(5):1476-1477.
- Moore, R. F., Jr., and Taft, H. M. 1970. Fatty acids in lipid fractions of early and late-stage larvae of Heliothis zea and in the diet. Ent. Soc. Amer. Ann. 63(5):1275-1279.
- Moser, J. C. and Roton, L. M. 1970. Tagging mites with aerosol paint. Ent. Soc. Amer. Ann. 63(6):1784.

- Muniappan, R. and Chada, H. L. 1970. Biology of the crab spider, Misumenops celer. Ent. Soc. Amer. Ann. 63(6):1718-1722.
- Norris, D. M. and Chu, H. M. 1970. Nutrition of Xyleborus ferrugineus. II. A holidic diet for the aposymbiotic insect. Ent. Soc. Amer. Ann. 63(4):1142-1145.
- Nyiira, Z. M. 1970. The biology and behavior of Rhinocoris albopunctatus (Hemiptera: Reduviidae). Ent. Soc. Amer. Ann. 63(5):1224-1227.
- Oliver, B. F., Maxwell, F. G., and Jenkins, J. N. 1970. Utilization of glanded and glandless cotton diets by the bollworm. J. Econ. Ent. 63(6):1965-1966.
- Orphanides, G. M. and Gonzalez, D. 1970. Importance of light in the biology of Trichogramma pretiosum. Ent. Soc. Amer. Ann. 63(6):1734-1740.
- Parker, F. D. and Pinnell, R. E. 1970. Rearing the imported cabbageworm parasite Apanteles rubecula in the laboratory. J. Econ. Ent. 63(6):1993-1994.
- Price, P. W. 1970. Biology of and host exploitation by Pleolophus indistinctus (Hymenoptera: Ichneumonidae). Ent. Soc. Amer. Ann. 63(6):1502-1509.
- Putnam, W. L. 1970. Life history and behavior of Balaustium putmani (Acarina: Erythraeidae). Ent. Soc. Amer. Ann. 63(1):76-81.
- Raulston, J. R. and Shaver, T. N. 1970. A low agar casein-wheat germ diet for rearing tobacco budworms. J. Econ. Ent. 63(6):1743-1744.
- Richeson, J. S., Wilkinson, R. C., and Nation, J. L. 1970. Development of Ips calligraphus on foliage-based diets. J. Econ. Ent. 63(6):1797-1799.
- Rings, R. W. 1970. Economic aspects of biology and control of oriental fruit moth, Grapholitha molesta Busck, in United States. Ohio J. Sci. 70(1):58-61.
- Rutledge, L. C., Ward, R. A., and Bickley, W. E. 1970. Experimental hybridization of geographic strains of Anopheles stephensi (Diptera: Culicidae). Ent. Soc. Amer. Ann. 63(4):1024-1030. Includes rearing
- Saba, F. 1970. Parasites, predators, and diseases in a rearing culture of Diabrotica balteata. J. Econ. Ent. 63(5):1674.
- Schroeder, W. J., Miyabara, R., and Chambers, D. L. 1970. A reusable diet support for rearing the melon fly on fluid larval medium. J. Econ. Ent. 63(6):2002.
- Schwartz, J. L. and Lyon, R. L. 1970. Laboratory culture of orange tortrix, and its susceptibility to four insecticides. J. Econ. Ent. 63(6):1788-1790.

- Schwartz, P. H., Jr., Jurimas, J. P., and Hickey, L. A. 1970. Substrata for rearing the Japanese beetle in the laboratory. Ent. Soc. Amer. Ann. 63(4):1083-1085.
- Sharifi, S., Javadi, I., and Chemsak, J. A. 1970. Biology of the Rosaceae branch borer, Osphrantheria coerulescens (Coleoptera: Cerambycidae). Ent. Soc. Amer. Ann. 63(6):1515-1520.
- Sharifi, S. and Zarea, N. 1970. Biology of the citrus butterfly, Papilio demoleus demoleus (Lepidoptera: Papilionidae). Ent. Soc. Amer. Ann. 63(5):1211-1213.
- Smilowitz, Z. and Smith, C. L. 1970. Distributions and frequencies of weight of cabbage looper larvae reared on artificial diet. J. Econ. Ent. 63(4):1106-1107.
- Smith, J. C. and Newsom, L. D. 1970. The biology of Amblyseius fallacis (Acarina: Phytoseiidae) at various temperature and photoperiod regimes. Ent. Soc. Amer. Ann. 63(2):460-462.
- Strong, F. E. and Kruitwagen, E. 1970. Gustatory discrimination between meridic diets by the bug, Lygus hesperus. J. Insect Physiol. 16(3):521-530.
- Taschenberg, E. F. and Roelofs, W. L. 1970. Large-scale rearing of Cecropia (Lepidoptera: Saturniidae). Ent. Soc. Amer. Ann. 63(1):107-111.
- Trpiš, M. and Shemanchuk, J. A. 1970. Effect of constant temperature on the larval development of Aedes vexans (Diptera: Culicidae). Canad. Ent. 102(8):1048-1051.
- Tsitsipis, J. A. and Mittler, T. E. 1970. Convenient lighting system for inducting the production of sexual forms of aphids feeding on artificial diets. Ent. Soc. Amer. Ann. 63(6):1665-1667.
- Webb, R. E. and Smith, F. F. 1970. Rearing a leaf miner, Liriomyza munda. J. Econ. Ent. 63(6):2009-2010.
- Yazgan, S. and House, H. L. 1970. An hymenopterous insect, the parasitoid Itoplectis conquisitor, reared axenically on a chemically-defined synthetic diet. Canad. Ent. 102(10):1304-1306.
- Yendol, W. G. 1970. Fatty acid composition of Galleria larvae, hemolymph, and diet (Lepidoptera: Galleriidae). Ent. Soc. Amer. Ann. 63(1):339-341.

#### EQUIPMENT AND TECHNIQUES

- Bailey, D. L., LaBrecque, G. C., and Whitfield, T. L. 1970. A forced-air column for sex separation of adult house flies. J. Econ. Ent. 63(5):1451-1454.
- Bhattacharya, A. K., Ameel, J. J., and Waldbauer, G. P. 1970. A method for sexing living pupal and adult yellow mealworms. Ent. Soc. Amer. Ann. 63(6):1783.

- Brooke, J. P. and Holyome, B. J. 1970. Activity of two pyrethroids against blackfly larvae, determined by a simple laboratory technique. *Pesticide Sci.* 1(4):123-125.
- Burgdorfer, W. 1970. Hemolymph test. A technique for detection of rickettsiae in ticks. *Amer. J. Trop. Med. and Hyg.* 19(6): 1010-1014.
- Burton, R. L. and Snow, J. W. 1970. A marker dye for the corn earworm. *J. Econ. Ent.* 63(6):1976-1977.
- Candy, D. J. 1970. Metabolic studies on locust flight muscle using a new perfusion technique. *J. Insect Physiol.* 16(3): 531-543.
- Fatzinger, C. W. 1970. Aseptic techniques for rearing Dioryctria abietella (Lepidoptera: Pyralidae, Phycitinae) on artificial medium. *Ent. Soc. Amer. Ann.* 63(6):1716-1718.
- Geer, B. W., Olander, R. M., and Sharp, P. L. 1970. Quantification of dietary choline utilization in adult Drosophila melanogaster by radioisotope methods. *J. Insect Physiol.* 16(1):33-43.
- Graham, H. M. 1970. A method of shipping large numbers of pink bollworm adults. *J. Econ. Ent.* 63(6):2007-2008.
- Hagstrum, D. W. and Hagstrum, W. R. 1970. A simple device for producing fluctuating temperatures, with an evaluation of the ecological significance of fluctuating temperatures. *Ent. Soc. Amer. Ann.* 63(5):1385-1389.
- Hanna, M. A. and Hibbs, E. T. 1970. Feeding phytophagous mites on liquid formulations. *J. Econ. Ent.* 63(5):1672-1674.
- Harris, K. F. and Khalaf, K. T. 1970. A method for microtopographical studies of the surface of insect cuticle using conventional transmission electron microscopy. *Ent. Soc. Amer. Ann.* 63(5):1462-1465.
- Hart, J. R. 1970. A flotation method for determining extent of weevil infestation in peas. *J. Econ. Ent.* 63(4):1060-1062.
- Hayes, D. K., Schechter, M. S., and Wash, D. B. 1970. Disc electrophoresis as a micropreparative technique for hemolymph and soluble tissue proteins. *Ent. Soc. Amer. Ann.* 63(4):1092-1095.
- Hoffman, J. D., Ertle, L. R., Brown, J. B., and Lawson, F. R. 1970. Techniques for collecting, holding, and determining parasitism of lepidopterous eggs. *J. Econ. Ent.* 63(4):1367-1369.
- Ignoffo, C. M. and Boening, O. P. 1970. Compartmented disposable plastic trays for rearing insects. *J. Econ. Ent.* 63(5):1696-1697.
- Kadoum, A. M. and Anderson, C. C., III. 1970. A simple liquid density-gradient mixer. *J. Econ. Ent.* 63(6):1978-1979.



- Kennedy, B. H. 1970. A device for separating and holding small photopositive insects. *J. Econ. Ent.* 63(5):1697-1698.
- Kuehl, R. O. and Fye, R. E. 1970. Efficiency of grid stratification in cotton fields for cotton-insect surveys. *J. Econ. Ent.* 63(6):1864-1866.
- Lee, S. C., Yoo, J. K., and Yoo, C. Y. 1970. Survey on the kinds of the fruit sucking moths and their damages in Korea (II). *J. Plant Protect. (Korea)* 9(2):99-102. In *Jap., Engl. Sum.*
- Lewallen, L. L. 1970. A method of evaluating mosquito larvicides utilizing the ultra-low-volume technique on small plots. *Mosquito News* 30(2):262-264.
- Miller, A. and Harris, R. L. 1970. A collector for studying the emergence pattern of flies. *J. Econ. Ent.* 63(5):1682-1683.
- Morrison, R. K. 1970. A simple cage for maintaining parasites. *Ent. Soc. Amer. Ann.* 63(2):625-626.
- Mukerji, M. K. and Harcourt, D. G. 1970. Design of a sampling plan for studies on the population dynamics of the cabbage maggot, *Hylemya brassicae* (Diptera: Anthomyiidae). *Canad. Ent.* 102(12):1513-1518.
- Musick, G. J. and Fairchild, M. L. 1970. Field emergence cage for corn rootworm adults. *J. Econ. Ent.* 63(5):1710-1711.
- Nettles, W. C., Kissam, J. B., and Adkins, T. R. 1970. Let cattle control pests with self-treatment devices. *Clemson Univ. Ext. Cir.* 392, rev. 13 pp.
- Peleg, B. A. and Rhode, R. H. 1970. New larval medium and improved pupal recovery method for the Mediterranean fruit fly in Costa Rica. *J. Econ. Ent.* 63(4):1319-1321.
- Procaccini, D. J., Marks, L. S., and Cicero, J. 1970. Two techniques for dissecting and mounting genitalia of male butterflies (Lepidoptera). *Ent. Soc. Amer. Ann.* 63(4):1190.
- Ramsy, A. H. 1970. A laboratory technique for mass rearing of a phytoseiid mite. *Z. Angew. Ent.* 65(2):159-161.
- Riordan, D. F. and Peschken, D. P. 1970. A method for obtaining  $P^{32}$ -labelled eggs of the flea beetle *Altica carduorum* (Coleoptera: Chrysomelidae). *Canad. Ent.* 102(12):1613-1616.
- Rummel, R. W. and Turner, E. C., Jr. 1970. A refined technique for counting face fly eggs. *J. Econ. Ent.* 63(4):1378-1379.
- Safranyik, L. and Raske, A. G. 1970. Sequential sampling plan for larvae of *Monochamus* in lodgepole pine logs. *J. Econ. Ent.* 63(6):1903-1906.
- Scarborough, A. G., Waldbauer, G. P., and Sternburg, J. G. 1970. A method for associating cocoons and marked last-stage larvae. *Ent. Soc. Amer. Ann.* 63(5):1481.

- Schroder, R. F. W. 1970. A modified suction machine for sampling populations of alfalfa weevils on alfalfa. J. Econ. Ent. 63(4):1329-1330.
- Wearne, G. R. and Whitten, M. J. 1970. A low-cost collapsible modular cage. J. Econ. Ent. 63(5):1685-1686.
- White, E. G. 1970. A self-checking coding technique for mark-recapture studies. Bul. Ent. Res. 60(2):303-307.
- Wilson, G. R. 1970. A chamber for management of circadian rhythms of light for small insects. J. Econ. Ent. 63(5):1676-1677.
- Wood, G. W. and Small, D. N. 1970. A method of sampling for adults of Chlamisus cribripennis. J. Econ. Ent. 63(4):1361-1362.
- See also Leigh under Population Measurement and Harrell under Rearing.

#### TRAPS

- Banerjee, B. 1970. A mathematical model on sampling diplopods using pitfall traps. Oecologia 4(1):102-105.
- Bertram, D. S., Varma, M. G. R., Page, R. C., and Heathcote, O. H. U. 1970. A Betalight trap for mosquito larvae. J. Med. Ent. 7(2):267-270.
- Braverman, Y. 1970. An improved emergence trap for Culicoides. J. Econ. Ent. 63(5):1674-1675.
- Bucher, G. E. and Cheng, H. H. 1970. Use of trap plants for attracting cutworm larvae. Canad. Ent. 102(7):797-798.
- Buckley, D. J. and Stewart, W. W. A. 1970. A light-activated switch for controlling battery-operated light traps. Canad. Ent. 102(7):911-912.
- Burgess, R. J. and Muir, R. C. 1970. A modification of the Johnson-Taylor suction trap to provide a twelve-hour segregation of the catch. E. Malling Res. Sta. Rpt. 57:169-170 (1969).
- Davich, T. B. 1970. Trapping of weevils by sex lure in reproduction-diapause control areas. Cotton Prod-Mech. Conf. Sum-Proc. pp. 12-15.  
Anthonomus grandis
- Davich, T. B., Hardee, D. D., and Alcála M., J. 1970. Long-range dispersal of boll weevils determined with wing traps baited with males. J. Econ. Ent. 63(5):1706-1708.
- Dickerson, W. A., Gentry, C. R., and Mitchell, W. G. 1970. A rainfree collecting container that separates desired Lepidoptera from smaller undesired insects in light traps. J. Econ. Ent. 63(4):1371.

- Dresner, E. 1970. A sticky trap for Mediterranean fruit fly survey. J. Econ. Ent. 63(6):1813-1816.
- Fay, R. W. and Prince, W. H. 1970. A modified visual trap for Aedes aegypti. Mosquito News 30(1):20-23.
- Frost, S. W. 1970. A trap to test the response of insects to various light intensities. J. Econ. Ent. 63(4):1344-1346.
- Gladney, W. J. and Turner, E. C., Jr. 1970. Mosquito flight activity studies utilizing timer-equipped light traps and Malaise traps. Mosquito News 30(1):75-80.  
Culicidae
- Granger, C. A. 1970. Trap design and color as factors in trapping the salt marsh greenhead fly. J. Econ. Ent. 63(5):1670-1672.
- Hamilton, D. W., Schwartz, P. H., and Townshend, B. G. 1970. Capture of bumble bees and honey bees in traps baited with lures to attract Japanese beetles. J. Econ. Ent. 63(5):1442-1445.
- Hardee, D. D., Cross, W. H., Huddleston, P. M., and Davich, T. B. 1970. Survey and control of the boll weevil in west Texas with traps baited with males. J. Econ. Ent. 63(4):1041-1048.
- Heathcote, G. D. 1970. The abundance of grass aphids in eastern England as shown by sticky trap catches. Plant Pathol. 19(2):87-90.
- Husbands, R. C. and Reed, D. E. 1970. A comparison of larval mosquito species occurrence and light trap data. Calif. Mosquito Cont. Assoc. Proc. Pap. 37:101-108.
- Jones, G. A. and Thurston, R. 1970. Effect of an area program using blacklight traps to control populations of tobacco hornworms and tomato hornworms in Kentucky. J. Econ. Ent. 63(4):1187-1194.
- Kirkpatrick, R. L., Yancey, D. L., and Marzke, F. O. 1970. Effectiveness of green and ultraviolet light in attracting stored-product insects to traps. J. Econ. Ent. 63(6):1853-1855.
- Knudsen, A. B. and Rees, D. M. 1970. Collecting adult tabanids using a "stickem" trap baited with carbon dioxide. Calif. Mosquito Cont. Assoc. Proc. Pap. 37:129-132.
- Miller, T. A., Stryker, R. G., Wilkinson, R. N., and Esah, S. 1970. The influence of moonlight and other environmental factors on the abundance of certain mosquito species in light-trap collections in Thailand. J. Med. Ent. 7(5):555-561.
- Nord, J. C. and Lewis, W. G. 1970. Two emergence traps for wood-boring insects. Ga. Ent. Soc. J. 5(3):155-157.
- Patrick, J. C. and Hensley, S. D. 1970. Recapture of males released at different distances from a trap baited with virgin female sugarcane borers. J. Econ. Ent. 63(4):1341-1342.

- Porter, C. H. and Gojmerac, W. L. 1970. Temperature; its influence on light trap catches of Aedes vexans (Meigen). Mosquito News 30(1):54-56.
- Roberts, R. H. 1970. Tabanidae collected in a Malaise trap baited with CO<sub>2</sub>. Mosquito News 30(1):52-53.
- Rockel, E. G. and Hansens, E. J. 1970. Emergence and flight activity of salt-marsh horse flies and deer flies. Ent. Soc. Amer. Ann. 63(1):27-31.
- Roelofs, W. L., Glass, E. H., Tette, J., and Comeau, A. 1970. Sex pheromone trapping for red-banded leaf roller control: theoretical and actual. J. Econ. Ent. 63(4):1162-1167.
- Stanley, J. M. and Dominick, C. B. 1970. Funnel size and lamp wattage influence on light-trap performance. J. Econ. Ent. 63(5):1423-1426.
- Stewart, J. D. and Shimanuki, H. 1970. Rapid-sample pollen trap for honey bees. J. Econ. Ent. 63(4):1350.
- Stewart, P. A. 1970. Effect of traps equipped with blacklight lamps on infestations of lepidopteran larvae in field corn ears. J. Econ. Ent. 63(6):1974.
- Suda, D. Y. and Cunningham, R. T. 1970. Chrysopa basalis captured in plastic traps containing methyl eugenol. J. Econ. Ent. 63(5):1706.
- Tedders, W. L., Jr., and Edwards, G. 1970. Activity of hickory shuckworm from collections in traps. J. Econ. Ent. 63(5):1610-1611.
- Tomlinson, W. E., Jr. 1970. Effect of blacklight trap height on catches of moths of three cranberry insects. J. Econ. Ent. 63(5):1678-1679.
- Waters, N. D. 1970. Lights and water traps for alfalfa leafcutter bee incubators. Idaho Univ. Ext. Idaho Curr. Inform. Ser. 120. 4 pp.
- White, L. D., Backus, D. A., and Hutt, R. B. 1970. Damage to fruit and leaves of apple trees caused by bactericidal ultraviolet light used to trap codling moths. J. Econ. Ent. 63(3):1003-1004.
- Wilson, B. H. and Richardson, C. G. 1970. Attraction of deer flies (Chrysops) (Diptera: Tabanidae) to traps baited with dry ice under field conditions in Louisiana. J. Med. Ent. 7(5):625.
- Yabe, T., Moriya, K., and Harada, F. 1970. Seasonal prevalence of moth flies collected by light traps at pigpens and a hen-house. Jap. J. Sanit. Zool. 20(4):248-252. In Jap., Engl. Sum.

## ATTRACTANTS

- Albert, P. J., Seabrook, W. D., and Paim, U. 1970. The antennae as the site of pheromone receptors in the eastern spruce budworm, Choristoneura fumiferana (Lepidoptera: Tortricidae). *Canad. Ent.* 102(12):1610-1612.
- Bodenstein, W. G. 1970. Distribution of female sex pheromone in the gut of Periplaneta americana (Orthoptera: Blattidae). *Ent. Soc. Amer. Ann.* 63(1):336-337.
- Bosman, T. 1970. The sex pheromones of insects. *S. Afr. J. Sci.* 66(7):228-232.
- Bucher, G. E. and Cheng, H. H. 1970. Use of trap plants for attracting cutworm larvae. *Canad. Ent.* 102(7):797-798.
- Choi, S. Y. and Song, Y. H. 1970. Field studies on the sex attraction of the fall webworm moths (Hyphantria cunea D.) and the development of sex-attractant trap. *J. Plant Protect.* (Korea) 9(2):85-90. In *Jap., Engl. Sum.*
- Coster, J. E. 1970. Production of aggregating pheromones in re-emerged parent females of the southern pine beetle. *Ent. Soc. Amer. Ann.* 63(4):1186-1187.
- Crew, R. M. and Blum, M. S. 1970. Identification of the alarm pheromones of the ant Myrmica brevinodis. *J. Insect Physiol.* 16(1):141-146.
- Cucchi, N. J. A., Puiatti, A. E., and Garcia, M. F. 1970. Observations on the effectiveness of some attractants for the fruit-fly in Mendoza. *Estac. Expt. Agr. Tucumán Misc. Pub.* 32:16-28.
- Dateman, G. E. and McComb, D. 1970. Female sex attractant for survey trapping European pine shoot moth. *J. Econ. Ent.* 63(5):1406-1409.
- Fincher, G. T., Stewart, T. B., and Davis, R. 1970. Attraction of coprophagous beetles to feces of various animals. *J. Parasitol.* 56(2):378-383.
- Gillies, M. T. and Wilkes, T. J. 1970. The range of attraction of single baits for some West African mosquitoes. *Bul. Ent. Res.* 60(2):225-235.
- Glancey, B. M. and Coauthors. 1970. Pheromone may induce brood tending in the fire ant, Solenopsis saevissima. *Nature* (London) 226(5248):863-864.
- González, D., Orphanides, G., van den Bosch, R., and Leigh, T. F. 1970. Field-cage assessment of Trichogramma as parasites of Heliothis zea: development of methods. *J. Econ. Ent.* 63(4):1292-1296.
- Guedner, R. C., Thompson, A. C., Hardee, D. D., and Hedin, P. A. 1970. Constituents of the cotton bud. XIX. Attractancy to the boll weevil of the terpenoids and related plant constituents. *J. Econ. Ent.* 63(6):1819-1821.

- Hammond, A. M. and Hensley, S. D. 1970. A bioassay for the sex attractant in the sugarcane borer. Ent. Soc. Amer. Ann. 63(1):64-66.
- Happ, G. M. 1970. Maturation of the response of male Tenebrio molitor to the female sex pheromone. Ent. Soc. Amer. Ann. 63(6):1782.
- Ikeshoji, T. and Mulla, M. S. 1970. Oviposition attractants for four species of mosquitoes in natural breeding waters. Ent. Soc. Amer. Ann. 63(5):1322-1327.
- Ishii, S. 1970. An aggregation pheromone of the German cockroach, Blattella germanica (L.). 2. Species specificity of the pheromone. Appl. Ent. and Zool. 5(1):33-41.
- Jacobson, M., Redfern, R. E., Jones, W. A., and Aldridge, M. H. 1970. Sex pheromones of the southern armyworm moth: isolation, identification, and synthesis. Science 170(3957):542-544.
- Jacobson, M., Sonnet, P. E., Adler, V. E., and Cook, D. 1970. Inactivity of a preparation reported to be highly active as a gypsy moth sex attractant. Ent. Soc. Amer. Ann. 63(2):614-615.
- Jefferson, R. N. and Rubin, R. E. 1970. Sex pheromones of noctuid moths. XVII. A clarification of the description of the female sex pheromone gland of Prodenia litura. Ent. Soc. Amer. Ann. 63(2):431-433.
- Jefferson, R. N., Rubin, R. E., McFarland, S. U., and Shorey, H. H. 1970. Sex pheromones of noctuid moths. XXII. The external morphology of the antennae of Trichoplusia ni, Heliothis zea, Prodenia ornithogalli, and Spodoptera exigua. Ent. Soc. Amer. Ann. 63(5):1227-1238.
- Khan, A. A., Maibach, H. I., Strauss, W. G., and Fisher, J. L. 1970. Differential attraction of the yellow fever mosquito to vertebrate hosts. Mosquito News 30(1):43-47.
- Kinzer, H. G., Burns, I. W., and Auclair, J. L. 1970. An olfactometer for measuring host attraction in the horn fly. J. Econ. Ent. 63(4):1335-1337.
- Kirkpatrick, R. L., Yancey, D. L., and Marzke, F. O. 1970. Effectiveness of green and ultraviolet light in attracting stored-product insects to traps. J. Econ. Ent. 63(6):1853-1855.
- Kishaba, A. N. and Coauthors. 1970. Light and synthetic pheromone as attractants for male cabbage loopers. J. Econ. Ent. 63(5):1417-1420.
- Lanier, G. N. 1970. Sex pheromones: abolition of specificity in hybrid bark beetles. Science 169(3940):71-72. Scolytidae

- Legner, E. F. 1970. Attraction of Hippelates eye gnats and other minute Diptera to baits and man with considerations on competitive displacement by exotic non--problem species. Calif. Mosquito Cont. Assoc. Proc. Pap. 37:119-126.
- Levinson, H. Z. and Bar Ilan, A. R. 1970. Lack of an intraspecific attractant in male Trogoderma granarium. Riv. di Parassitol. 31(1):70-72.
- MacFarlane, J. H. and Earle, N. W. 1970. Morphology and histology of the female sex pheromone gland of the salt-marsh caterpillar, Estigmene acrea. Ent. Soc. Amer. Ann. 63(5):1327-1332.
- Mayer, M. S. and James, J. D. 1970. Attraction of Aedes aegypti. II. Velocity of reaction to host with and without additional carbon dioxide. Ent. Expt. et Appl. 13(1):47-53. Ger. Sum.
- McGovern, T. P. and Coauthors. 1970. Esters highly attractive to Vesputa spp. J. Econ. Ent. 63(5):1534-1536.
- McGovern, T. P. and Coauthors. 1970. Phenethyl propionate, a potent new attractant for Japanese beetles. J. Econ. Ent. 63(6):1727-1729.
- McGovern, T. P. and Beroza, M. 1970. Volatility and compositional changes of Japanese beetle attractant mixtures and means of dispensing sufficient vapor having a constant composition. J. Econ. Ent. 63(5):1475-1479.
- McGovern, T. P., Gouck, H. K., Beroza, M., and Ingangi, J. C. 1970. Esters of  $\alpha$ -hydroxy- $\beta$ -phenyl aliphatic acids that attract female yellow-fever mosquitoes. J. Econ. Ent. 63(6):2002-2004.
- Menon, M. 1970. Hormone-pheromone relationships in the beetle, Tenebrio molitor. J. Insect Physiol. 16(6):1123-1139.
- Moeck, H. A. 1970. An olfactometer for the bio-assay of attractants for scolytids. Canad. Ent. 102(7):792-796.
- Moeck, H. A. 1970. Ethanol as the primary attractant for the ambrosia beetle Trypodendron lineatum (Coleoptera: Scolytidae). Canad. Ent. 102(8):985-995.
- Nijholt, W. W. 1970. The effect of mating and the presence of the male ambrosia beetle, Trypodendron lineatum, on "secondary" attraction. Canad. Ent. 102(7):894-897.
- Nolte, D. J., May, I. R., and Thomas, B. M. 1970. The gregarisation pheromone of locusts. Chromosoma 29(4):462-473.
- Osborne, G. O. and Hoyt, C. P. 1970. Phenolic resins as chemical attractants for males of the grass grub beetle, Costelytra zealandica (Coleoptera: Scarabaeidae). Ent. Soc. Amer. Ann. 63(4):1145-1147.

- Payne, T. L., Shorey, H. H., and Gaston, L. K. 1970. Sex pheromones of noctuid moths: factors influencing antennal responsiveness in males of Trichoplusia ni. J. Insect Physiol. 16(6):1043-1055.
- Shorey, H. H. and Bartell, R. J. 1970. Role of a volatile female sex pheromone in stimulating male courtship behaviour in Drosophila melanogaster. Anim. Behav. 18(1):159-164.
- Smith, F. F. and Boswell, A. L. 1970. New baits and attractants for slugs. J. Econ. Ent. 63(6):1919-1922.
- Sower, L. L., Shorey, H. H., and Gaston, L. K. 1970. Sex pheromones of noctuid moths. XXI. Light:dark cycle regulation and light inhibition of sex pheromone release by females of Trichoplusia ni. Ent. Soc. Amer. Ann. 63(4):1090-1092.
- Stanić, V., Zlotkin, E., and Shulov, A. 1970. Localization of pheromone excretion in the female of Trogoderma granarium (Dermestidae). Ent. Expt. et Appl. 13(3):342-351.
- Strong, L. 1970. Epidermis and pheromone production in males of the desert locust. Nature (London) 228(5268):285-286.
- Teetes, G. L. and Randolph, N. M. 1970. Color preference and sex attraction among sunflower moths. J. Econ. Ent. 63(4):1358-1359.
- Toba, H. H. and Coauthors. 1970. Response of male cabbage loopers to 15 isomers and congeners of the looper pheromone. J. Econ. Ent. 63(4):1048-1051.
- Turica, A. 1970. The main attractants for fruit-flies and the influence of temperature. Estac. Expt. Agr. Tucumán Misc. Pub. 32:7. Sum. only.
- Yonce, C. E. and Gentry, C. R. 1970. Bait for oriental fruit moth attracts lesser peach tree borer moths. J. Econ. Ent. 63(6):1976.

Prepared by Economic Insect  
Survey and Detection Staff  
May 12, 1972

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(20):285-298, 1972





U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



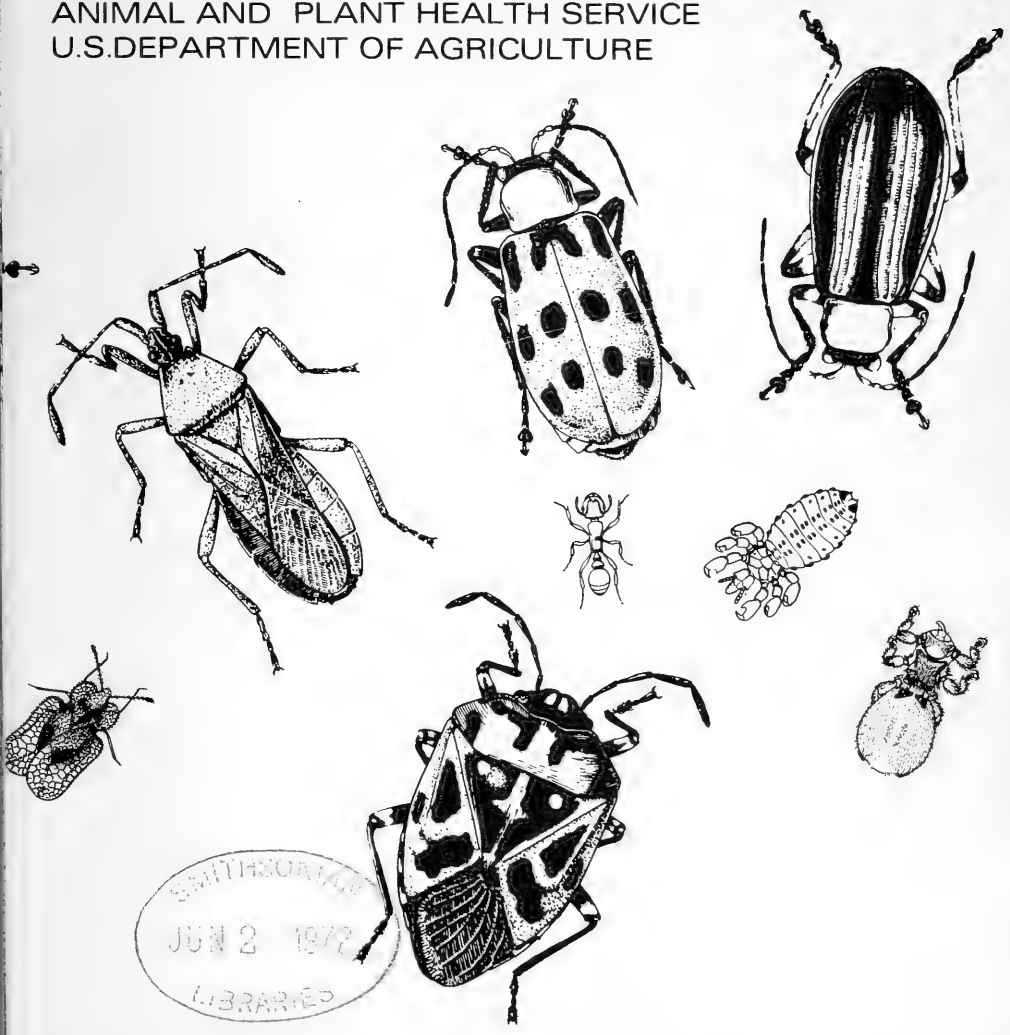
0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



SB  
523  
177  
T

# Cooperative Economic Insect Report

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



SMITHSONIAN  
JUN 2 1972  
LIBRARY

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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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

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

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

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

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

Detection

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

For new county records see page 310.

Special Reports

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

---

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

## CONTENTS

Special Insects of Regional Significance.....301

### Insects Affecting

Corn, Sorghum, Sugarcane...302	Cucurbits.....305
Small Grains.....303	Deciduous Fruits and Nuts...306
Forage Legumes.....303	Citrus.....306
Cotton.....305	Small Fruits.....307
Potatoes, Tomatoes,	Forest and Shade Trees.....307
Peppers.....305	Man and Animals.....308
Beans and Peas.....305	

Beneficial Insects.....308	Federal and State Plant Protection Programs.....309
Hawaii Insect Report.....310	Detection.....310
Light Trap Collections.....311	Preparation of Notes For Cooperative Economic Insect Report...313

### WEATHER OF THE WEEK ENDING MAY 22

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

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

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

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

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

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

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

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

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

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

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

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

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

### CORN, SORGHUM, SUGARCANE

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

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



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

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

#### SMALL GRAINS

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

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

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

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

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

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

#### FORAGE LEGUMES

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

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

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

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

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

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

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

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

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

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

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

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

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

## COTTON

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

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

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

## POTATOES, TOMATOES, PEPPERS

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

## BEANS AND PEAS

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

## CUCURBITS

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

## DECIDUOUS FRUITS AND NUTS

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

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

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

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

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

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

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

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

## CITRUS

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

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

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

### **SMALL FRUITS**

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

### **FOREST AND SHADE TREES**

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

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

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

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

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

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

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

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

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

#### MAN AND ANIMALS

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

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

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

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

#### BENEFICIAL INSECTS

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

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - INDIANA - Eggs in oats 3-4 inches tall at rate of 0.4-0.8 per stem in several fields in north-central district. Adults 17-20 per 100 linear row feet in oats. Adults moving from wheat to oats. (Gutierrez, Shade).

OHIO - Counts per square foot in Fairfield County wheat: Eggs 300-500, larvae 120; adults 610 per 100 sweeps. Larvae light in Clark, Hamilton, and Ross Counties. Damage 5 percent or less. Expect infestation of oats soon. (Fox et al.). WEST VIRGINIA - Eggs averaged 6 per square foot in oats and larvae 3 per square foot. Adults abundant and laying eggs. Mostly early instars in oats and late instars in wild grass in Mason County. (W.Va. Ins. Sur.). TENNESSEE - Larvae collected from oats in Pickett County May 9, 1972, by C.D. Gordon and J. Hammett. This is a new State record. Larvae collected from wheat in Macon County May 10 by B. Cole and A. Morris, and on wheat in Clay County May 11 by W.E. Jennings and L.C. Greene. These are new County records. Determinations by C.D. Gordon and V.H. Owens; confirmed by R.E. White. (Gordon).

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

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

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

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

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

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

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

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

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

## DETECTION

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

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







## Preparation of Notes for Cooperative Economic Insect Report

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

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

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

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

Examples of notes including these data are as follows:

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

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

## Measuring Insect Infestations

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

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

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

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

U. S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(21):313-314, 1972



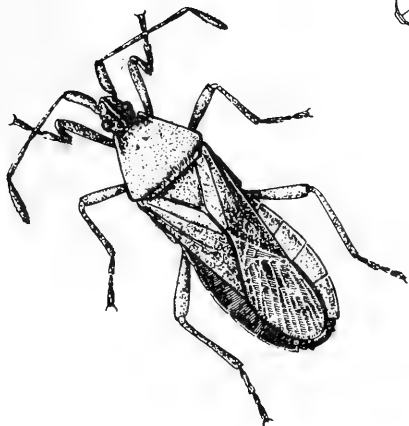
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



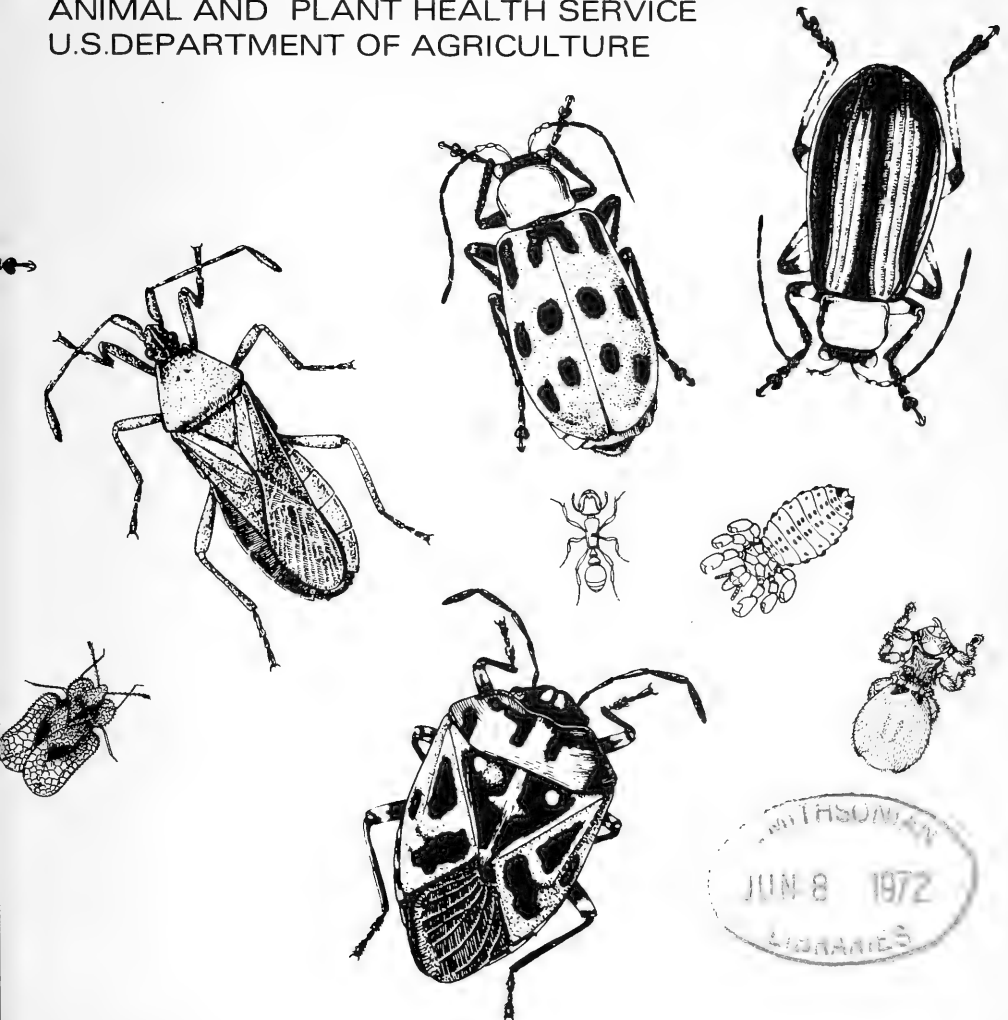
0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



B  
23  
77  
NT

# Cooperative Economic Insect Report

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



SMITHSONIAN  
JUN 8 1972  
LIBRARIES

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

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

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

**Economic Insect Survey and Detection  
Plant Protection and Quarantine Programs  
Animal and Plant Health Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782**



## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

ARMYWORM outbreak in middle Tennessee. Heavy in Kentucky, Virginia, and Illinois. (p. 317).

BLACK CUTWORM larvae damaged corn in central and western Illinois. (p. 318).

ALFALFA WEEVIL larval infestations increased in Nevada. Larval damage heaviest in 10 years in limited area of Utah. Damage reported in Idaho, New Mexico, Ohio, and Kentucky. (pp. 318-319).

ALFALFA BLOTCH-MINER adults appearing on alfalfa in New York and Massachusetts. (p. 319).

Total number of SCREWORM (Cochliomyia hominivorax) cases reported in the U.S. increased from 791 period ending May 20 to 1,574 period ending May 27. (Anim. Health).

#### Detection

New State records include BROWN WHEAT MITE (p. 320) and 2 SPIDER MITES from Pennsylvania (p. 321), a PENTATOMID from Hawaii (p. 323).

For new county records see page 323.

---

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

## CONTENTS

Special Insects of Regional Significance.....	317
Insects Affecting	
Corn, Sorghum, Sugarcane....	318
Small Grains.....	318
Turf, Pastures, Rangeland..	318
Forage Legumes.....	318
Cotton.....	320
Potatoes, Tomatoes, Peppers.	320
Beans and Peas.....	320
Cucurbits.....	320
General Vegetables.....	320
Deciduous Fruits and Nuts.	321
Ornamentals.....	321
Forest and Shade Trees....	321
Man and Animals.....	321
Beneficial Insects.....	322
Federal and State Plant Protection Programs.....	322
Hawaii Insect Report.....	323
Detection.....	323
Light Trap Collections.....	324
Weather of the Week Ending May 29.....	325
Distribution of Meadow Spittlebug. Map.....	326

---

### NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

JUNE 1972

The National Weather Service's 30-day outlook for June is for temperatures to average above seasonal normals from the Northern Plains to the Great Lakes and also west of the Divide except for near to below normal along the Pacific coast. Below normal temperatures are indicated for the southern Plains and the gulf and south Atlantic Coast States. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal over parts of the southern Plateau as well as the southern Plains, the gulf coast and the middle and south Atlantic Coast States. Subnormal totals are indicated for the West Coast States, the northern Rockies and the northern Plains. In unspecified areas near normal precipitation is expected.

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

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - WYOMING - Larvae economic, ranged 0-3 per row foot in sugar beets at Worland, Washakie County. Some replanting needed. Also heavy in grasses. (Burkhardt).

ARMYWORM (Pseudaletia unipuncta) - TENNESSEE - Outbreak in Blount, Bledsoe, McMinn, Lawrence, and Williamson Counties on small grain, alfalfa, and on pastures. (Pless, Williams). Continues to damage grain in central areas. (Gordon). KENTUCKY - Larval defoliation to corn at one site 20 percent and 30 percent at another in Warren County; counts of 120 and 340 per 100 sweeps noted in 2 barley fields. Damage light to corn in Barren and Madison Counties. Larval counts light in Christian and Todd Counties on barley. Counts of 5 per 100 sweeps of oats noted in Larue County. (Barnett).

VIRGINIA - Larvae heavy in no-till corn statewide. Damage heavy in Roanoke, Buckingham, Amelia, and Craig Counties. Heavy in 7 of 9 fields of corn in Montgomery, Pulaski, and Wythe Counties. (Allen).

MARYLAND - Light in alfalfa and grass mixtures and small grain in Dorchester and Talbot Counties. Damage by first and second instar larvae remained below economic thresholds. (U. Md., Ent. Dept.).

MICHIGAN - Counts heavier at blacklight stations on west side of State than at those on east side. Totals for period May 15-21 were 356 at Allegan County station and 83 at Lenawee County station. (Newman). ILLINOIS - Heavy in winter wheat in southern one-third of State. Larvae ranged 4-15 (averaged 8) per row foot. Only lush, heavily shaded fields surveyed. Majority of larvae about one inch long, although sizes ranged 0.25 to 1.25 inches long. (Ill. Ins. Sur.).

ASTER LEAFHOPPER (Macrostoteles fascifrons) - MINNESOTA - Counts of 300+ per 100 sweeps still found in winter wheat and roadside grass in Scott, Carver, Sibley, and Hennepin Counties. (Minn. Pest Rpt.).

NORTH DAKOTA - Spring migrants, 3-100 per 100 sweeps, in rye and alfalfa grass in Morton, Oliver, Burleigh, and Emmons Counties. (Brandvik).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Increase in curly top noted in sugar beets and tomatoes in Merced, Fresno, and Kings Counties. Heavy damage found west of Mendota and near Huron. As weed hosts destroyed, heaviest damage and heaviest population counts occurred next to newly worked fields. Curly-top virus increased in Buttonwillow area of Kern County. Infection increased in some fields from 2-3 to 3-8 percent. (Cal. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - GEORGIA - Light on peanuts and field corn in southern areas. Infested sweet corn in Candler and Coffee Counties. (French, May 19). NORTH CAROLINA - Egg laying started in some Coastal Plain cornfields. (Hunt).

GREENBUG (Schizaphis graminum) - TEXAS - Infestations decreasing in Falls, Bell, McLennan, Navarro, and Hill Counties. Beneficial insects in Bell, Navarro, and Hill Counties. (Hoelscher). KANSAS - Migration underway from wheat to young sorghum in eastern and central areas. Heavy in whorls and on leaf surfaces. (Gates, Brooks).

## CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - GEORGIA - Heavy in sweet corn in Coffee County. (Keen, May 19). NORTH CAROLINA - Moth catches decreased in Carteret and Tyrrell Counties, indicating hibernating larvae emerged and first-generation larvae feeding. (Hunt). MARYLAND - Adults in Talbot, Kent, Dorchester, and Somerset Counties; egg laying on weeds adjacent to cornfields. Egg laying should shift to corn within next 10-15 days. (U. Md., Ent. Dept.). ILLINOIS - Combination of early emergence and late corn expected to result in light damage by first-generation larvae to field corn. (Ill. Ins. Sur.).

BLACK CUTWORM (*Agrotis ipsilon*) - ILLINOIS - Larval damage severe to field corn throughout central and western areas; replanting needed in portions of fields in Adams and Scott Counties. (Ill. Ins. Sur.).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - NORTH CAROLINA - Larval damage noted in Piedmont and Coastal Plain. Heaviest damage of 50 percent in Rowan County cornfield, 25 percent of plants killed. Damage light in Tyrrell County. (Lemmons, Van Duhn).

## SMALL GRAINS

BROWN WHEAT MITE (*Petrobia latens*) - UTAH - Damage reported on 6,000 acres of dryland wheat in San Juan County. Abundant on crested wheatgrass in portions of Juab and Sanpete Counties. (Jones et al.).

## TURF, PASTURES, RANGELAND

FALSE CHINCH BUG (*Nysius ericae*) - NEW MEXICO - Heavy on about 100,000 acres of rangeland at White Oak, Lincoln County. (Perry).

## FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEVADA - Larval infestations continued to increase rapidly. Treatments needed in Churchill, Lyon, and Pershing Counties; planned in Douglas, Humboldt, and Washoe Counties. (Nev. Coop. Rpt.). Larvae ranged 20-50+ per sweep in Mason Valley, Lyon County and Haulapai Valley, Washoe County. (Adams et al.). Larvae ranged 50-125 per sweep at Lovelock, Pershing County; about 7,000 acres treated. (Stitt). IDAHO - Controls needed in 60-80 percent of fields in Canyon County, compared to 30-50 percent in 1971. (Homan). UTAH - First instar larvae ranged 2-6 per terminal on alfalfa in Box Elder and Cache Counties; damage noted. Worst early season damage in 10 years in Davis County. (Davis et al.). NEW MEXICO - Larval damage heavy to some alfalfa in San Juan County area. (Heninger, Patterson).

OKLAHOMA - *H. postica* adults ranged 2-14 per square foot in alfalfa stubble in Washington County. Adults moderate in Washita, Roger Mills, Cleveland, and Bryan Counties. (Okla. Coop. Sur.). TEXAS - Adult and larval damage heavy to alfalfa near Dalhart, Dallam County. (Hill). KANSAS - Pupation about complete, adults emerged in southern area. Larvae from uncut fields ranged 10-90 per 10 sweeps in Elk and Greenwood Counties. Adults up to 250 per 10 sweeps. Larvae present; non-economic in central and western areas. (Gates et al.). IOWA - Collected in Lucas, Wayne, and Appanoose Counties for new records. Heaviest populations in Wayne County,

ranged 10-22 per sweep and 25-50 percent of tips show feeding. (Iowa Ins. Sur.). NORTH DAKOTA - Alfalfa weevil adults averaged 4 per 100 sweeps in irrigated alfalfa in Oliver County. No economic populations in area since first established in 1956. (Brandvik). OHIO - Larvae increased in northwestern areas; caused destruction of first hay cutting in some Auglaize and Madison Counties alfalfa fields. Threatening larval populations found in Marion County. Pupation in Auglaize County underway. In Medina County, adult feeding damage heavy. Harvesting hay started in attempt to keep ahead of damage. (Fox). MARYLAND - Pupation peaked throughout State. First cuttings underway. Many growers in Washington, Frederick, and Carroll Counties will need to use stubble sprays. Fields outside these counties remained below economic threshold or only suffered moderate injury and required little if any chemical controls. (U. Md., Ent. Dept.). KENTUCKY - Larval counts per 100 sweeps of alfalfa: 1,000 in Larue County, 1,500 and 4,000 in Hart County with defoliation 30 and 75 percent, respectively; and 500 in Barren County. (Barnett).

ALFALFA SNOUT BEETLE (Brachyrhinus ligustici) - NEW YORK - Migrations heavy in Jefferson County from sod to new seedings. Several farms severely damaged; alfalfa foliage almost destroyed along edges of fields. Heavy damage noted on Saranac variety near Sochetts Harbor. Damage noted in Wayne County to new seeding near old infested alfalfa. (N.Y. Wkly. Rpt., May 22).

ALFALFA BLOTCH-MINER (Agromyza frontella) - NEW YORK - Adults in Dutchess and Columbia Counties. Pin hole damage observed in alfalfa in Dutchess County. Controls during 1971 indicate treatment best at pin hole stage. (N.Y. Wkly. Rpt., May 22). MASSACHUSETTS - Counts of 303 adults per 100 sweeps in Berkshire County alfalfa field. No leaf mines evident. (Miller).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Spittle masses evident but nymphs still only about half grown. Populations heavier than normal and economic in many fields in Waukesha, Racine and Ozaukee Counties. (Wis. Ins. Sur.). KENTUCKY - Counts per 100 sweeps: 1,500 and 500 on alfalfa in Barren and Larue Counties, respectively; 1,200 on clover in Hart County. (Barnett).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Damaged 200 acres of alfalfa hay in Mason and Smith Valleys, Lyon County; controls needed. (Batchelder). Controls needed on 40 acres of seed alfalfa at Davey Town, Humboldt County. (Rowe). Scattered, localized infestations of 0-6 per leaf on alfalfa in sandy areas and drier soils in Diamond Valley, Eureka County. (Bechtel, Martinelli). This is a new county record. (Bechtel). NEW MEXICO - Light to heavy on alfalfa in San Juan County. Where heavy foliage yellowing and turning brown. (Heninger, Patterson).

PEA APHID (Acyrtosiphon pisum) - OKLAHOMA - Moderate to heavy in alfalfa in Washita County and light to moderate in Garvin County. NEBRASKA - Ranged up to 500 per 100 sweeps in Dawson County alfalfa. (Manglitz, Keith). KENTUCKY - Counts per 100 sweeps of alfalfa; 2,000 in Barren County and 1,000 in Larue County. (Barnett).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, weevils in 6 of 16 treated fields averaged 28 (maximum 168) per acre. Weevils in 11 of 41 untreated fields averaged 58 (maximum 1,000) per acre. Recovered 31 weevils on pheromone traps; total to date 124. During 1971, collected 1,315 weevils during same period. (Cowan et al.). OKLAHOMA - Recovered 6 adults in traps in Jackson County. First of season. (Okla. Coop. Sur.). MISSISSIPPI - Weevils averaged 6.9 per trap on 10 traps in Yalobusha County and Grenada County. (Sartor). GEORGIA - Adults emerged, feeding on young cotton terminals in southern areas. (Womack, May 19).

BOLLWORMS (Heliothis spp.) - TEXAS - In McLennan and Falls Counties, of total larvae previously taken on native hosts 116 identified H. zea. Total to date from all host plants 464 H. zea and 18 H. virescens. (Cowan et al.).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Adults and first instar larvae in most unsprayed Somerset, Wicomico, and Dorchester Counties tomato and potato fields. Populations expected to reach economic levels within 10 days on potatoes. Controls required in newly set tomato fields in Wicomico, Somerset, and Worcester Counties. (U. Md., Ent. Dept.). VIRGINIA - Cool temperature delayed development. Eggs hatched and much feeding in Accomack and Northampton Counties. (Hofmaster).

EUROPEAN CORN BORER (Ostrinia nubilalis) - VIRGINIA - Some eggs hatched; controls needed on Irish potatoes in Accomack and Northampton Counties. (Hofmaster).

## BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Continues to damage peas in Nez Perce County. Some fields need controls and plants in others outgrowing damage. (Portman).

## CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Adults continue to damage newly emerging melons in Wicomico, Dorchester, and Worcester Counties. (U. Md., Ent. Dept.).

## GENERAL VEGETABLES

BROWN WHEAT MITE (Petrobia latens) - PENNSYLVANIA - Adults and nymphs collected on sweetpotato vine in Mifflin County on May 27, 1972, by D. Stehr. Determined by R. Lehman. This is a new State record. Collected on vetch at Harrisburg, Dauphin County, by R. Reiter and D. Tritt on June 30. Determined by R. Lehman. This is a new county record. (Kim).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - VIRGINIA - Damage noted on sweetpotato transplants in Accomack and Northampton Counties. (Hofmaster).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - UTAH - Collected 46 moths in single night in bait traps in Davis County; heaviest count in past 10 years. (David, Mathis).

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - Heavy nymphal hatch underway as far north as Oceana County. Effective control will be critical and difficult in many orchards at petal fall. (Thompson).

## ORNAMENTALS

A SPIDER MITE (Oligonychus aceris) - PENNSYLVANIA - All stages taken on silver maple at Harrisburg, Dauphin County, by F. Wertz on July 23, 1971. Determined by E.W. Baker. This is a new State record. (Kim).

## FOREST AND SHADE TREES

BALSAM TWIG APHID (Mindarus abietinus) - VERMONT - First-generation adults averaged 12 per 2 inches of stem tip on 150 acres of balsam fir in Lamoille County. Needle deformation of 1971 infestation noted on 80 percent of trees in some blocks. Damage in 1972 expected to equal that of 1971. (Benedict).

BRONZE BIRCH BORER (Agrilus anxius) - OREGON - First adults of season taken in emergence cages in Pendleton, Umatilla County, May 25. (Brog). Controls planned to coincide with peak emergence. (Burkhardt).

ELM LEAF BEETLE (Pyrrhalta luteola) - SOUTH DAKOTA - Collected in Lincoln and Tripp Counties. These are new county records. (Jones, Kantack).

PERIODICAL CICADA (Magicicada septendecim) - GEORGIA - Oviposition heavily damaged hardwood in Peach County. (Teddars May 19).

A SPIDER MITE (Eotetranychus multidigituli) - PENNSYLVANIA - All stages taken on honey locust at Stroudsburg, Monroe County, by A. Wheeler on July 29, 1971. Determined by R. Lehman. This is a new State record. (Kim).

## MAN AND ANIMALS

HORN FLY (Haematobia irritans) - TEXAS - Increased in central and in Rolling Plains areas. Heaviest in Navarro, Hill, Hamilton, Wichita, Hardeman, and Wilbarger Counties. (Boring, Hoelscher). OKLAHOMA - Ranged 950-1,000 per head on cattle in Payne County. Heavy in Okfuskee, Muskogee, Pontotoc, and Garvin Counties and moderate in Cleveland County. (Okla. Coop. Sur.). MISSISSIPPI - Averaged 300 per head on 200 head of cattle in Hinds County and 205 per head on 50 cattle in Neshoba County. (Sartor).

MOSQUITOES - MINNESOTA - Heavy emergence of spring Aedes occurred during week ending May 21, in southern two-thirds of State. (Minn. Pest Rpt.).

## BENEFICIAL INSECTS

AN ICHNEUMON (Bathyplectes anura) - MARYLAND - Specimens recovered at Beltsville, Prince Georges County for first recovery in State, May 8, 1972, by R. Schroder. (Ent. Res.).

HONEY BEE (Apis mellifera) - MINNESOTA - Overwintering colony loss averaged 25 percent; starvation accounted for 50 percent of this figure. Heaviest losses in northwest, west-central, east-central and central districts. (Minn. Pest Rpt.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - NEW YORK - Adults 1 per 50 sweeps in 2 Steuben County wheatfields. Eggs averaged 1 per square foot and adult feeding light on new oats in Ontario County. Parasites to be released when eggs average 2 per square foot. (N.Y. Wkly. Rpt., May 22). WEST VIRGINIA - Egg count 24 per square foot of oats, Putnam County. (W.Va. Ins. Sur.). TENNESSEE - Light on grain in following: Sumner, Jackson, Overton, and Rutherford for new county records. (Jennings et al.).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Heavy larval infestation in Wayne, Seneca, and Onondaga Counties. Chemical treatment difficult for third instars. Larval survival heavy expect heavy flights. (N.Y. Wkly. Rpt., May 22).

GRASS BUGS - UTAH - Mostly Labops hesperius heavily damaged 600 acres of grasses in Reese Valley area and moderate on 4,200 acres in Juab County. Damaged grasses in Sanpete County. (Haws, Knowlton). Knowlton). WYOMING - L. hesperius ranged 4-15 per square foot on 100 acres near Cheyenne, Laramie County. (Hardy).

GRASSHOPPERS - NEW MEXICO - Economic on about 200,000 acres of rangeland in Lea County. (Perry). NEVADA - Melanoplus sanguinipes and M. bivittatus infested 4,100 acres of alfalfa and adjacent rangeland in Kings River Valley, Humboldt County; treatment applied. Counts ranged 18-75 per square yard; hatching continues. Thirty-four cases of grass and surrounding area treated for first to fourth instar nymphs of Camnula pellucida ranging 200-1,200 per square yard. (Rowe, Wilson).

JAPANESE BEETLE (Popillia japonica) - SOUTH CAROLINA - Adults 3 in trap in Columbia, Richland County, May 24. First report of year. (King).



## HAWAII INSECT REPORT

New State Record - Nymphs and adults of a PENTATOMID (Eysarcoris ventralis) collected in weedy areas at Hickam Air Force Base, Oahu, on March 29, 1972 by F. Madinger and S. Ochikubo. Additional specimens collected at same host situation. In Japan, E. ventralis is an injurious pest of rice and soybeans and has also been recorded as a pest of rice in Malaya. Distribution includes India, China, Japan, Philippines, Malay Peninsula at Sumatra. Determined by R.C. Froeschner. (Shiroma).

General Vegetables - SOUTHERN GREEN STINK BUG (Nezara viridula) damage moderate to unsprayed yard plantings of sweet corn at Kaunakakai, Molokai. (Fujimoto). DIAMONDBACK MOTH (Plutella xylostella) moderate in 5,000 square feet of daikon at Pearl City, Oahu; as many as 6 larvae and/or pupae per leaf. POTATO TUBERWORM (Phthorimaea operculella) larval infestation heavy on leaves in 0.1 acre of eggplant at Pearl City, Oahu. A MEMBRACID BUG (Antianthe expansa) populations heavy and scattered in yard plantings of eggplant at Ewa, Oahu. As many as 27 nymphs and adults per square inch on underside of leaves and as many as 100+ nymphs and adults on 4-inch length of pencil-size stem. Zelus renardii preying on A. expansa nymphs. (Kawamura).

Fruits and Nuts - Damage light to moderate by COCONUT LEAFROLLER (Hedylepta blackburni) to 95 percent of 63 coconut trees at Hawaii Kai, Oahu. Damage generally light to 100+ coconut trees at Lahaina, Maui; defoliation 5-60 percent. (Kahale et al.).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) and MONKEYPOD MOTH (Polydesma umbricola) heavy on 55 kiawe and 140 monkeypod trees at Lahaina, Maui. Chemical treatment to be applied. (Ah Sam, Miyahira).

Beneficial Insects - Larvae of a PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) increased in nodes of puncturevine Tribulus terrestris on Maui. Of 50 internodes examined at each of 5 sites, up to 77 percent of internodes showed larval feeding. (Miyahira).

---

### DETECTION

New State Records - BROWN WHEAT MITE (Petrobia latens) - PENNSYLVANIA - Mifflin County. (p. 320). A PENTATOMID (Eysarcoris ventralis) - HAWAII - Oahu Island. (p. 323). SPIDER MITES (Eotetranychus multidigituli and Oligonychus aceris) - PENNSYLVANIA - Monroe and Dauphin Counties, respectively. (p. 321).

New County Records - ALFALFA WEEVIL (Hypera postica) IOWA - Lucas, Wayne, Appanoose (p. 318). BROWN WHEAT MITE (Petrobia latens) NEVADA - Eureka (p. 319). PENNSYLVANIA - Dauphin (p. 320). CEREAL LEAF BEETLE (Oulema melanopus) TENNESSEE - Sumner, Jackson, Overton, Rutherford (p. 322). ELM LEAF BEETLE (Pyrrhalta luteola) SOUTH DAKOTA - Lincoln, Tripp (p. 321).



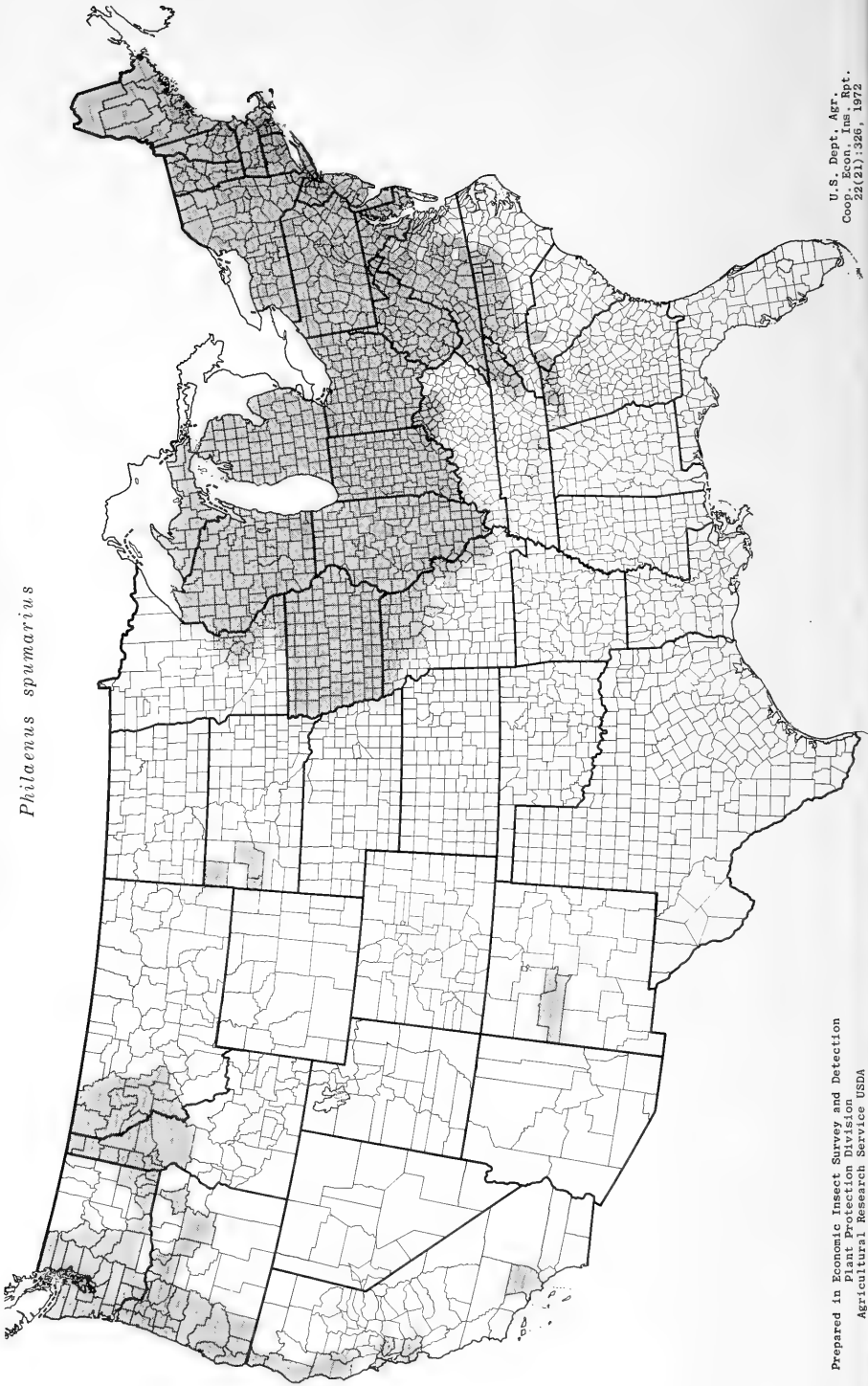
Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

**PRECIPITATION:** Early in the week a slow moving cold front stretched across the Great Plains from the Dakotas to Texas. The front extended from a low in Manitoba to one in western Nebraska and continued to another in Mexico. Scattered thunderstorms occurred up and down the Great Plains. Hail up to 0.75 inch in diameter fell at Hastings, Nebraska, early Monday morning, May 22. In the afternoon, hail large as baseballs fell at Wood River, Nebraska, about 20 miles northwest of Hastings. Small hail fell in South Dakota, Minnesota, and Kansas. Winds at Watertown and Sioux Falls in South Dakota gusted to over 50 m.p.h. Tornadoes were seen in South Dakota, Nebraska, and Kansas, but we have received no reports of injuries nor damage. On Tuesday, tornadoes were seen from South Dakota to Oklahoma, but again there were no reports of damage nor injuries. Disturbances along the front moved slowly eastward. On Tuesday evening, 4.18 inches of rain fell at Winside, Nebraska, in one hour. Also Tuesday evening, strong winds blew down power lines and trees in Kansas City, Missouri. By Wednesday, showers, thunderstorms, and a few tornadoes occurred in the Dakotas, Minnesota, and Iowa. Severe thunderstorms occurred in Mississippi some with hail. Some of the hailstones were large as baseballs. Hail damaged crops, buildings, and automobiles. Scattered thunderstorms continued over the northern Great Plains Thursday. Two tornadoes were seen, one occurred 45 miles southeast of Williston, North Dakota, and another 100 miles northwest of Pierre, South Dakota. Again we have no reports of injuries and damages. Some light rains fell in the Far Northwest and along the middle Atlantic coast. Up to 6 inches of snow fell in spots in the northern Rocky Mountains. Otherwise, fair skies and mostly light winds were the rule. The drought in the Far Southwest intensified. Weekend showers occurred over the northern and central Great Plains and along the Carolina and Georgia coast. No rain fell from California to the Rocky Mountains and from the Great Lakes to New England and as far south as the Ohio River and Pennsylvania.

**TEMPERATURE:** Summer heat continued over most of the Nation under sunny cloudless skies. Temperatures reached the 80's on most afternoons from Wisconsin and Lower Michigan to the Gulf of Mexico. Northern Rocky Mountains were much cooler with maximums mostly in the 60's and 70's. Ninety degree maximums were common in the southwest and at midweek over the southern High Plains. Early morning temperatures ranged from near or slightly below freezing in the high Rocky Mountains and parts of the Great Basin, to the 40's and 50's across the northern border States, to the upper 60's across the South. Weekly temperature departure map resembles last week's map very closely. Again much of northern and central Great Plains were 10 degrees to 16 degrees warmer than normal. International Falls, Minnesota, has averaged 16 degrees above normal in each of past 2 weeks.

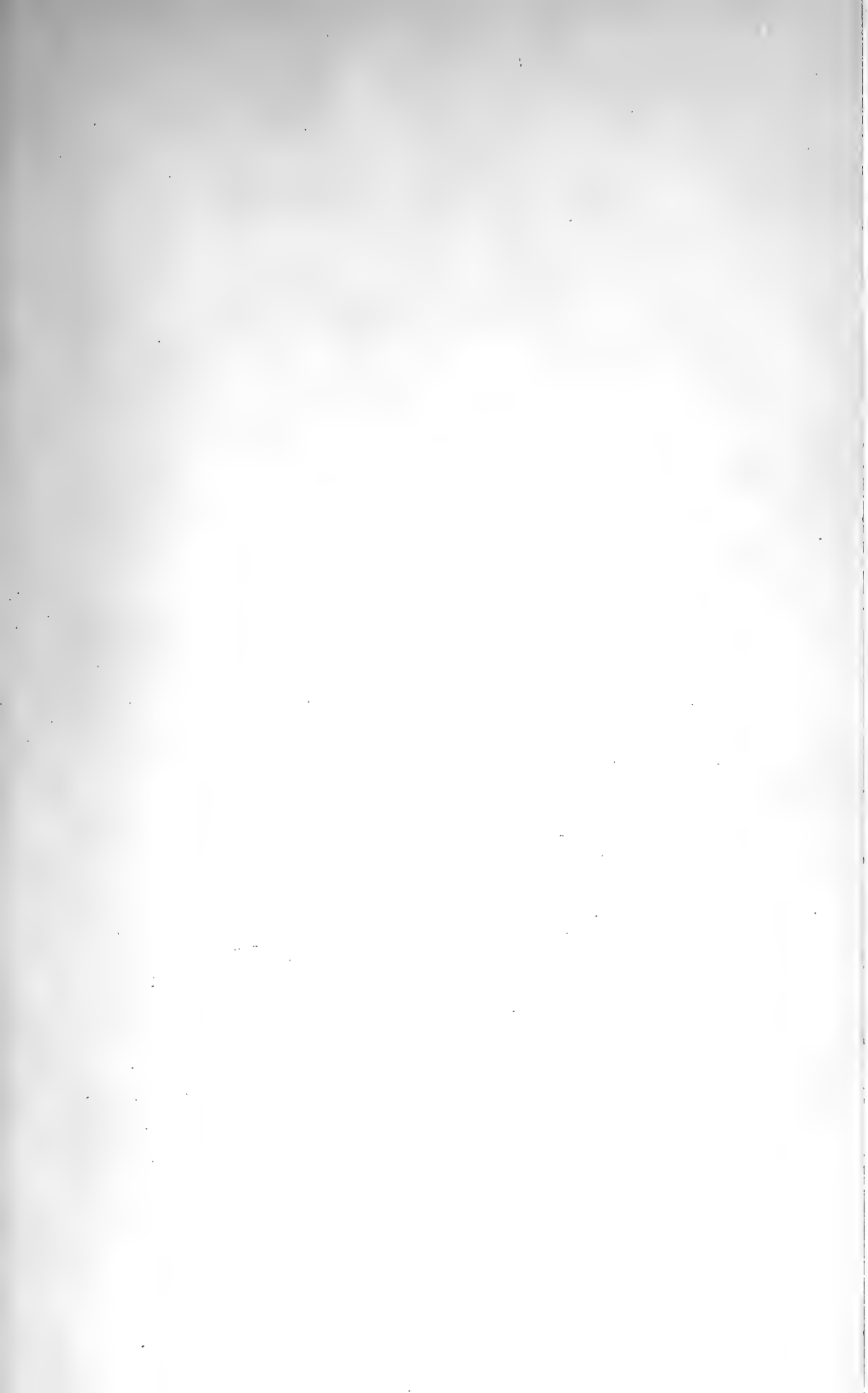
# Distribution of Meadow Spittlebug

*Philaenus spumarius*



Prepared in Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service USDA  
May 26, 1972

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(21):326, 1972



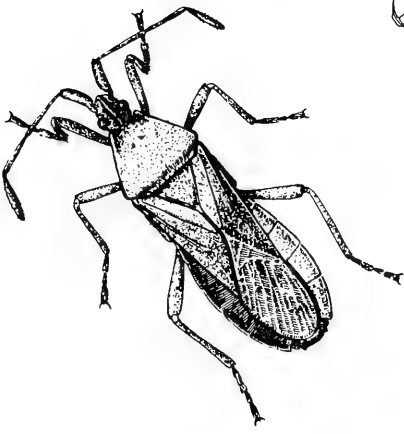
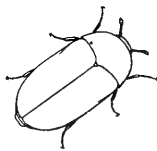
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE



OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

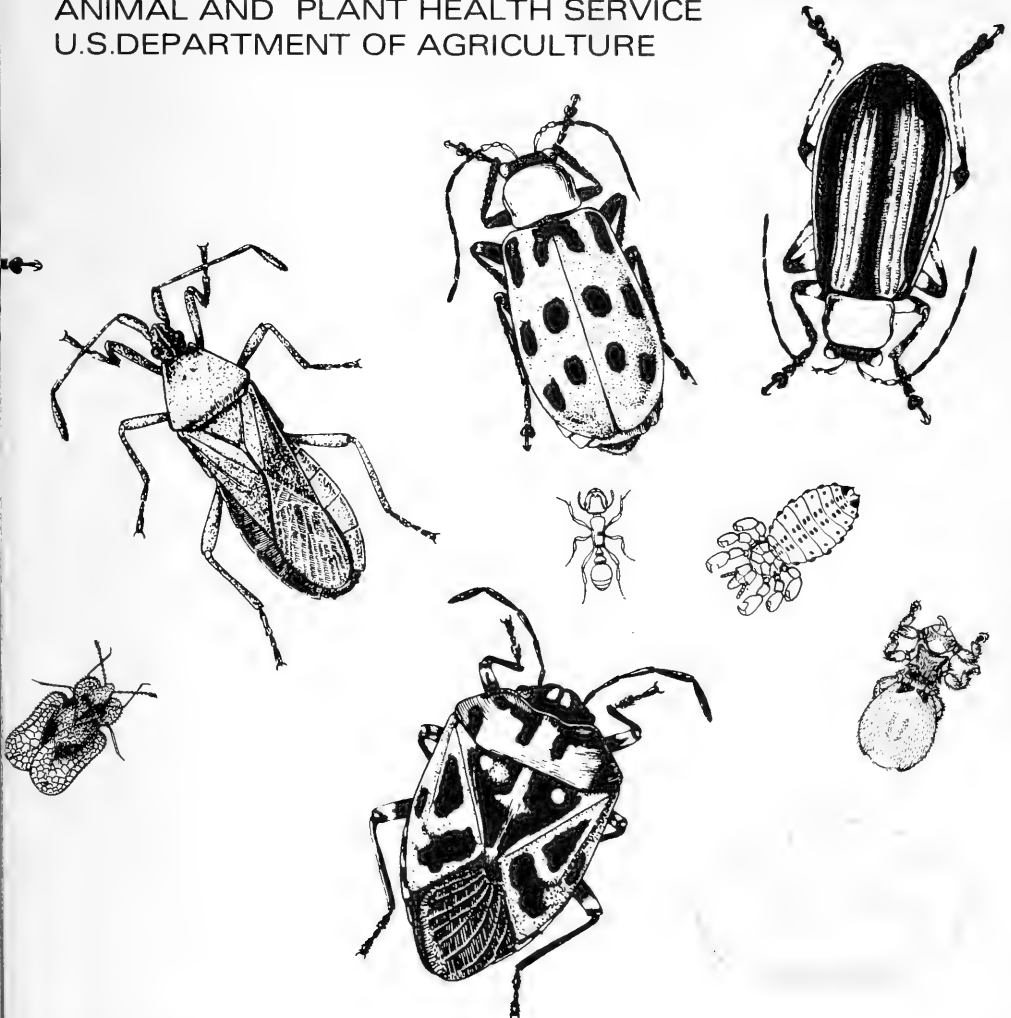
0004 SMINL ISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



623  
377  
ENT

# Cooperative Economic Insect Report

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



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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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



## COOPERATIVE ECONOMIC INSECT REPORT

### HIGHLIGHTS

#### Current Conditions

ARMYWORM potentially serious in southern Illinois; heavy in south-east Missouri. Some high counts on Maryland's Eastern Shore. Some head clipping small grain in Missouri and Tennessee. (p. 329).

GREENBUG increasing on sorghum in southeast Arizona. Some damage to seedling sorghum reported in southeast Nebraska. (pp. 329-330).

ALFALFA WEEVIL larvae heavy on alfalfa in southeast Colorado, central New Mexico, and northwest Arkansas; adults heavy in extreme west-central South Dakota. ALFALFA BLOTCH-MINER heavy in Schoharie County, New York. (pp. 331-332).

BOLL WEEVIL increasing throughout most of Alabama. (p. 333).

SPRING CANKERWORM and FALL CANKERWORM infestations heavy, more severe and widespread than in 1971 in Minnesota. (p. 336).

SCREWWORM cases totaled 2,342 in the United States during this period.

HORN FLY activity increased in Trans-Pecos and north-central areas of Texas, heavy on beef cattle in Mississippi. (pp. 336-337).

#### Detection

An ICHNEUMON recovered from larvae of cereal leaf beetle for the first time in Michigan is a new United States record. (p. 337).

New State records include CEREAL LEAF BEETLE in Missouri (p. 337), a CICADELLID from Hawaii (p. 339), a GRILLACRIDID from Arizona (p. 331), an ICHNEUMON from Ohio, and a PUNCTUREVINE STEM WEEVIL from Florida (p. 337).

For new county records see page 334.

#### Special Reports

Cereal Leaf Beetle. Selected References 1968-1970. (p. 343).

Distribution of Southern Corn Rootworm. Map. (p. 342).

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

## CONTENTS

Special Insects of Regional Significance.....	329
Insects Affecting	
Corn, Sorghum, Sugarcane....	330
Small Grains.....	331
Turf, Pastures, Rangeland....	331
Forage Legumes.....	332
Peanuts.....	332
Cotton.....	333
Potatoes, Tomatoes, Peppers....	333
Beans and Peas.....	333
Cole Crops.....	333
Cucurbits.....	334
General Vegetables.....	334
Deciduous Fruits and Nuts....	335
Citrus.....	335
Other Trop. & Subtrop.	
Fruits.....	335
Forest and Shade Trees.....	335
Man and Animals.....	336
Detection.....	334
Beneficial Insects.....	337
Federal and State Plant Protection Programs.....	337
Hawaii Insect Report.....	339
Light Trap Collections.....	340
Distribution of Southern Corn Rootworm.....	342
Cereal Leaf Beetle. Selected References 1968-1970.....	343

---

### WEATHER OF THE WEEK ENDING JUNE 5

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

PRECIPITATION: Showers and thunderstorms occurred from the Great Plains to the Appalachians Monday, May 29, and over most of the eastern third of the Nation on Tuesday and Wednesday. A few isolated showers fell in the arid Southwest. Las Vegas, Nevada received 0.44 inch of rain Tuesday evening. This is the only measurable rain that has fallen in May and is four times the monthly normal. Isolated light showers also fell in the Pacific Northwest early in the week. In general most of the showers were light. Few totals exceeded 1 inch. Most of those fell Monday evening in the middle Mississippi River Valley. A cold front pushed into the northern Great Plains as the weekend approached. It produced summertime thundershowers over the northern and central Great Plains and upper Mississippi River Valley. Isolated thunderstorms also dotted western portions of the Nation from Idaho and Montana to Arizona and New Mexico. A few drops of rain fell at Phoenix, Arizona but not enough to measure. Phoenix still is in its unprecedented stretch of dry weather. Measurable amounts have not fallen at Phoenix in the last 158 days. A thunderstorm at Denver dumped 4-6 inches of hail on parts of the city. Some locally heavy thunderstorms occurred late Sunday along portions of a front that extended from the central Great Plains to the Northeast. Some locally heavy amounts of rain fell in Nebraska, Iowa, and New England. Local showers also soaked spots on the eastern side of the Florida Peninsula. Weather of the week continued on page 341.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

**ARMYWORM (Pseudaletia unipuncta)** - ILLINOIS - Potentially very serious on wheat in southern third of State; larvae ranged 3-5 per linear foot in dense, rank fields. Most larvae 1 inch or larger. Heaviest infested fields in area commonly showed 80-100 percent leaf feeding and some head cutting. Numerous reports of migration from wheat to corn and grassy soybeans; counts and degree of damage unknown. Fields in northern half of State generally averaged less than 1 larva per linear foot. (Ill. Ins. Sur.). INDIANA - Reported in winter wheat in 6 southwest counties and Lawrence County in south-central district. Larvae near maturity in southern portions of infested area. (Matthew). MISSOURI - Heavy in wheat and barley in southeast area. Head clipping noted. Larvae light in most grain fields, light to moderate in fescue and orchard grass in southwest areas. (Munson). MARYLAND - Third and fourth instar larvae ranged 1-150 per square yard in late-planted barley in Dorchester County. Averaged less than 2 per square yard in most fields surveyed. Most barley should be harvested within next 14 days. About 10 percent of acreage in Dorchester, Wicomico, and Worcester Counties will be sprayed. No damage to no-till corn yet. (U. Md., Ent. Dept.). VIRGINIA - Larvae severely damaged no-till corn in many areas. Damage tends to be spotty. (Allen). NORTH CAROLINA - Larvae damaged sod-planted corn in Iredell and Surry Counties. Damage ranged up to 30 percent in 3 or 4 fields. Populations heaviest in corn following fescue or rye. Damage to small grain also noted in Camden County field. Larvae moving from small grain to corn in that area. (Franklin et al.). TENNESSEE - Populations decreased. Damage heavy to grains, corn, and pastures in some areas past 2 weeks. Barley most heavily infested grain; many fields totally defoliated and 30 percent of heads clipped. Larvae ranged 1-10 per square foot in infested corn where no controls applied; fields with heavy counts destroyed. Control variable. (Gordon, Bruer).

**ASTER LEAFHOPPER (Macrostelus fascifrons)** - MINNESOTA - Counts in rye, wheat and oats declined in most southeast district fields. (Minn. Pest Rpt.).

**CORN EARWORM (Heliothis zea)** - ALABAMA - Larvae damaged 3-5 percent of 2 to 3-foot corn in 15-acre field at Rahoboth, Houston County. Larvae damaged commercial tomatoes over large area of Houston and Geneva Counties. Larvae pupating in Henry County. (Stephenson et al.). MISSISSIPPI - Light in early corn in 5 percent of ears examined. About 100 percent of silks in infested ears contained small larvae or eggs. (Robinson).

**CORN LEAF APHID (Rhopalosiphum maidis)** - MISSOURI - Infested sorghum throughout southwest and west-central areas. High populations (up to 70 percent of plants infested) in few early planted fields. (Munson). TEXAS - Still light on grain sorghum throughout most north-central counties. Beneficial insects increasing. (Turney).

**GREENBUG (Schizaphis graminum)** - ARIZONA - Building up on sorghum in Cochise County area; ranged 25-100 per plant. (Ariz. Coop. Sur.). TEXAS - Light on grain sorghum throughout most north-central counties surrounding Denton. (Turney). OKLAHOMA - Ranged 1-13 per plant on 10 percent of young sorghum plants in fields checked in Ottawa and Craig Counties. (Okla. Coop. Sur.). KANSAS -

Flights from wheat to seedling sorghum continued. Damage to sudan-sorghum heavier than usual. (Gates, Brooks). NEBRASKA - Some damage to seedling sorghum in southeast district. Ranged 1-10 per plant on sorghum 1-3 inches high, with many plants severely discolored. One 40-acre field near Auburn, Nemaha County, totally destroyed (Roselle, Wilson). MISSOURI - Light on seedling sorghum throughout southwest and west-central areas. (Munson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Averaged 400 per 100 sweeps of alfalfa in Cochise County. (Ariz. Coop. Sur.).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - First moths of season in Brown County light trap May 22; 5 or 6 days later than in 1971. (Gates, Brooks). MISSOURI - First egg masses of season on corn in west-central and southwestern areas. Moths present on grass and vegetation in surrounding cornfields. (Munson). NEBRASKA - Catches still increasing in light traps at Lincoln and Aurora. First moths taken at Lincoln May 27, at Aurora May 17. Pupation near complete in east, southeast, and central areas. (Berogan, Keith). MINNESOTA - Pupation observed in Dakota and Goodhue Counties. (Minn. Pest Rpt.). MICHIGAN - First adults emerged in Lenawee County about 7 days earlier than usual. (Cress). ILLINOIS - Development ahead of normal in southern half of State which would reduce survival. Moth emergence 30 percent in central section; about 20 percent of borers had not yet pupated. Pupation just started in northern section. (Ill. Sur. Rpt.). INDIANA - Pupation in stalks above ground complete in northernmost counties. Corn in same areas seldom beyond 4-leaf stage. (Meyer). DELAWARE - Egg masses heavy on dock, unchanged on potatoes; common on field and sweet corn; some first-stage larval feeding seen. Hatched masses taken May 30 on field corn show oviposition on this crop in Sussex County began about May 23 and probably May 17-20 when adults common in blacklight traps. (Burbutis, Kelsey).

BLACK CUTWORM (Agrotis ipsilon) - ILLINOIS - Larval damage heavy to field corn in localized areas. Parts of fields replanted in southern half of State. (Ill. Ins. Rpt.). MISSOURI - Damaged corn in southeast, east-central, and central areas. (Thomas).

A NOCTUID MOTH (Euxoa detersa) - NEBRASKA - Larvae destroyed about 35-40 percent of stand in 160-acre cornfield north of Meadow Grove, Pierce County. Controls applied. (Keith, Berogan).

CORN ROOT APHID (Aphis maidiradicis) - KENTUCKY - Infested 82-85 percent of corn plants in no-till fields in Pulaski and Lincoln Counties. Fields previously in fescue and fescue-bluegrass sod respectively. (Barnett, Gregory).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Infested grain sorghum in Falls and Hill Counties. Light in Hill County, 4-6 midges per 10 sweeps in blooming fields. In Falls County, midges averaged 2 per head in one field. Midges reported from Wilson Community, Falls County. (Hoelscher).

## SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - UTAH - Damage increased in southern dryland wheat areas. (Knowlton). Damaged wheat throughout Cedar Valley, Utah County, (Haws, Dewey); damage to wheat and barley severe in Payson area of county. (Horn, Roberts).

PALE WESTERN CUTWORM (Agrotis orthogonia) - UTAH - Damaged dryland wheat in Cedar Valley, Utah County. (Horne, Roberts).

ENGLISH GRAIN APHID (Macrosiphum avenae) - TENNESSEE - At control levels in some eastern area wheat. Minimum of 30 aphids per head should be present before treating headed grain. (Gordon, Bruer).

HESSIAN FLY (Mayetiola destructor) - TENNESSEE - Pupae heavy in 450 acres of wheat on 2 McMinn County farms. One field planted after November 15, 1971, will not produce more than 10 bushels of grain per acre, 95+ percent of stalks infested. (Gordon, Bruer).

## TURF, PASTURES, RANGELAND

WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) - OREGON - Larvae feeding on variety of herbaceous plants along Snake River in Wallowa County. Also noted on Malheur County rangelands. (Goeden).

A GRYLLACRIDID (Utabaenetes tanneri) - ARIZONA - This camel cricket collected in Coconino County, May 3, 1972, by D. Carver. Determined by A.B. Gurney. This is a new State record. (Ariz. Coop. Sur.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - NEVADA - Larvae 125+ per sweep on alfalfa hay in Quinn River Crossing area and up to 25 per sweep in Denio area, Humboldt County. (Bechtel, Rowe). Ranged 15-25 per sweep in Eureka and Lander Counties. (Lundahl). UTAH - Damage generally light in Washington County. (Huber). H. postica retarding growth in frost-injured fields in Salt Lake County. (Knowlton, Thornley). Cutting of alfalfa underway to reduce damage in some Box Elder County fields. (McAllister). COLORADO - Larvae heavy, ranged 20-35 per 10 sweeps in southeastern areas and 25-30 per 10 sweeps in western areas. Parasites and predators numerous in southeast regions. Larval parasitism by Bathyplectes sp. ranged 20-30 percent in western area. (Colo. Ins. Sur.). NEW MEXICO - Larvae heavy on alfalfa south of Albuquerque, Bernalillo County. Damage light. (Heninger).

OKLAHOMA - H. postica still in alfalfa in some areas; moderate in Cleveland County, light in Roger Mills and Major Counties. (Okla. Coop. Sur.). ARKANSAS - Larvae heavy, 500-600 per 100 sweeps, in Fayetteville area. Pupation ended in northwest area. (Boyer). KANSAS - Declined throughout State, larvae 200 per 10 sweeps in Rice County. (Gates, Brooks). SOUTH DAKOTA - Adults heavy, 529 per 100 sweeps, in Lawrence County alfalfa. Larvae, mostly first and second instars, 394 per 100 sweeps. (Jones).

INDIANA - Leaf loss to alfalfa by H. postica ranged 0-8.5 percent in northern districts. Damage more frequent in South Bend area of northern tier of counties, diminishes outward from that point,

especially southward. Little more damage expected; harvesting begun, as alfalfa in northern districts in bud stage. (Meyer). OHIO - H. postica larvae destroyed alfalfa in some areas of Wayne and Medina Counties (Fox); damage 50 percent in Hancock County (Lorn). KENTUCKY - Activity decreased in central area. Larvae caused less than 10 percent foliar loss to alfalfa in Grayson County where larvae averaged 500 per 100 sweeps. Eggs averaged 251 per square foot May 11, 140 per square foot May 18, and 45 per square foot May 25 in Fayette County. (Barnett, Parr). NEW JERSEY - Mines noticeable in Burlington and Middlesex Counties May 22 and 24. (Ins.-Dis. Newsltr.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae per 100 sweeps of alfalfa: 10 at Safford, Graham County; 80 at Mesa and 70 in Gila Valley, Yuma County. (Ariz. Coop. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - KANSAS - Larvae in some alfalfa in Riley County feeding on stubble and preventing regrowth. Larvae averaged 9-10 per square yard on stems during midday. Additional larvae beneath soil surface. (Gates, Brooks).

ALFALFA BLOTCH-MINER (Agromyza frontella) - NEW YORK - Adults numerous in Hudson Valley. Sample of 10,000 adults (heavy) taken at Middleburg, Schoharie County. Known distribution in State: Fulton, Saratoga, Washington, Montgomery, Schenectady, Rensselaer, Albany, Delaware, Greene, Columbia, Sullivan, Ulster, Dutchess, and Orange Counties. (N.Y. Wkly. Rpt.). PENNSYLVANIA - Adults taken in 7 fields in Northampton and Bucks Counties. (Wheeler, Valley).

ALFALFA SNOUT BEETLE (Brachyrhinus ligustici) - NEW YORK - Adult emergence and migration still heavy in Jefferson County; 40-50 per 10 sweeps. New alfalfa seedings heavily damaged. Egg development has begun, expect oviposition soon. (N.Y. Wkly. Rpt., May 30).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Counts per 100 sweeps of alfalfa: Light at Safford, Graham County; 60 at Phoenix, Maricopa County; 200 at Mesa and 150 in Gila Valley, Yuma County; 600 in Cochise County. (Ariz. Coop. Sur.). NEBRASKA - Ranged 45-600 per 100 sweeps in 19 alfalfa fields in Washington, Burt, Cuming, Thurston, Dakota, Wayne, Dixon, Cedar, and Pierce Counties. (Keith, Berogan). KENTUCKY - Averaged 500 per 100 sweeps of alfalfa in Grayson County. (Barnett).

LYGUS BUGS (Lygus spp.) - ARIZONA - Counts per 100 sweeps of alfalfa: 450 at Safford, Graham County; 276 at Phoenix, Maricopa County; 190 at Mesa and 540 in Gila Valley, Yuma County; 350 in Cochise County. (Ariz. Coop. Sur.). KENTUCKY - Mostly L. lineolaris (tarnished plant bug), averaged 400 per 100 sweeps in alfalfa in Grayson County. (Barnett).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - Damaging clover and alfalfa in Knox and Geauga Counties. (Fox). KENTUCKY - Adults averaged 750 per 100 sweeps in Grayson County alfalfa. (Barnett).

#### PEANUTS

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This and other thrips caused serious dwarfing and malformation of peanut leaves in the Newville and Tumbleton area of Henry County necessitating treatment. (Trawick).

## COTTON

**BOLL WEEVIL (Anthonomus grandis)** - ALABAMA - Increasing throughout most of State. Ranged 2,000-5,000 per acre along field borders in Henry and Houston Counties; as high as ever recorded. First emergence of 1972 adults expected June 13; will extend 12-20 days. Weevils remain light in Covington, Pike, and Monroe Counties (Gamble), appear heavier on Sand Mountain, Marshall County, (Murphy); no weevils collected in Morgan County. (Rutledge). One weevil collected in Colbert County (Salter), averaged 50 per acre in Madison County (Burton, Stewart). MISSISSIPPI - Leggett trap catches May 22-26 indicate weevils present on cotton in Covington, Lamar, Lawrence, Lincoln, Marion, Jefferson Davis, Pike, Walthall, Panola, and Yalobusha Counties. Weevils found in 3 fields in Attala County. (Swoope). LOUISIANA - In Madison Parish, 1,467 weevils collected in 12 Leggett traps near ground trash collection sites since March 17. (Cleveland et al.). TEXAS - Overwintered weevils detected in Ellis County field. Weevils moving into cotton in central area. (Turney). OKLAHOMA - Trap collections in Jackson County: 22 in Blair area, 13 in the Humphreys area, 6 in Martha area. (Okla. Coop. Sur.).

**BOLLWORMS (Heliothis spp.)** - MISSISSIPPI - Few first instar larvae on young cotton in Noxubee County. (Robinson). ALABAMA - Eggs heavy in fields at Kinsey, Houston County. (McQueen).

**THRIPS (Frankliniella sp.)** - TEXAS - Reported damaging untreated cotton in Ellis, Hunt, Rockwall, Denton, Kaufman, Delta, Fannin, and Collin Counties. Thrips decreasing generally throughout central area; however, still damaging newly emerged cotton in Hill and McLennan Counties. Thrips light to heavy on seedling cotton in Pecos and Reeves Counties. Heavy in fields near small grain. Migrating from small grain to cotton as crops mature. (Turney, Hoelscher, Neeb). OKLAHOMA - Averaged 5 per plant on untreated young cotton in Chickasha area, Grady County, and in Caddo and Washita Counties. Moderate to heavy in Harmon County with some fields treated. (Okla. Coop. Sur.).

## POTATOES, TOMATOES, PEPPERS

**PEPPER WEEVIL (Anthonomus eugenii)** - FLORIDA - Larvae up to 3 per fruit on bell peppers in Immokalee area, Collier County; younger peppers most affected. Estimated 20 percent of crop damaged. Crop season nearly at end. (Poe).

## BEANS AND PEAS

**BEAN LEAF BEETLE (Cerotoma trifurcata)** - MISSISSIPPI - Medium to heavy on string beans, lima beans, and cowpeas throughout Oktibbeha County. (Guice).

**CARMINE SPIDER MITE (Tetranychus cinnabarinus)** - MISSISSIPPI - This species and T. urticae (two-spotted spider mite) heavy on string beans; 100+ mites per square inch in some cases and to lesser extent on lima beans in Oktibbeha County. (Guice).

## COLE CROPS

**A CABBAGE FLEA BEETLE (Phyllotreta cruciferae)** - OREGON - Adults moving into broccoli, cabbage, and cauliflower plantings from

adjacent stands of wild radish in Cornelius area, Washington County. Infestations not as yet economic but expected to warrant control in about 2 weeks. One adult per 20 transplants and one per 50 direct seeded plants found May 27. (Collins).

## CUCURBITS

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - MISSISSIPPI - Heavy in some gardens in Leake County where cucumbers and other garden vegetables involved. Infestations ranged 1-50 (averaged 15) percent on 30 acres of cucumbers in Monroe County. Light to heavy in 10 acres of cucumbers in Madison County; infested 40 percent of plants in one-acre field of cucumbers in Neshoba County. (Robinson).

## GENERAL VEGETABLES

CELERY LOOPER (Anagrapha falcifera) - MICHIGAN - Moth collections increased at all stations, most numerous at Fennville station. (Newman).

## DETECTION

New United States Record - AN ICHNEUMON (Lemophagus curtus Townes) - MICHIGAN - Berrien County. (p. 337).

New State Records - CEREAL LEAF BEETLE (Oulema melanopus) - MISSOURI - St. Charles. (p. 337), A CICAPELLID (Graphocephala cythura cythura) - HAWAII - Oahu. (p. 339). A GRYLLACRIDID (Utabaenetes tanneri) - ARIZONA - Coconino County. (p. 331). AN ICHNEUMON (Bathyplectes anura) - OHIO - Warren, Wayne Counties. (p. 337). A PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) - FLORIDA - Dade County. (p. 337).

New County Records - CEREAL LEAF BEETLE (Oulema melanopus) - MISSOURI - St. Louis, Jefferson (p. 337); - ILLINOIS - Perry, Randolph, Franklin, Jackson, Hamilton, White, Gallatin, Edwards, Saline, Williamson, Wabash (p. 338). TENNESSEE - Sumner, Rutherford, Jackson, Morgan (p. 338).



## DECIDUOUS FRUITS AND NUTS S

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Northern areas report population outbreaks on prunes since May 27 with substantial bronzing of young leaves. Second-generation eggs appearing on apple leaves in southern and eastern areas of State. (Thompson). MASSACHUSETTS - Many adults and eggs seen on apple foliage in Bristol and Norfolk Counties. (Jensen).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Terminals on block of young peach trees about 25 percent infested, Clay County. (Matthew). Heavier than usual in peach trees in Morgan and Johnson Counties. (Favinger). OKLAHOMA - Moderate on peaches and plums in Wagoner County. (Okla. Coop. Sur.). MASSACHUSETTS - Single adult taken in 4 pheromone traps in Hampshire County. (Jensen).

PLUM CURCULIO (Conotrachelus nenuphar) - MICHIGAN - Egg-laying scars on cherries in southern areas. (Thompson). MAINE - First adults seen May 26, same date as 1971; only light populations present now. Numbers increased rapidly and "cutting" will begin when fruit reaches one-fourth inch in diameter or larger in Kennebec County. (Wave).

APPLE CURCULIO (Tachypterellus quadrigibbus) - MASSACHUSETTS - Adults ovipositing and feeding on young developing Devoe pears in Norfolk County. (Jensen).

PEACHTREE BORER (Sanninoidea exitiosa) - TEXAS - Moderate to heavy damage noted on peach trees in Nolan County. (Boring).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Medium on pecan trees in Brazoria, Fort Bend, Waller, Grimes, and Brazos Counties; tents ranged 0-10 per tree. (Green).

## CITRUS

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Required treatment in citrus seedbed at Yuma, Yuma County. (Ariz. Coop. Sur.).

## OTHER TROPICAL AND SUBTROPICAL FRUIT

HEMISPHERICAL SCALE (Saissetia coffeae) - CALIFORNIA - Infested sapote trees locally in Arroyo Grande, San Luis Obispo County; 90 per limb. (Cal. Coop. Sur.).

## FOREST AND SHADE TREES

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - INDIANA - Infestations reported from east-central, northeast, and northwest districts. One observed in northeast district on Scotch pines 3-6 feet tall, caused defoliation ranging from light to 100 percent. Several hundred trees involved. (Schuder, Meyer).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - First-generation adults about 50 percent emerged from young pines in Delaware County. (Okla. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Infestations and damage by this pest and Alsophila pometaria (fall cankerworm) heavy and widespread in Pembina, Walsh, and Grand Forks Counties. Up to 90 percent of elms in single-row shelterbelts completely defoliated. Larvae averaged one per 2 leaves. P. vernata dominant species. (Brandvik). MINNESOTA - Heavy defoliation by P. vernata and A. pometaria continues in Hennipen and Ramsey Counties. Infestations more severe and widespread than in 1971. (Minn. Pest Rpt.).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Light to moderate on elms in Winkler, Ward, Reeves, Pecos, Midland, Ector, Upton, Reagan, and Glasscock Counties. Damage moderate to heavy on elms in Wichita, Wilbarger, and Nolan Counties. Damaged untreated elms throughout north-central area. (Neeb et al.). OKLAHOMA - First-generation pupation beginning in Payne County; some very small larvae still present. Few first-generation eggs still present in Major County. Damage light to moderate in most areas. (Okla. Coop. Sur.).

STRAWBERRY SPIDER MITE (Tetranychus turkestanii) - NEVADA - Heavy, averaged 300 per leaf on mulberry at Las Vegas, Clark County. (Hoff).

#### MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 2,342 cases reported in U.S. May 28-June 3 as follows: TEXAS: Aransas 1, Archer 3, Atascosa 82, Bandera 26, Bastrop 4, Bee 71, Bell 1, Bexar 51, Blanco 7, Borden 2, Brewster 6, Brooks 48, Brown 3, Burleson 2, Burnet 2, Caldwell 19, Callahan 3, Cameron 7, Coleman 3, Comal 9, Comanche 3, Concho 2, Cottle 1, Crockett 13, Crosby 1, De Witt 39, Dimmit 75, Duval 53, Eastland 1, Edwards 68, Erath 2, Fayette 1, Frio 69, Garza 1, Gillespie 20, Goliad 78, Gonzales 35, Grimes 2, Guadalupe 7, Hamilton 1, Hays 2, Hidalgo 64, Howard 8, Jack 1, Jackson 1, Jeff Davis 2, Jim Hogg 56, Jim Wells 56, Jones 1, Karnes 24, Kendall 23, Kenedy 48, Kent 1, Kerr 26, Kimble 15, Kinney 58, Kleberg 37, La Salle 67, Lavaca 16, Lee 2, Live Oak 66, Llano 4, Mason 13, Maverick 38, McCulloch 3, McMullen 34, Medina 110, Menard 3, Midland 1, Mitchell 6, Nueces 8, Pecos 7, Presidio 3, Reagan 1, Real 30, Refugio 33, Robertson 6, San Patricio 17, San Saba 2, Schleicher 7, Scurry 1, Shackelford 1, Starr 114, Sterling 3, Stonewall 2, Sutton 15, Taylor 1, Terrell 2, Throckmorton 3, Uvalde 72, Val Verde 63, Victoria 24, Webb 128, Wilbarger 1, Willacy 17, Wilson 72, Young 1, Zapata 36, Zavala 54. ARIZONA: Cochise 3, Maricopa 1, Pima 2, Pinal 2. NEW MEXICO: Eddy 1, Grant 1. Total of 628 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 126, Chihuahua 54, Coahuila 277, Nuevo Leon 171. Total of 24 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. (Anim. Health).

HORN FLY (Haematobia irritans) - UTAH - Moderate on cattle in Washington County. (Huber). NEBRASKA - Ranged 25-300 per head on 10 range herds in Logan, McPherson, Keith, and Lincoln Counties. (Campbell). OKLAHOMA - Counts per head averaged 1,500 on cows, 1,700 on yearlings, 2,500 on bulls in Payne County. Moderate to heavy in most areas of State. (Okla. Coop. Sur.). TEXAS - Increased activity noted across Trans-Pecos area. Flies ranged 300-2,000 per animal. Reported increasing in several north-central counties.

(Neeb, Turney). MISSISSIPPI - Heavy on beef cattle in Monroe County. Some herds averaged 300+ per animal. (Chisholm, Robinson). Counts of 25-200 per head on 1,000 beef cattle in Attala County. (Swoope). MINNESOTA - Averages of 1,000 per animal on dairy heifers and calves in control areas. Counts on bulls heavier but lighter on milking cows. (Minn. Pest Rpt.).

MOSQUITOES - WISCONSIN - Moderate to severe annoyance to livestock and/or humans reported in Oconto, Polk, Portage, Sauk, Marinette, Fond du Lac, Grant, Waukesha, Adams, Bayfield, and Juneau Counties. (Wis. Ins. Sur.). MINNESOTA - Populations heavy, particularly in northern areas. Heavy rains May 28-29 with run-off into low areas caused first heavy hatch of Aedes vexans. (Minn. Pest Rpt.). UTAH - Aedes dorsalis adults light to moderate in Weber County, Culex tarsalis larvae appearing, all larval stages of Culiseta inornata general. About 4,000 acres treated in May. (Frank). Adults abundant and annoying in Cache County. (Knowlton). Annoyance moderate to severe in portions of Washington County. (Huber). A. vexans hatch heavy in Salt Lake and Weber Counties. (Roberts). MISSISSIPPI - Aedes spp. breeding in swampy areas along Mississippi River in Issaquena County so heavy controls being considered. Some annoyance to cattle reported. (Miller).

### BENEFICIAL INSECTS

A PUNCTUREVINE STEM WEEVIL (Microlarinus lypriformis) - FLORIDA - General adult, 2 larvae taken in puncturevine at Miami International Airport, Dade County, February 23, 1972. Collected and determined by C.E. Stegmaier, confirmed by R.E. Warner. This is a new State record. Larvae and pupae also collected March 6 and 26 and April 26 in same area. (Fla. Coop. Sur.).

AN ICHNEUMON (Lemophagus curtus Townes) - MICHIGAN - Recovered from larvae of Oulema melanopus (cereal leaf beetle) collected May 31, 1972, in Berrien County. Collected and determined by T. Burger and V. Montgomery. O. melanopus larvae dissected June 2. This is first recovery of L. curtus since first released at this recovery site in 1971, and constitutes a new United States record. All introduced species of cereal leaf beetle parasites now established by the Cereal Leaf Beetle Parasite Rearing Facility at Niles. (PP).

AN ICHNEUMON (Bathyplectes anurus) - OHIO - Found in larval samples of Hypera postica collected in Warren County May 5, 1972, and Wayne County May 12, 1972. This is a new State record. (Flessel).

LADY BEETLES - ARIZONA - Counts per 100 sweeps of alfalfa: 40 at Safford, Graham County; 32 at Phoenix, Maricopa County; 65 at Mesa and 70 in Gila Valley, Yuma County; 35 in Cochise County. (Ariz. Coop. Sur.). KENTUCKY - Populations in most areas of State increased. Adults ranged 10-20 per 100 sweeps in alfalfa in Grayson and Hardin County (central area). (Barnett).

### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MISSOURI - Live adult collected from oats in St. Charles County May 17, 1972, by S.W. Downing. This is a new State record. Live adult collected from oats in St. Louis County May 24, 1972, by D.E. DeWeese. Live larvae collected in Jefferson County May 24, 1972, by L.R. Hanning. Determined by R.E. White. These are new county records. (PP).

ILLINOIS - Live larvae collected on oats: By T.S. Smith in Perry County May 25, in Randolph County May 22, in Franklin County May 25, and in Jackson County May 25. Live adults on oats: Hamilton County May 25, White County May 24, Gallatin County May 26, Edwards County May 24, and Saline County May 25 by J.E. Schafer; Williamson County May 26 by R.W. Elmore, and Wabash County May 24 by J.E. Schafer and C. Koenig. These are new county records for 1972. TENNESSEE - Live larvae collected on oats May 23, 1972, by J. Gordon in Sumner County; May 25, 1972, by G.M. Stamey in Rutherford County, and May 23, 1972, by G.M. Stamey and Morgan in Jackson County; on wheat May 24, 1972, by Morgan and G.M. Stamey in Overton County. These are new county records. All determined by R.E. White. (PP). KENTUCKY - Damage to spring oats in Bracken County noted May 26. (Barnett, Scheibner). OHIO - Extensive damage to oats in boot to joint stages in southeastern areas. Larvae 3-5 per stem infested 95-100 percent of plants in several plots, giving them a white, frosted appearance. Infestation noted on barley and winter wheat in same area. (Bologre). PENNSYLVANIA - Light larval infestation in Greene County wheat. Larvae and adults taken in Butler County oatfield, adults 20-25 per 50 sweeps. (Mallis, Lilley, May 26).

GRASSHOPPERS - MINNESOTA - Egg hatch and rapid nymphal development observed in widely scattered locations. Sugar beets damaged in Kittson County. Some spraying in that area. First and second instar Melanoplus bivittatus, M. packardii, and M. sanguinipes nymphs light in alfalfa in Dakota and Goodhue Counties. (Minn. Pest Rpt.). NORTH DAKOTA - Grasshopper nymphs ranged up to 30 per square yard in field margins in Bowsmont area, Pembina County. Migrated into small grains; damage light. M. bivittatus dominant, still hatching. Some controls applied. (Brändvik).

OKLAHOMA - Nymphal surveys during May showed economic populations developing in several areas. Ranged 6-25 per square yard on 30,000 acres in Arbuckle region of Carter and Murray Counties. Species included M. bivittatus, M. occidentalis, M. packardii, M. differentialis, Hesperotettix speciosus, and Boopedon nubilum. In Caddo, Comanche, and Kiowa Counties, up to 30 per square yard found in favorable habitats on rangeland. Ageneotettix deorum, Philibostroma quadrimaculatum, M. occidentalis, M. packardii, B. nubilum, Aulocara elliotti, and H. speciosus dominant. In Beaver and Ellis Counties, up to 25 per square yard found in short grass and weedy range areas. Species include Ageneotettix deorum, P. quadrimaculatum, Aulocara elliotti, Drepanopterna femoratum, Amphitornus coloradus, and several bandedwing species. Other counts: 10-20 per square yard on rangeland in Jackson County, moderate to heavy on rangeland in Roger Mills County, heavy in home gardens in Major County. (Okla. Coop. Sur.). OREGON - Melanoplus spp., Camnula pellucida, and Oedaleonotus enigma hatch sporadic. Nymphs ranged 20-50 per square yard in Grant County. Up to 40 in Baker County, and 2-30 in Malheur County. (Goeden et al.).

MORMON CRICKET (Anabrus simplex) - OREGON - Next to last instar nymphs 2-3 per square yard in Wallowa County. (Goeden).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - First adults of season observed May 28 near Elizabethtown, Bladen County. (Kornegay). SOUTH CAROLINA - Adults averaged 3 per plant on roses in Lexington County. Damage light at present. (King, May 22).

## HAWAII INSECT REPORT

New State Record - Six adults of a CICADELLID (Graphocephala cythura) collected from mountain apple (Eugenia malaccensis) terminals at Moanalua, Oahu, February 15, 1972, by E.S. Shiroma. Also noted on eggplant, squash, beans, and shrubbery. Specimens also swept from weedy areas at Hickam Air Force Base, Oahu, March 29, 1972, by F. Madinger and S. Ochikubo. G. cythura recorded from California and Arizona. Determined by J.P. Kramer. (Shiroma).

General Vegetables - CORN EARWORM (Heliothis zea) heavy in two acres of mature sweet corn at Waimanalo, Oahu; approximately 90 percent of ears with one or more early instars. Infestation confined to silks and tips of ears. TUMID SPIDER MITE (Tetranychus tumidus) heavy in isolated spots of field where sprinkler irrigation coverage inadequate. ONION THRIPS (Thrips tabaci) light in 5 acres of bulb onions at Hoolehua, Molokai; 2-5 nymphs and/or adults under sheaths of terminal growth. CABBAGE WEBWORM (Hellula rogatalis) infested 35 percent of terminals in one acre of young broccoli seedlings; DIAMONDBACK MOTH (Plutella xylostella) larvae light, approximately 25 percent of leaves with one or two larvae or pupae. CHINESE ROSE BEETLE (Adoretus sinicus) feeding damage moderate on 85 percent of leaves in this planting and in adjacent 3 acres of bush beans. (Kawamura).

Fruits and Nuts - Heavy colonies of BARNACLE SCALE (Ceroplastes cirripediformis) on twigs (all stages) and leaves (mostly nymphs) on 9 of 12 fiddlewood (Citharexylum spinosum) trees at Hawaii Kai, Oahu; negligible on remaining trees. Approximately 45 percent of adult scales with parasite emergence holes. Infested material retained for parasite emergence study. (Kawamura).

General Pests - Ten adults and 9 nymphs of SOUTHERN GREEN STINK BUG (Nezara viridula) noted in yard planting of long bean at Ewa, Oahu. Five adults and one nymph bore eggs of a TACHINA FLY (Trichopoda pennipes). Single stink bug egg mass (97 eggs) 100 percent parasitized by a SCELIONID WASP (Trissolcus basalus). N. viridula nymphs light in yard planting of Dendrobium orchids at Aina Haina, Oahu; approximately 50 percent of floral spikes showed feeding damage. (Kumashiro et al.).

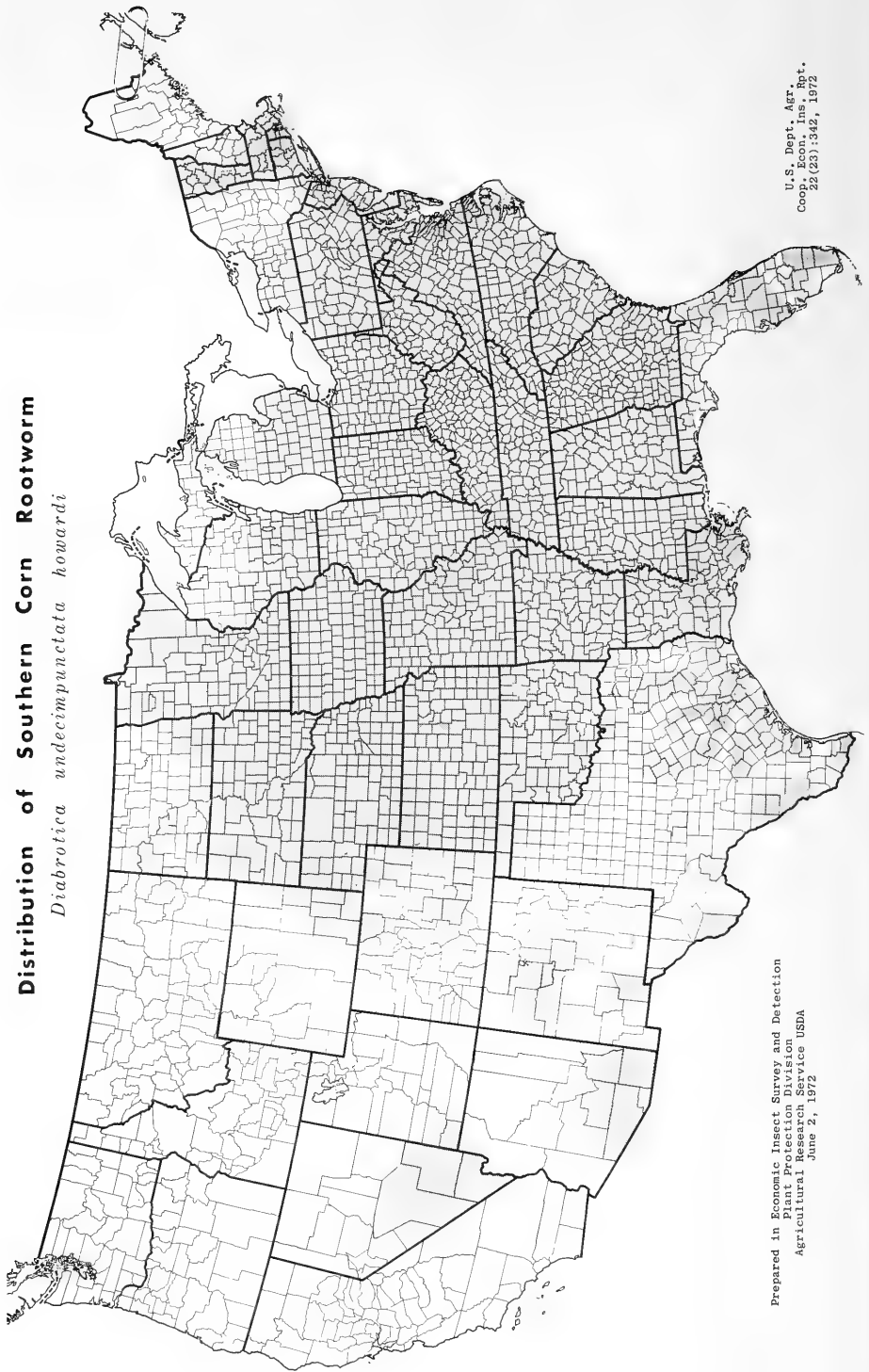
Beneficial Insects - Field examination of Indian rhododendron (Melastoma malabathricum) in various areas on Hawaii during April showed 35 percent infestation of terminals (100 terminal samples per area) by larvae of MELASTOMA BORER (Selca brunella). On Kauai, fruit infestation averaged 43 percent at Hanahanapuhi and 17 percent at Knudsen Gap. (Yoshioka, Sugawa).





# Distribution of Southern Corn Rootworm

*Diabrotica undecimpunctata howardi*



Prepared in Economic Insect Survey and Detection  
Plant Protection Division  
Agricultural Research Service USDA  
June 2, 1972

U. S. Dept. Agr., Ent.  
Coop. Econ. Ins. Rpt.  
22(23)342, 1972



CEREAL LEAF BEETLE  
Oulema melanopus L.

Selected References  
1968-1970

Additional copies of this bibliography are available from Economic Insect Survey and Detection.

- Anderson, R. C. 1968. The biology and ecology of Anaphes flavipes (Foerster) (Hymenoptera:Mymaridae), an exotic egg parasite of the cereal leaf beetle (Coleoptera:Chrysomelidae). Purdue Univ. Ph.D. Thesis. 148 pp.  
Hypera postica
- Anderson, R. C. and Paschke, J. D. 1968. The biology and ecology of Anaphes flavipes (Hymenoptera: Mymaridae), an exotic egg parasite of the cereal leaf beetle. Ent. Soc. Amer. Ann. 61(1):1-5.
- Barton, L. C. and Stehr, F. W. 1970. Normal development of Anaphes flavipes in cereal leaf beetle eggs killed with X-radiation, and potential field use. J. Econ. Ent. 63(1):128-130.
- Brennan, P. A. 1968. Effects of different types of radiation on various life stages of cereal leaf beetle, Oulema melanopus (Linnaeus). Diss. Abstr., Sect. B, 28(12, pt.1):5061B.
- Carey, W. E. 1968. Effects of x-ray radiation on survival of the cereal leaf beetle, Oulema melanopus (L.). Diss. Abstr. Sect. B, 29(5):1875B.
- Connin, R. V., Cobb, D. L., Arnsman, J. C., and Lawson, G. 1968. Mass rearing of the cereal leaf beetle. U.S. Agr. Res. Serv. ARS-33-125. 11 pp.  
Oulema melanopus
- Connin, R. V. and Jantz, O. K. 1969. Some effects of photoperiod and cold storage on oviposition of the cereal leaf beetle, Oulema melanopus (Coleoptera: Chrysomelidae). Mich. Ent. 1(10):363-366.
- Hahn, S. K. 1968. Resistance of barley (Hordeum vulgare L. Emend. Lam.) to cereal leaf beetle (Oulema melanopus L.). Crop Sci. 8(4):461-464.
- Helgesen, R. G. and Haynes, D. L. 1969. The rotary flight trap in insect sampling. Ent. Soc. Amer. N. Cent. Br. Proc. 24(1): 20-21.
- Lamb, N. J. and Monroe, R. E. 1968. Lipid synthesis from acetate-1-C<sup>14</sup> by the cereal leaf beetle, Oulema melanopus. Ent. Soc. Amer. Ann. 61(5):1164-1166.
- Lamb, N. J. and Monroe, R. E. 1968. Studies of complex lipids synthesized from acetate-1-C<sup>14</sup> by the cereal leaf beetle, Oulema melanopus. Ent. Soc. Amer. Ann. 61(5):1167-1169.

- Lyon, W. F. and Ray, D. A. 1969. Cereal leaf beetle infestation on 20 varieties of drill-seeded spring oats in Franklin County, Columbus, Ohio, 1968. Ent. Soc. Amer. N. Cent. Br. Proc. 24(1):21-22.
- Lyon, W. F. and Treece, R. E. 1968. The cereal leaf beetle in Ohio. Ohio State Univ. Ext. Leaf. L-150. 4 pp., Map.  
Oulema melanopus
- Maltby, H. L., Burger, T. L., Moorehead, G. E., and Montgomery, V. E. 1969. A new record of a Trichogramma species parasitizing the cereal leaf beetle. J. Econ. Ent. 62(5):1157-1158.
- Manson, G. F. and Boyce, H. R. 1968. Watch for the cereal leaf beetle. Canad. Dept. Agr. Pub. 1353. 4 pp.  
Oulema melanopus
- McClanahan, R. J., Boyce, H. R., and Code, W. R. 1968. The cereal leaf beetle - A new insect in Ontario. Ent. Soc. Ontario Proc. 98:21-26.
- Merino, M. G. 1969. Observations on the sexual behaviour of the cereal-leaf beetle, Oulema melanopus. Turrialba 19(3):355-358. In Sp., Engl. Sum.
- Merritt, D. L. and Apple, J. W. 1969. Yield reduction of oats caused by the cereal leaf beetle. J. Econ. Ent. 62(2):298-301.
- Michigan State University and U.S. Department of Agriculture. 1970. Cereal leaf beetle research 1962-1969. Mich. Agr. Expt. Sta. Res. Rpt. 113. 20 pp.  
Oulema melanopus
- Moorehead, G. E. and Maltby, H. L. 1970. A container for releasing Anaphes flavipes from parasitized eggs of Oulema melanopus. J. Econ. Ent. 63(2):675-676.
- Myser, W. C. and Carey, W. E. 1969. X-ray radiation effects on survival and sterility of adults of the cereal leaf beetle. J. Econ. Ent. 62(3):543-550.
- Ninan, T., Smith, D. H., Jr., and Wellso, S. G. 1968. Chromosomes of the cereal leaf beetle. J. Hered. 59(6):360-362.
- Oman, P. 1968. Prevention, surveillance and management of invading pest insects. Bul. Ent. Soc. Amer. 14(2):98-102.
- Ringlund, K. and Everson, E. H. 1968. Leaf pubescence in common wheat, Triticum aestivum L., and resistance to the cereal leaf beetle, Oulema melanopus (L.). Crop Sci. 8(6):705-710.
- Ruppel, R. F. 1969. Influence of the quantity of insecticide per seed and per hectare on seed treatments for cereal leaf beetle larvae control on oats. J. Econ. Ent. 62(2):508-509.
- Ruppel, R. F. and Gomulinski, M. S. 1968. Insecticide foliage sprays for cereal leaf beetle control. Mich. Agr. Expt. Sta. Quart. Bul. 50(4):431-439.

- Ruppel, R. F. and Gomulinski, M. S. 1969. Timing insecticide sprays for cereal leaf beetle control. Ent. Soc. Amer. N. Cent. Br. Proc. 24(2):108-111.
- Schillinger, J. A. 1969. Three laboratory techniques for screening small grains for resistance to the cereal leaf beetle. J. Econ. Ent. 62(2):360-363.
- Schillinger, J. A., Jr., and Gallun, R. L. 1968. Leaf pubescence of wheat as a deterrent to the cereal leaf beetle, Oulema melanopus. Ent. Soc. Amer. Ann. 61(4):900-903.
- Shade, R. E., Hansen, H. L., and Wilson, M. C. 1970. A partial life table of the cereal leaf beetle, Oulema melanopus, in northern Indiana. Ent. Soc. Amer. Ann. 63(1):52-59.
- Shade, R. E. and Wilson, M. C. 1968. The impact of summer emerged cereal leaf beetle adults on corn. Ent. Soc. Amer. N. Cent. Br. Proc. 23(1):70.
- Shade, R. E. and Wilson, M. C. 1969. Oviposition of the cereal leaf beetle. Ent. Soc. Amer. N. Cent. Br. Proc. 24(1):22.
- Stehr, F. W. 1970. Establishment in the United States of Tetrastichus julis, a larval parasite of the cereal leaf beetle. J. Econ. Ent. 63(6):1968-1969.
- Treece, R. E. 1968. Damage to winter wheat by the cereal leaf beetle. Ent. Soc. Amer. N. Cent. Br. Proc. 23(1):71.
- Treece, R. E. 1969. Cereal leaf beetle, time bomb in the grain field. Crops Soils 22(2):10-11.
- Treece, R. E. 1970. Worried about cereal leaf beetle? Hoards Dairyman 115(9):534.  
Oulema melanopus
- U.S. Department of Agriculture, Agricultural Research Service, Plant Pest Control Division. 1968. Watch for the cereal leaf beetle. USDA PA-550, slightly rev. 4 pp.  
Oulema melanopus
- Wellso, S. G. 1968. Rearing the cereal leaf beetle on an artificial diet. Ent. Soc. Amer. N. Cent. Br. Proc. 23(1):71.
- Wellso, S. G. and Hoxie, R. P. 1969. Hyalomyodes triangulifer parasitizing the cereal leaf beetle, Oulema melanopus. Ent. Soc. Amer. Ann. 62(4):923-924.
- Wellso, S. G., Webster, J. A. and Ruppel, R. F. 1970. A selected bibliography of the cereal leaf beetle, Oulema melanopus (Coleoptera: Chrysomelidae). Ent. Soc. Amer. Bul. 16(2):85-88.
- Wilson, M. C. and Coauthors. 1969. Impact of cereal leaf beetle larvae on yields of oats. J. Econ. Ent. 62(3):699-702.

- Wilson, M. C., Treece, R. E., and Shade, R. E. 1969. 1968 cereal leaf beetle infestation and oats crop loss survey. USDA Plant Pest Control Div. Coop. Econ. Insect Rpt. 19(23):409-417.
- Yun, Y. M. 1968. Effects of some physical and biological factors on the reproduction, development, survival, and behavior of the cereal leaf beetle, Oulema melanopus (Linnaeus). Diss. Abstr. Sect. B, 28(12, pt.1):5068B.

Prepared by Economic Insect  
Survey and Detection Staff

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(23):343-346, 1972



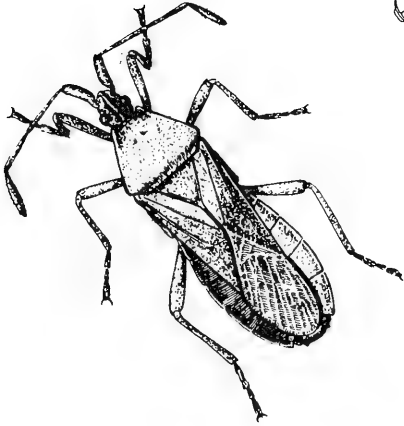
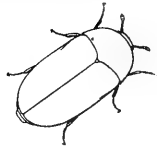
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE  
AGR 101



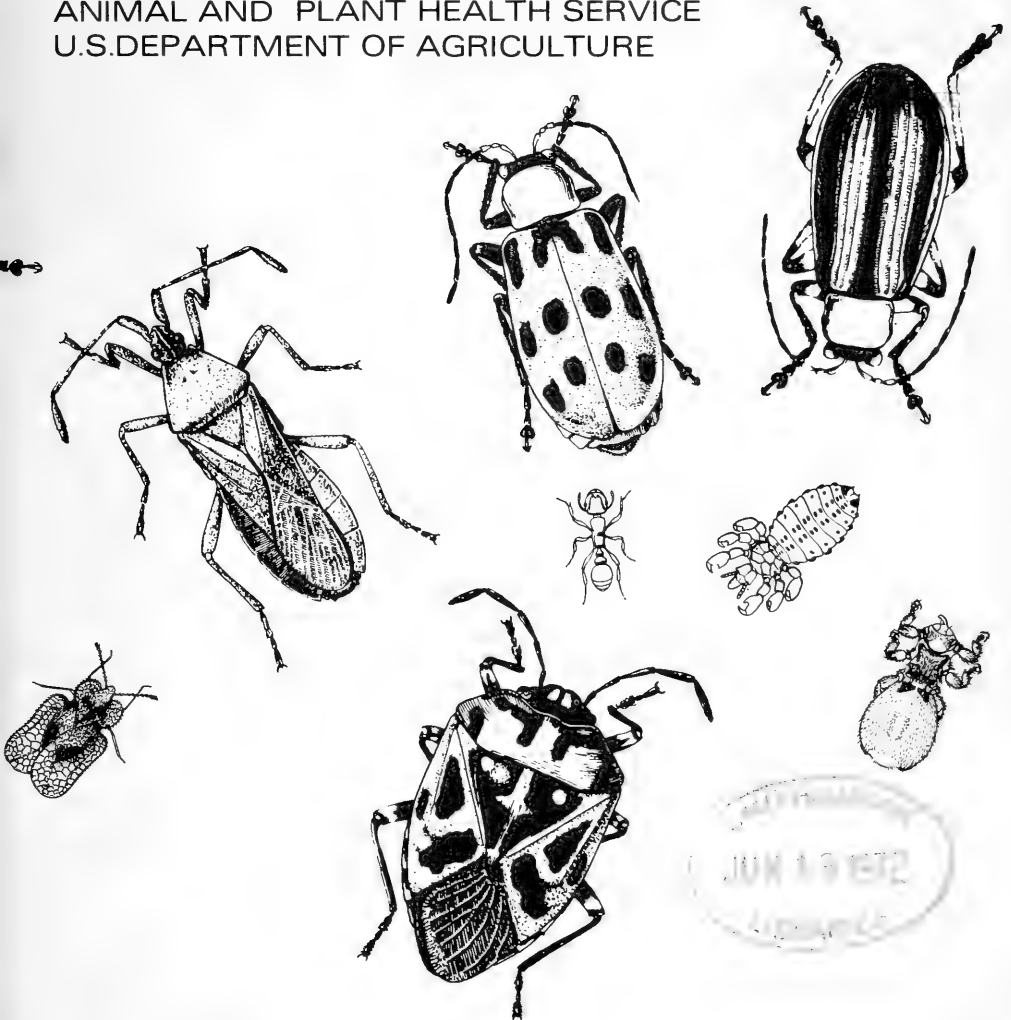
0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



823  
1972  
1007

# Cooperative Economic Insect Report

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



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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

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



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

ARMYWORM damaged corn in Ohio. (p. 349). GREENBUG increased on sorghum in Nebraska and Missouri. (p. 350).

CORN EARWORM heavier on corn in central Alabama than for several years. CORN BLOTCH LEAFMINER caused economic damage to corn for first time in two years in south-central South Carolina. (p. 351).

TOBACCO THRIPS and COTTON APHID caused heavier damage to cotton throughout Alabama than for several years. (p. 354).

SUGARBEET ROOT MAGGOT killed sugar beet seedlings in Wyoming. (p. 355). STRAWBERRY WEEVIL problem on strawberries in Washington. (p. 358).

DOUGLAS FIR BEETLE increased on north rim of Grand Canyon National Park (p. 358), and WHITE FIR NEEDLEMINER heavy on 10,000 acres of white fir in east-central Arizona (p. 359).

GRASSHOPPERS heavy on rangeland in south-central Oklahoma. Cooperative control program planned. (p. 362).

Predictions

EUROPEAN CORN BORER not expected to be problem in Illinois in 1972. (p. 350). MEXICAN BEAN BEETLE damage expected to be heavy throughout Eastern Shore of Maryland this season. (p. 355).

Detection

A SPIDER MITE reported for first time from Pennsylvania. (p. 358).

For new county and island records see page 356.

Special Reports

BOLL WEEVIL. Additional Selected References 1968-1969. (pp. 366-368).

Periodical Cicadas - Outlook for 1972. (pp. 369-370).

Infestation of Oats by the Cereal Leaf Beetle in 1970 and 1971. (pp. 371-378).

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

## CONTENTS

Special Insects of Regional Significance.....	349
Insects Affecting	
Corn, Sorghum, Sugarcane.....	350
Small Grains.....	351
Turf, Pastures, Rangeland.....	352
Forage Legumes.....	352
Soybeans.....	353
Peanuts.....	354
Cotton.....	354
Tobacco.....	354
Sugar Beets.....	354
Miscellaneous Field Crops.....	355
Potatoes, Tomatoes, Peppers.....	355
Beans and Peas.....	355
Cole Crops.....	356
Cucurbits.....	356
General Vegetables.....	356
Deciduous Fruits and Nuts.....	357
Citrus.....	357
Small Fruits.....	358
Ornamentals.....	358
Forest and Shade Trees.....	358
Man and Animals.....	359
Detection.....	356
Beneficial Insections.....	361
Federal and State Plant Protection Programs.....	361
Hawaii Insect Report.....	363
Light Trap Collections.....	364
Boll Weevil. Additional Selected References 1968-1969.....	366
Periodical Cicadas - Outlook for 1972.....	369
Infestation of Oats by the Cereal Leaf Beetle in 1970 and 1971.....	371

---

### WEATHER OF THE WEEK ENDING JUNE 12

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

PRECIPITATION: Afternoon thundershowers dotted parts of the Nation. They were scattered from South Dakota and Nebraska to Wisconsin and in the western mountains Monday, in the West, Nebraska, northeast and southern Florida Tuesday. Fort Lauderdale, Florida, received 4.62 inches in 5 hours Tuesday afternoon. Late Tuesday, thunderstorms dotted the Pacific States, the intermountain region, the central Great Plains, and the Atlantic and gulf coasts. Wednesdays showers spotted the dry southwest mountains and deserts. Prescott, Arizona, received 1.48 inches and 0.06 inch fell at Phoenix. Light rain at Phoenix was remarkable because it ended a 160-day period of no rain or only very light sprinkles. Vigorous thunderstorms in some localities in west-central Iowa, 3 to 5 inches in some places, flooded roads and stalled traffic. Showers were widespread during the latter part of the week and over the weekend. A cold front pushed into the North Central States. Thunderstorms were numerous in moist air in advance of the Front. Some of the thunderstorms were heavy. Some were accompanied by damaging winds and hail. A few tornadoes occurred. The worst produced torrential rains in the Rapid City, South Dakota, area. Weekly totals were very unevenly distributed over the Nation. Parts of eastern Kansas received no rain, central Missouri received over 5 inches. Northeastern South Dakota received only light sprinkles but over 7 inches fell in spots in the Black Hills. Numerous other contrasts could be pointed out. Beneficial showers occurred in the previously dry Southwest. Weather of the week continued on page 365.

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - NORTH DAKOTA - Damaged beets in several areas of Pembina County. Some field margins with up to 80 percent of plants destroyed. Several fields reseeded; controls applied. Completely destroyed 10 acres of sunflower in 60-acre field and 5 percent of plants in 160 acres in Crystal area, Pembina County. (Kaatz).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Found in flax in southwest and west-central districts; ranged 0-200 per 100 sweeps. Populations in small grain variable; ranged 20-400 per 100 sweeps in southwestern, west-central, and central districts. (Minn. Pest Rpt.).

ARMYWORM (Pseudaletia unipuncta) - PENNSYLVANIA - Light to moderate in no-till corn in south-central area. (Gessell, June 1).

MARYLAND - Mature larvae continue to infest small grains in Dorchester and Wicomico Counties. Most economic damage in isolated fields spotted throughout these counties. First infestations in no-till corn light in Frederick and Carroll Counties; second and third instars ranged 2-5 per 100 plants. Damage in corn remain below economic levels. (U. Md., Ent. Dept.). VIRGINIA - Damage medium to heavy on no-till corn in Montgomery County. Damage very heavy in Rockingham County, some larvae nearing pupation. (Roberts, June 2). Larvae heavily damaged no-till corn in Fluvanna County. Damage to small grain and corn still reported in Accomack and Northampton Counties. As food supply becomes low or grain matures, larvae will move to bordering corn. Check closely. (Watts, Hofmaster).

KENTUCKY - Caused heavy damage to no-till corn in Barren County. At one location, 10 percent of plants completely destroyed at emergence; 40 percent foliar loss on remaining plants. Less than 10 percent foliar loss observed in Woodford County. Larvae heavily damaged no-till corn in Larue County. Damage light to corn in Hardin County. (Barnett). OHIO - Some corn in Washington and Pike Counties replanted due to extensive feeding. Some damage reported to corn in Lawrence and Darke Counties (Blair); seedling corn in Morgan County (Fox); and no-till corn in Wayne County (Musick, Suttle). Outbreaks observed in Guernsey, Muskingum, Ashland, and Monroe Counties. (Triplett). INDIANA - Adults emerging in southern two-thirds of State. Single report of larval activity in Madison County. (Huber, Matthew). MISSOURI - Damaged corn in northeast area after field of rye totally defoliated. (Thomas). NEBRASKA - None observed in 2 fields of lodged wheat in Lancaster County. (Berogan). MINNESOTA - Light in grassy alfalfa and grassy margins in Kandiyohi, Meeker, and McLeod Counties. Not economic in any field. Mostly third instar. Few fourth instars found in grassy weeds at South Minneapolis home. Few moths caught in light traps in Worthington, Lambertson, and Crookston. (Minn. Pest Rpt.).

BEEF LEAFHOPPER (Circulifer tenellus) - IDAHO - Populations low throughout southern area. No control program planned for 1972. (Evans).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Some moderate to heavy infestations in whorls of 10 to 12-inch sorghum in Elk and Montgomery Counties; not heavy enough to cause reddening of terminal leaves. Light in whorls of 3-inch Sudan grass in Sedgwick

County and 16-inch Johnson grass in Elk and Montgomery Counties. (Bell). TEXAS - Light in several fields of grain sorghum in Hunt and Collin Counties. Controls not warranted. (Green). UTAH - Moderate on corn in Springfield and Provo area, Utah County. (Horn, Knowlton).

GREENBUG (*Schizaphis graminum*) - NEBRASKA - Increasing rapidly in grain sorghum throughout southern half of State. Light and occasional severe damage to seedling sorghum reported in southeast, east, central, south, and southwest districts. No evidence of parasitism; predators very low. Unless rain intervenes, problems expected to increase. (Roselle et al.). KANSAS - Flights to seedling sorghum decreasing in southeast area, but many flying from ripening wheat farther north. Little or no increase currently noted in fields checked 2 weeks ago in southeast district; apparently largely due to drought conditions. Greenbug heavier in low areas in sorghum fields in Shawnee and Neosho Counties than in higher areas; apparently associated with more plant drought stress on higher ground than in lower areas. Much treating of sorghum reported in northeast district. No heavy infestations in Sudan-sorghum crosses reported in southeast district. Little sorghum has emerged over much of south-central district due to low soil moisture. (Bell).

MISSOURI - Greenbug increased on sorghum in west-central and southwest areas. Colonies found on 30-40 percent of plants in some fields. (Munson). ARKANSAS - Light on sorghum in Jackson County; only 5 or 6 colonies found in 15 minutes. (Boyer). TEXAS - Light on sorghum in several fields in Hunt and Collin Counties. (Green).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - INDIANA - Ranged 2-3 per sweep in field of alfalfa in light soil in southwest district; counts lower in 2 other fields. Regrowth in these fields ranged 7-12 inches. (Meyer). KANSAS - Averaged 250 per 10 sweeps in 8-inch droughty, second-growth alfalfa in Harper County. (Bell).

### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MINNESOTA - Pupation well underway in southern half of State. Pupation by district: Southwestern 58 percent; west-central 40-50 percent; central 44 percent; southeastern 50 percent. In fields with old cornstalks still standing, pupation about 100 percent in southwestern and central districts. Moth emergence seen in southwestern and central districts, ranged trace to 2 percent. Corn generally too short for successful egg laying by early emerging moths. (Minn. Pest Rpt.). MICHIGAN - Adult emergence peaked June 6. Heaviest collections at Lenawee station where 229 taken (94 females). Mating and egg laying will be rapid next 1-3 weeks. (Sauer). OHIO - Oviposition begun, egg masses found throughout State. (Musick). ILLINOIS - Egg laying in field corn taking place throughout southern two-thirds of State; hatching throughout southern one-half. First instar larvae averaged 3 per plant in Monroe and Greene Counties; egg masses found in Moultrie and Sangamon Counties. Corn borer not expected to be problem in Illinois in 1972. (Cooley). IOWA - First moth collected May 28 at Ankeny. (Iowa Ins. Sur.).

MISSOURI - Leaf feeding observed on 2-10 (average 3) percent of plants in early planted fields in southwest area. (Munson). NEBRASKA - European corn borer moths increasing sharply at light traps at Plymouth and Lincoln. (Berogan). MARYLAND - First

Ostrinia nubilalis larvae of season infesting early corn in Dorchester and Wicomico Counties. Corn remains unattractive for egg laying but egg laying expected to increase rapidly within 5 days. (U. Md., Ent. Dept.). DELAWARE - Egg masses common on field corn in New Castle and Sussex Counties. (Burbutis, Kelsey). TENNESSEE - First-generation larvae damaged 20-40 percent of whorls on young corn in Gibson and Hardeman Counties. (Pless).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSISSIPPI - Larvae damaged up to 50 percent of corn in some small Leake County fields; some plants destroyed. (Robinson).

CORN EARWORM (Heliothis zea) - ALABAMA - Infestations in whorls of corn in all fields in Autauga and Chilton Counties; much heavier than in 1971 or for several years. (Kirkpatrick, Futral). KANSAS - Light traps show moths as far north as Manhattan, Riley County. (Bell). WASHINGTON - Larvae on tassels of market corn at Wapato, King County. (Togashi).

BLACK CUTWORM (Agrotis ipsilon) - KANSAS - Damaged seedling corn in Doniphan County field and seedling sorghum in Jackson County field. (Bell). NEBRASKA - Corn stands reduced 10-15 percent in scattered Dodge County fields. Some treatments applied. (Novotny). MISSOURI - Scattered damage to corn reported from northern area. (Thomas). IOWA - Larvae infesting low-lying cornfield in Polk County; 50 percent of plants either cut off or showed leaf feeding on corn 4 inches tall. (Iowa Ins. Sur., June 2).

STALK BORER (Papaipema nebris) - PENNSYLVANIA - Larvae destroyed 70 percent of no-till corn plants in Franklin County field; damage up to 30 percent in other fields. Several acres of 20-acre field in Lancaster County destroyed. (Gesell, June 1).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Damaging young grain sorghum and corn in many fields in Autauga and Chilton Counties. (McQueen).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Larvae severely damaging 15+ percent of young grain sorghum plants in 150-acre planting in west Morgan County. (Campbell). MISSOURI - Damaged corn in southeast area. Up to 50 percent of plants killed in some fields. (Thomas).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - Damaged corn in Franklin, Edgecombe, Nash, and Wilson Counties in Coastal Plain area. Heavy stand loss (10+ percent of plants) in about 1 percent of fields inspected. (Hunt).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Infestations detected in Collin and Hunt Counties. Collected 3 midges on 150 heads of grain sorghum in Collin County and 13 midges on 100 heads in Hunt County. No control needed at this time. (Green).

CORN BLOTCH LEAFMINER (Agromyza parvicornis) - SOUTH CAROLINA - Economic on corn in Berkeley and Dorchester Counties; first report of damage in 2 years. (Thomas).

#### SMALL GRAINS

WHEAT STEM MAGGOT (Meromyza americana) - NEBRASKA - White heads observed on about 1 percent of plants in 35-acre planting of triticale in Nemaha County. (Levigne).

HESSIAN FLY (Mayetiola destructor) - TENNESSEE - Infested total of 700 acres of wheat in McMinn County. Infested 1-99 percent of stalks in infested fields. (Gordon et al.).

#### TURF, PASTURES, RANGELAND

SAGEBRUSH DEFOLIATOR (Aroga websteri) - UTAH - Moderate on sagebrush west and south of Snowville, Box Elder County; light in Hobbie Creek Canyon, Utah County. (Knowlton).

#### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WASHINGTON - Small larvae found in 2 alfalfa seed fields east of Othello, Grant County, June 2; larvae ranged 0.08-0.12 per sweep. This is a new record for Grant County and the Columbia Basin. About 10 larvae per sweep in several alfalfa seed fields in Touchet area, Walla Walla County, May 25. (Johansen). IDAHO - Larvae feeding on new and established alfalfa throughout Gooding County. Treatment planned to stubble after hay crop removed. (Koester). Larvae ranged up to 100 per sweep in one-third of Lincoln County alfalfa June 5. (Hopkins). WYOMING - Larvae averaged 74 per 10 sweeps in 2 alfalfa fields in Goshen County (Parshall); ranged 100-430 per 10 sweeps in several fields in Washakie County (Burkhardt). Small larvae caused heavy damage to alfalfa in Douglas area. (Spackman). As of June 1, counts per 10 sweeps averaged 9 adults, 2 larvae in Sheridan County; ranged 1-22 adults, 1-2 larvae in Crook County; less than 1 adult and 1 larva in Weston County. (Pike). UTAH - Damage increased on untreated alfalfa in Davis, Cache, Millard, Utah, and Box Elder Counties. Where no controls made, 6 to 8-inch alfalfa cut in attempt to halt damage. (Knowlton, McAllister). Infestations heavy at Bothwell, Box Elder County, and at Benson, Cache County; damaging throughout Davis County and in Duchesne County. (Roberts, Stokes). Larvae 200-1,500 per 10 sweeps in field near Salt Lake City, Salt Lake County; field appears gray. (Knowlton).

NEVADA - H. postica larval development about 2 weeks ahead of normal in Elko County; 100+ larvae per sweep in many alfalfa fields. (Hackett, Lauderdale). NEW MEXICO - Light to medium on alfalfa at Time, Valencia County. (N.M. Coop. Rpt.). COLORADO - Larvae ranged 10-210 per 10 sweeps in alfalfa in Weld County; approximately 5 percent of population adults. (Marquardt).

KANSAS - Some small H. postica larvae still found in alfalfa in Elk and Montgomery Counties. Regrowth generally fair to good in fields heavily infested earlier although plants drought stressed. (Bell). NEBRASKA - New county records as follows: Counts per 100 sweeps May 25 - Sarpy, 2 larvae; Saunders, 4 larvae and 4 adults; Dodge, 5 larvae; May 31 - Thurston, 6 larvae. Counts per 200 sweeps May 17 - Hamilton, 1 larva and 1 adult; May 30 - Polk, 1 larva; Nance, 1 larva and 1 adult; Merrick, 15 larvae; Howard, 5 larvae; May 31 - Cuming, 1 larva. Counts per 150 sweeps June 1 - Washington, 2 larvae and 1 adult; Burt, 16 larvae; Dakota, 2 larvae; Dixon, 7 larvae. Determined by G. Manglitz. (Keith, Berogan). NORTH DAKOTA - Larval infestations ranged up to 5,000 (averaged 1,140) per 100 sweeps in irrigated alfalfa in Williams and McKenzie Counties; much heavier than 1971. Adults ranged up to 100 (averaged 60) per 100 sweeps. Damage evident. Alfalfa in late bud to early bloom stage. (Brandvik). MICHIGAN - Caused heavy damage in southern Jackson County and near Blissfield and Ogden Center in Lenawee County. Fields turning bronze; not much alfalfa cut in area. (Sauer).

ARKANSAS - H. postica larvae averaged 225 per 100 sweeps in 4 samples at Fayetteville. (Dumas). IOWA - Found in Mitchell, Winneshiek, Fayette, Bremer, and Floyd Counties for new county records. Field in Polk County had 10 larvae per sweep June 1; no adults found. (Iowa Ins. Sur.). OHIO - Damage to alfalfa very light in northwest area. (Tucker). Alfalfa has been cut in southwest area. (Fox). KENTUCKY - Populations declined in southern area where larvae averaged 500 per 100 sweeps; 2,000 per 100 sweeps found in Barren County. (Barnett). MARYLAND - Economic infestations phasing out. Larval and adult activity decreasing rapidly statewide. (U. Md., Ent. Dept.). PENNSYLVANIA - Larvae per 20 sweeps, 40 on mixed alfalfa and timothy with damage apparent, 100 on mixed alfalfa and clover at Greenville, Mercer County. (Ode June 5).

CLOVER SEED WEEVIL (Miccotrogus picrostris) - IDAHO - Averaged 10 per sweep in two 160-acre Alsike clover seed fields at Craigmont, Lewis County. (Ovart et al.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Light on alfalfa in Valencia County; light to heavy in Eddy and Lea Counties. (N.M. Coop. Rpt.). UTAH - Moderate to severe in alfalfa at Benson, Cache County (Roberts); at Duchesne, Duchesne County (Mathis); ranged 25-65 per 10 sweeps in Springfield area, Utah County (Knowlton). COLORADO - Ranged 2-100 per sweep of alfalfa in Weld County. (Marquardt). WYOMING - Averaged 61 per 10 sweeps in 2 alfalfa fields in Goshen County; about 5 percent winged. (Parshall). In Sheridan County, 0-10 per 10 sweeps; none in Crook and Weston Counties. (Pike). MINNESOTA - Counts low in alfalfa due to high numbers of aphid predators, primarily lady beetles. Pea aphid increased sharply, ranged 350-4,000 per 100 sweeps, in southwest central, west-central, and northwest districts. First cutting of alfalfa in progress, should decrease pea aphid population. (Minn. Pest Rpt.).

WISCONSIN - Acyrtosiphon pisum increased, probably reached peak in first-growth alfalfa. Ranged 1-3 per sweep in most fields; up to 60 per sweep in a Grant County field. Population mostly alates. (Wis. Ins. Sur.). KENTUCKY - Averaged 400 per 100 sweeps of alfalfa in Hardin County; 500 per 100 sweeps in Barren and Hart Counties. (Barnett). PENNSYLVANIA - Infested mixed alfalfa and timothy in Greenville, Mercer County; averaged 50 per 20 sweeps on mixed alfalfa and clover at same location. (Ode, Kim).

LYGUS BUGS (Lygus spp.) - WYOMING - Adults and nymphs averaged 53 per 10 sweeps in 2 alfalfa fields in Goshen County June 3. (Parshall). In Sheridan, Crook and Weston Counties, averaged less than 1 per 10 sweeps June 1. (Pike). OHIO - Adults of L. lineolatus (tarnished plant bug) averaged 12 per 50 sweeps in mixed clover and timothy field in Vinton County; a 4 to 6-fold increase in activity compared to one month ago. (Fox).

ALFALFA CATERPILLAR (Colias eurytheme) - PENNSYLVANIA - Larvae averaged 50 per 20 sweeps of mixed alfalfa and timothy in Greenville area, Mercer County. (Ode).

## SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - INDIANA - Adults ranged 0-16 per 50 linear feet in southeast district, and 7 per 50 linear feet in fields in Monroe County. (Matthew, Meyer).

CUTWORMS - MISSISSIPPI - Unspecified species destroyed 1,200 acres of 2,000-acre stand of soybeans grown in soil with high organic content. (Robinson).

## PEANUTS

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - This thrips and other species heavy and causing leaf deformity on several thousand acres of peanuts in Houston and Covington Counties. Controls applied throughout most of Houston County. (Mathews, Linder).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - Heavy emergence from hibernation continuing; infestations up to 25 percent punctured squares on some older cotton in southern area. (Womack).

MISSISSIPPI - Counts per trap per county (1.7 traps per acre) increased to 3.5. Weevils ranged from 1.7 per trap in Forrest County and to 5.3 in Lamar County. (Robinson).

BOLLWORMS (Heliothis spp.) - GEORGIA - Heavy in several southern area fields. (Womack).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Required some treatments in Yuma area, Yuma County. (Ariz. Coop. Sur.).

THRIPS (Frankliniella spp.) - OKLAHOMA - Averaged 6.5 per plant in untreated cotton in Chickasha area, Grady County. Continue heavy in Washita and Caddo Counties. (Okla. Coop. Sur.). ALABAMA - F. fusca (tobacco thrips) and other thrips heavy on improperly treated 2 to 8-leaf cotton throughout State. Damage heavier than for several years. (Salter et al.).

COTTON APHID (Aphis gossypii) - ALABAMA - Heavy and damaging 2 to 8-leaf stage untreated cotton statewide. Damage heavier than in most years. (McQueen). NEW MEXICO - Light on cotton in Roswell area, Chaves County. (N.M. Coop. Rpt.).

SPIDER MITES - ARIZONA - Tetranychus spp. increasing in few fields treated earlier for Spodoptera exigua (beet armyworm) at Yuma, Yuma County. (Ariz. Coop. Sur.).

## TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults increasing rapidly on newly set tobacco in Prince Georges, Calvert, St. Marys, and Charles Counties. Averaged 3 per plant in most fields examined. (U. Md., Ent. Dept.). KENTUCKY - Damaged newly set tobacco in Woodford County; 10 percent foliar loss observed at one location. Light damage observed in Hardin, Grayson, and Edmonson Counties. (Barnett).

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - In Hoke, Columbus, and Bladen Counties, 33 percent of fields surveyed at or above threshold level of 5 larvae per 50 plants. (Baxley).

## SUGAR BEETS

SUGARBEEF ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - First adult emergence in Walsh and Pembina Counties occurred May 23; peak fly emergence now. This is about a week earlier than 1971.



Up to 6 flies per beet plant. First eggs observed May 31; egg counts ranged 3-200 per plant. Eggs present on 10-100 percent of plants. Egg hatch June 6. (Kaatz). In McKenzie and Williams Counties, up to 30 adults per 100 plants on beets in 4 to 6-leaf stage. Adults present in crested wheatgrass pasture at rate of 5 per 100 sweeps in Williams County. (Brandvik). WYOMING - Tetanops myopaeformis adults still emerging and ovipositing in sugar beets in Washakie County. In some fields, 40-80 percent of plants with eggs at bases of plants. Some fields with up to 10 percent of seedlings dead; 10-12 larvae per plant. (Burkhardt).

#### MISCELLANEOUS FIELD CROPS

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Larvae damaged approximately 450 acres of mint in Prineville area, Crook County. Counts ranged up to 8 per square foot along periphery of denuded portions of fields June 7 and 8. (Penrose, Humphrey).

SUNFLOWER BEETLE (Zygogramma exclamationis) - NORTH DAKOTA - Adults, up to 1 per 2 sunflower plants, laying eggs in Crystal area, Pembina County. (Kaatz). Up to 1 adult per linear foot of row present in St. Thomas area. (Frye).

#### POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Egg laying continues in unsprayed potatoes in Wicomico, Dorchester and Worcester Counties. First and second instar larvae in several potato plantings in Worcester County. Most tomatoes and potatoes sprayed; controls effective. (U. Md., Ent. Dept.). KENTUCKY - Heavily damaged potatoes in Hardin County. Larvae averaged 40 per plant. (Barnett). IDAHO - Egg deposition general throughout 4,500 acres of potatoes at Black Mesa, Elmore County, June 2. (Edwards).

POTATO FLEA BEETLE (Epitrix cucumeris) - OHIO - Counts ranged 1-4 per 4 to 8-inch pepper plant in Washington County; leaf surface damage ranged from less than 5 to 15 percent. (Fox). PENNSYLVANIA - Two adults per 10 plants on potato at Greenville, Mercer County. (Ode).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Heavy on tomatoes, peppers, and other bedding plants at Albuquerque, Bernalillo County. (N.M. Coop. Rpt.).

#### BEANS AND PEAS

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults heavily damaged 20 acres of newly emerged snap beans near Preston, Caroline County. Controls applied. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults ranged 5-10 per 10 feet of row in 150 acres of snap beans in several areas of Dorchester County. Controls applied. Egg laying underway throughout Eastern Shore in soybeans and snap beans. Heavy damage expected throughout Eastern Shore this season. (U. Md., Ent. Dept.).

ALFALFA CATERPILLAR (Colias eurytheme) - MARYLAND - Larvae found in peas in Wicomico and Worcester Counties. Infestations remain light but causing contamination problems when pupae pass through processing screens and into canned product. (U. Md., Ent. Dept.).

## COLE CROPS

CABBAGE MAGGOT (Hylemya brassicae) - OREGON - Larvae averaged 1 per plant in broccoli, cabbage, and cauliflower near Cornelius, Washington County. Cauliflower almost eliminated. No preplant treatments made. (Collins).

## CUCURBITS

STRIPED CUCUMBER BEETLE (Acalymma vittata) - INDIANA - Adults ranged 0-5 per melon plant in southwest district. (Matthew, Meyer). OKLAHOMA - Larvae heavy in roots of squash in Pawnee County. (Okla. Coop. Sur.).

## GENERAL VEGETABLES

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - IDAHO - Caused first real damage of season south of Twin Falls, Twin Falls County, June 2. (Peay). Adult activity noted at Twin Falls June 4. (Carpenter). First adult activity noted at Moscow, Latah County, June 6. (Barr).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Adults increased. Averaged 3 per plant in 600 acres examined. Controls not needed yet. (U. Md., Ent. Dept.).

POTATO FLEA BEETLE (Epitrix cucumeris) - PENNSYLVANIA - Two adults per 10 sweeps on onion at Greenville, Mercer County. (Ode).

---

## DETECTION

New State Record - A SPIDER MITE (Platytetranychus thujae) - PENNSYLVANIA - Cumberland County. (p. 358).

New County and Island Records - ALFALFA WEEVIL (Hypera postica) - NEBRASKA - Sarpy, Saunders, Dodge, Thurston, Hamilton, Polk, Nance, Merrick, Howard, Cuming, Washington, Burt, Dakota, Dixon. WASHINGTON - Grant. IOWA - Mitchell, Winneshiek, Fayette, Bremer, Floyd (p. 352). FACE FLY (Musca autumnalis) - TENNESSEE - McMinn (p. 360). AN ICHNEUMON WASP (Xanthopimpla punctata) - HAWAII - Kauai (p. 363). RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Putnam (p. 362). WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Santa Clara (p. 362).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - Eggs and larvae on apples in Yakima, Yakima County. First larval entries seen May 29. Eggs numerous on fruit in unsprayed block. (Johnson).

WESTERN CHERRY FRUIT FLY (Rhagoletis indifferens) - WASHINGTON - First adults of season on yellow stickyboard traps, baited with household ammonia, on cherry trees at Sunnyside and Grandview, Yakima County. (Hudson et al.). Additional adults taken in fruit fly traps at Wenatchee, Chelan County. (Rushmore).

CHERRY FRUIT FLY (Rhagoletis cingulata) - MICHIGAN - First flies seen near Stevensville, Berrien County, and Hartford, Van Buren County, June 8. Growers expected to apply controls by June 14. (Sauer).

APPLE APHID (Aphis pomi) - WASHINGTON - Nymphs and adults on 20 acres of Delicious apples at Cowich, Yakima County. Damage about 50-75 percent. Prebloom and petal fall applications failed to control aphids. (Johnson et al.). Adults and nymphs on 20 acres of apples at Yakima. Damage to fruits and leaves about 90 percent; crop ruined. Controls applied but resistance present. (Durrett, Hudson).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First summer-generation nymphs on pears in upper Yakima Valley, Yakima County. Hatch heaviest in early districts. Overwintering adults on pear near sagebrush and volunteer cover at Ahtanum, Yakima County. Females outnumber males 3 to 1. No summer generation present or eggs seen. (Gregorich).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MAINE - Overwintering eggs hatched June 2, about same time as 1971. New crawlers readily evident on infested apple trees. (Gall).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Heavy on apple trees at Faywood, Grant County, and at Bent, Otero County. (N.M. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Eggs averaged 6 percent in Rogers County. Heavy in Pontotoc County, moderate in Carter and Bryan Counties, light in Marshall County. (Okla. Coop. Sur.). NEW MEXICO - One damaged pecan nutlet found on inspection of approximately 30 trees at Carlsbad, Eddy County. (N.M. Coop. Rpt.).

## CITRUS

Insect Situation in Florida - End of May - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 72 (norm 50) percent of groves; economic in 48 (norm 33) percent. Population decreased but will increase again on leaves and fruit. It will continue above normal and in high range. Highest districts south, central, and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 55 (norm 55) percent of groves; economic in 33 (norm 34) percent. Population increased, now near normal. Further expected increase through June will take population into high range. Highest districts central and west. CITRUS RED MITE (Panonychus citri) infested 27

(norm 57) percent of groves; economic in 10 (norm 30) percent. This mite is below normal and in low range. Population will generally remain low, few heavy infestations expected in scattered areas. Highest district west. GLOVER SCALE (Lepidosaphes gloverii) infested 81 (norm 85) percent of groves; economic in 3 (norm 24) percent. PURPLE SCALE (L. beckii) infested 76 (norm 80) percent of groves; economic in 3 (norm 10) percent. Populations below normal and moderate for both species. Very few infestations important. Little change expected. Highest districts: Glover scale west, south; purple scale east. BLACK SCALE (Saissetia oleae) infested 52 (norm 40) percent of groves; economic in 32 (norm 21) percent. Population increased and now above normal and in high range. Further increase predicted through June. Highest districts east and central. CHAFF SCALE (Parlatoria pergandii) infested 49 (norm 62) percent of groves; economic in 1 (norm 10) percent. YELLOW SCALE (Aonidiella citrina) infested 43 (norm 62) percent of groves; none economic (norm 8 percent). These scales below normal and at low level in all districts. Little change expected. An ARMORED SCALE (Unaspis citri) infested 32 percent of groves; economic in 22 percent. Population will spread and intensify. WHITEFLIES infested 77 (norm 66) percent of groves; economic in 31 (norm 25) percent. Population above normal and in high range. Temporary decrease expected. Highest districts east, central, and west. MEALYBUGS infested 41 (norm 39) percent of groves; economic in 6 (norm 8) percent. Population near normal and presently low, strong increase expected. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred Alfred)).

#### SMALL FRUITS

BLUEBERRY MAGGOT (Rhagoletis mendax) - NORTH CAROLINA - First adults of season trapped June 6 near Burgaw, Pender County. Control underway in all areas. (Weaver).

GRAPE BERRY MOTH (Paralobesia viteana) - PENNSYLVANIA - Larvae 20 per plant on grape in New Bloomfield, Perry County; 50 percent damage observed. (Michener, May 29).

STRAWBERRY WEEVIL (Anthonomus signatus) - MICHIGAN - Severe on strawberries in Manistee County; caused 70 percent loss of crop from stem clipping and bud punctures. Problem began when plants about to bloom. (Sauer).

#### ORNAMENTALS

A SPIDER MITE (Platytetranychus thujae) - PENNSYLVANIA - Adults collected on arborvitae, 4 miles west of Camp Hill, Cumberland County, May 17, 1971, by K. Neiderer. Determined by E.W. Baker. This is a new State record. This mite also collected on various dates and at several locations in State in 1971 on juniper. Determined by R. Lehman. (Wilder).

#### FOREST AND SHADE TREES

DOUGLAS FIR BEETLE (Dendroctonus pseudotsugae) - ARIZONA - Increased on north rim of Grand Canyon National Park; 400 mature and over mature Douglas fir trees attacked over 600-acre area. (USFS).

WHITE FIR NEEDLEMINER (Epinotia meritana) - ARIZONA - Heavy on 10,000 acres of white fir trees 20 miles south of Springerville, Apache County. (USFS).

LARGE ASPEN TORTRIX (Choristoneura conflictana) - MINNESOTA - Aerial survey conducted in St. Louis, Lake, and Cook Counties to determine gross defoliation area. Defoliation generally light immediately northeast of Duluth; may be due to unseasonable cool spring weather retarding development. Areas farther north and northeast to Canadian border showed large areas of moderate defoliation with some heavy defoliation in Finland and Tofte areas and adjacent to the Sawbill Trail. Spotty, light to moderate defoliation noted in Carlton County. (Minn. Pest Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Larvae in last larval stage defoliated single row Siberian elm shelter-belt trees in Burleigh and McLean Counties. Up to 100 percent of trees in some plantings totally defoliated. (Brandvik).

BOXELDER LEAFROLLER (Gracillaria negundella) - UTAH - Foliage damage severe on several thousand boxelder trees in Davis, Salt Lake, Utah, Box Elder, and Cache Counties. Many hundreds of these trees show no leaf color. (Knowlton, Burningham).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Some pupation reported in Manhattan, Riley County, and in Topeka, Shawnee County. Siberian elms in Topeka up to 50 percent damaged. (Bell).

OKLAHOMA - Damage increased in most areas of State; defoliation ranged up to 60 percent in Payne County. Heavy in Bryan, moderate in Okmulgee, Murray and Pontotoc Counties. (Okla. Coop. Sur.).

NEW MEXICO - Light to heavy on elms at Albuquerque, Bernalillo County, and at Tularosa, Otero County. (N.M. Coop. Rpt.).

COLORADO - Egg hatch about complete in Arkansas Valley; larval damage appearing on elm trees. (Hantsbarger).

PERIODICAL CICADAS (Magicicada spp.) - VIRGINIA - M. septendecim heavy in small area of Charles City County. (Tate, June 1).

ILLINOIS - Magicicada sp. heavy throughout wooded areas of southern half of state. Up to 25 per 3 feet of branch on small trees and bushes. (Cooley). TENNESSEE - M. tredecim emerged in Stewart, Meigs, and Monroe Counties. Light damage by oviposition in Stewart County. (Butler, Gordon). MISSISSIPPI - M. septendecim eggs averaged 14-30 per puncture. Punctures averaged 14 per stem foot on stems one-fourth inch in diameter in Oktibbeha and several other counties. Most damage restricted to various species of oaks. (Robinson).

#### MAN AND ANIMALS

HORN FLY (Haematobia irritans) - NORTH DAKOTA - Ranged 120-300 (averaged 170) per animal on range cattle in McKenzie County. (Brandvik). NEBRASKA - Ranged 300-400 (averaged 200) per head on 4 range herds in Lincoln County. (Campbell). OKLAHOMA - Averaged 600 per head on cows and 1,700 per head on bulls in Payne County. Moderate to heavy in Pontotoc, Marshall, Hughes, and Okmulgee Counties. (Okla. Coop. Sur.). TEXAS - Light to moderate in Wilbarger and Jones Counties, moderate to heavy in Tom Green County. (Green). MISSISSIPPI - Adults ranged 30-100 per animal on 100 beef cattle in Clay County. Ranged 0-500 (averaged 250) per animal

in Clay, Monroe, Oktobbeha, Noxubee, Chickasaw and Lee Counties. (Swords, Robinson). FLORIDA - Adults averaged 89 per treated cow at Hawthorne, Alachua County. Averages of 150 flies per treated dairy cow and 62 per treated beef animal taken at Lowell, Marion County about 7 days after treatment. (Head). VIRGINIA - Averaged 23 per animal in herd of untreated beef cattle in Montgomery County June 2. (Roberts). PENNSYLVANIA - Averaged 75 per 20 Holstein heifers at Greenville, Mercer County. (Ode).

MOSQUITOES - MAINE - Aedes spp. emergence increasing. Recent heavy rain resulted in large hatch of A. vexans in many areas. Adults emerging. (Gall). MINNESOTA - Light trap catches in Metropolitan Mosquito Control District increased moderately week ending June 2, especially in Hennepin County. Coquillettidia perturbans taken in light traps and evening bite collections week ending June 8. This is much earlier than normal. Larval collections reflect increase of Aedes vexans; larvae in 65 percent of collections. Brood of A. vexans that hatched following rains of May 28 and 29 now emerged. This species also accounted for about 50 percent of light trap collections. (Minn. Pest Rpt.). ARKANSAS - Psorophora confinnis averaged 30 per night in New Jersey light trap in Arkansas and Lonoke Counties. (Boyer). WYOMING - Unspecified adults light along Laramie River in Albany County June 3. (Parshall). UTAH - Troublesome in several areas of Duchesne, Uintah, Box Elder, Cache, and Tooele Counties. (Knowlton et al.).

FACE FLY (Musca autumnalis) - PENNSYLVANIA - Five per Jersey cow and 30 per 20 Holstein heifers at Greenville, Mercer County. (Ode). VIRGINIA - Adults averaged 5 per animal in herd of untreated beef cattle in Montgomery County. (Roberts). OHIO - Heavy and annoying beef cattle in Noble County. (Boyle). Also observed around cattle in Morgan, Ross, Hocking, Vinton, and other counties. (Fox). TENNESSEE - Averaged 2 flies per head on 150-head herd of dairy cattle in McMinn County. This is a new county record. (Gordon). MISSISSIPPI - First infestations of year averaged 10 per face (up to 30 per face) on cattle in Monroe, Chickasaw, and Lee Counties. (Robinson). NEBRASKA - None observed on 4 range herds checked in Lincoln County. (Campbell).

SCREWORM (Cochliomyia hominivorax) - Total of 3,014 cases reported in U.S. June 4-10, 1972 as follows: TEXAS: Aransas 2, Archer 1, Atascosa 96, Austin 1, Bandera 39, Bastrop 8, Bee 98, Bell 2, Bexar 50, Blanco 13, Borden 6, Brazoria 2, Brazos 2, Brewster 7, Brooks 67, Brown 2, Burleson 4, Burnet 2, Caldwell 32, Calhoun 1, Callahan 2, Cameron 4, Coke 3, Coleman 7, Colorado 6, Comal 18, Comanche 2, Concho 5, Coryell 1, Crockett 23, Crosby 1, Dallas 1, De Witt 107, Dimmit 79, Donley 1, Duval 72, Edwards 62, Erath 2, Ellis 1, Fayette 9, Fisher 1, Frio 72, Gaines 1, Garza 4, Gillespie 42, Glasscock 2, Goliad 76, Gonzales 57, Grimes 2, Guadalupe 24, Hale 1, Haskell 2, Hays 10, Hidalgo 53, Howard 6, Irion 3, Jack 1, Jackson 4, Jeff Davis 1, Jim Hogg 57, Jim Wells 82, Jones 2, Karnes 46, Kendall 32, Kenedy 68, Kerr 26, Kimble 25, Kinney 65, Kleberg 37, Knox 1, Lampasas 1, La Salle 64, Lavaca 40, Lee 5, Live Oak 85, Llano 13, Lynn 1, Mason 13, Maverick 25, McCulloch 7, McMullen 53, Medina 102, Menard 4, Milam 1, Mills 3, Mitchell 9, Nolan 1, Nueces 25, Pecos 11, Presidio 5, Reagan 1, Real 55, Reeves 1, Refugio 34, Robertson 4, Runnels 1, San Patricio 25, San Saba 2, Schleicher 4, Scurry 4, Shackelford 2, Starr 73, Sterling 3, Stonewall 2, Sutton 31, Terrell 31, Throckmorton 7, Tom Green 1, Travis 5, Upshur 1, Uvalde 106, Val Verde 60, Victoria 42, Waller 1, Washington 1, Webb 132, Wharton 1,

Wilbarger 1, Willacy 18, Williamson 4, Wilson 111, Wise 1, Young 3, Zapata 44, Zavala 64. ARIZONA: Cochise 3, Gila 2, Graham 2, Greenlee 1, Maricopa 3, Pima 2, Pinal 2, Santa Cruz 4. NEW MEXICO: Dona Ana 1, Eddy 1, Grant 4, Hidalgo 1. Total of 888 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Baja California 3, Sonora 285, Chihuahua 30, Coahuila 213, Nuevo Leon 56, Tamaulipas 301. Total of 51 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 screwworm flies released: Texas 140,713,000; New Mexico 2,260,000; Arizona 7,560,000; California 500,000; Mexico 26,750,000; Louisiana 850,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Adults running cattle in Cache and Box Elder Counties past 10 days. (Knowlton et al.).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - Adults heavy in several isolated areas of Prince Georges County. (U. Md., Ent. Dept.).

### BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Numerous in alfalfa in Valencia County. Lacewings, damsel bugs, and parasitic wasps also numerous. (N.M. Coop. Rpt.). INDIANA - Coleomegilla maculata adults on corn ranged 0-8 per 25 plants in southern districts. (Meyer).

AN ICHNEUMON (Bathyplectes curculionis) - NEVADA - Large numbers of adults present in numerous alfalfa fields in the Lovelock area, Pershing County. (Stitt).

### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Egg hatch in oats delayed by cool weather and cold nights. Peak larval density not yet reached in southern half of Lower Peninsula; hatching just underway in northern half. High densities expected in northern and eastern parts of Lower Peninsula. Surveys in Shiawassee, Jackson, and Lenawee Counties show population drop from 1971 in central part of the State. (Haynes, Ruppel, Sauer). OHIO - Larvae heavy, 6-27 per plant, caused frosting of oats in 15-acre stand in Ross County. Damage less severe in southern area; counts lower. Adults 5 per 50 sweeps in Morgan County, 5 per 50 sweeps in Noble County. (Fox). WEST VIRGINIA - Eggs averaged one per square foot in oats in Cabell County. Larvae per square foot in oats averaged 2 in Wood County, 20 in Pleasants County, June 1. (Hacker).

GRASSHOPPERS - WASHINGTON - Camnula pellucida, Melanoplus sanguinipes, and Oedaleonotus enigma economic on about 10,000 acres of private cropland south of White Swan, Yakima County, June 1. Ranchers initiated controls. Some Federal rangeland may be involved in Touchet area, Walla Walla County; C. pellucida about 5 percent adults. O. enigma also about 5 percent adults south and east of Pasco, Franklin County. (Jackson, Nonini). IDAHO - First and second instar M. sanguinipes heavy throughout south-central and southwestern area May 31. (Evans). NEVADA - Grasshopper nymphs and adults ranged 10-15 per square yard on 150 acres of alfalfa at Carp, Lincoln County. (Zoller). M. sanguinipes

and Melanoplus bivittatus ranged 5-200 per square yard, mostly 30-70 per square yard, on 11,000 acres of alfalfa, grain and rangeland in Humboldt County. Severely damaged alfalfa and grain. Second to fifth instars predominate, emergence continuing. Camnula pellucida scattered. Additional 4,000 rangeland acres infested with economic populations of Oedaleonotus enigma. Controls planned; adverse weather may delay start. (Nevada Coop. Rpt.). WYOMING - Hatching of range grasshoppers continues in southeastern area. (Pfadt).

NEBRASKA - Melanoplus spp. nymphs ranged 75-100 per square yard in isolated spots in breeding areas of Keith County. Nymphs ranged 5-10 per square yard in most pastures checked in Keith and McPherson Counties. (Campbell). OKLAHOMA - Grasshoppers continue heavy in rangeland in southern Murray and northern Carter Counties. Cooperative control program planned for area. Grasshoppers heavy in forage sorghum in Pontotoc County; controls planned. (Okla. Coop. Sur.). NORTH DAKOTA - First through third instar M. bivittatus and M. sanguinipes ranged up to 20 per square yard in sweetclover and alfalfa in Williams County. (Brandvik). MINNESOTA - Grasshopper nymphs found in most areas, but counts heavy only in western Kittson and Marshall Counties. M. bivittatus nymphs present in roadside ditches in these counties. No movement to cropland noted. Early treatment before movement into adjacent crops advisable where populations heavy. Eggs of predominant grasshopper in State, Melanoplus femurrubrum, not hatched except in isolated sandy areas. This important species will cause most grasshopper problems in State this year. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - MAINE - Distribution expanded, now includes areas south of Highway 2 and west of Penobscot Bay. (Gall).

JAPANESE BEETLE (Popillia japonica) - OHIO - Larvae averaged 5 per square foot in Lucas County lawn (Toledo); damage 50 percent. (Fox).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - First rosetted cotton blooms found about June 1 in Yuma County. (Ariz. Coop. Sur.).

RED IMPORTED FIRE ANT (Solenopsis invicta) - FLORIDA - Taken in pasture at Bostwick, Putnam County, May 16, by J.T. Smith. Determined by V.H. Owens. This is a new county record. (PP).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Eggs, larvae, pupae and adults present on grapes in San Jose, Santa Clara County. Collected June 2, 1972, by D. Whitman. Determined by M. Gardner. This is a new county record. This pest is under eradication treatment in Fresno and Siskiyou Counties. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Damage heavy to 15 acres of corn in 60-acre field at Atmore, Escambia County. (Lemons, Daniel).



## HAWAII INSECT REPORT

Corn and Sorghum - CORN LEAF APHID (Rhopalosiphum maidis) nymphs and adults moderate in 350 acres of corn seedlings and sorghum at Kilauea, Kauai. Approximately 20 percent of aphids parasitized by Lysiphlebius testaceipes (a braconid) and Aphelinus maidis (a eulophid wasp). (Sugawa).

General Vegetables - Larval mines of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) and LEAFMINER FLIES (Liriomyza spp.) heavy in 0.25 acre of snap beans at Waimanalo, Oahu; approximately 75 percent of leaves affected. Light in adjacent 0.25-acre planting of same crop. Adult leafminers moderate in both fields; all stages of greenhouse whitefly light. Greenhouse whitefly heavy in one acre of varying stages of snap beans in same area; all stages of leafminer light. (Kawamura).

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) light on fronds of 63 coconut trees at Hawaii Kai, Oahu. Larvae of Telsimia nitida (a lady beetle) light and preying on scales. A. destructor negligible in most commercial plantings of papaya and banana at Waimanalo, Oahu. (Otsuka, Kahale). Adult sightings of a SWALLOW-TAIL BUTTERFLY (Papilio xuthus) increased on Oahu past month; eggs and larvae moderate on citrus. Damage to young foliage ranged light to heavy. Of 142 P. xuthus eggs collected from host plants at various areas, 18 found parasitized by Trichogramma sp. (13 percent). Of 67 larvae also collected during this period none parasited. Exorista sorbillans (a tachina fly) purposely introduced from Thailand in July 1971 to aid in the control of P. xuthus; 322 flies released throughout Oahu with no recoveries to date. (Kajiwarra et al.).

Forest and Shade Trees - A CONIFER APHID (Cinara carolina) light in 1.5 acres of Pinus taeda saplings at Olinda, Maui. Approximately 25 percent of 100+ trees infested; 5 percent of affected trees heavily infested, causing yellowing of needles. Coelophora inaequalis (a lady beetle) moderate amid infestation; as many as 12 per sapling. (Ah Sam).

Man and Animals - MOSQUITOES - Total of 480 Aedes vexans nocturnus and 1,997 Culex pipiens quinquefasciatus collected in 58 light traps operated on Oahu during May. Aedes averaged 8.3 per trap and Culex 34.4 per trap. Catches ranged 0-67 for Aedes at Kahaluu and 0-465 for Culex at Nanakuli. (Mosq.-Control Br., State Dept. Health).

Beneficial Insects - Larvae and pupae of Plutella xylostella (diamondback moth) collected at Waialua and Pearl City, Oahu, from moderately infested broccoli and daikon during May found to be 60 and 66 percent parasitized, respectively, by an ICHNEUMON (Diadegma insularis). Single adult of an ICHNEUMON (Xanthopimpla punctata) taken at large at Hanapepe, Kauai, last week of May. X. punctata first reported in State on Oahu in September 1970. This is first report of spread to a neighbor island. X. punctata principally parasitic on pyralid and tortricid borers, including Chilo suppressalis, Maruca testulalis, and Anomis flava. (Sugawa).





BOLL WEEVIL  
(Anthonomus grandis Boh.)

Additional Selected References  
1968-1969

These references supplement those published in CEIR 19(40):771-774, 1969. Copies of these bibliographies are available from Economic Insect Survey and Detection Staff.

- Adams, C. H., Cross, W. H., and Mitchell, H. C. 1969. Biology of Bracon mellitor, a parasite of the boll weevil. J. Econ. Ent. 62(4):889-896.
- Bottrell, D. G. and Almand, L. K. 1969. The effects of reproductive-diapause boll weevil control programs on populations of the bollworm and the tobacco budworm in cotton, 1968. Tex. Agr. Expt. Sta. Prog. Rpt. 2702. 6 pp.
- Burt, E. C., Lloyd, E. P., and Smith, D. B. 1969. Control of the boll weevil by mechanically destroying fallen infested cotton squares. J. Econ. Ent. 62(4):862-865.
- Cross, W. H. and Mitchell, H. C. 1968. Parasites of the boll weevil in Mexico. Folia Ent. Mex. No. 18/19:24.
- Daum, R. J., Gast, R. T., and Davich, T. B. 1969. Marking adult boll weevils with dyes fed in a cottonseed oil bait. J. Econ. Ent. 62(4):943-944.
- Davich, T. B. 1969. Sterile-male technique for control or eradication of the boll weevil, Anthonomus grandis Boh. In Sterile-Male Technique for Eradication or Control of Harmful Insects. Int. Atomic Energy Agency, Vienna. pp. 65-72.
- Davich, T. B., Daum, R. J., and McLaughlin, R. E. 1968. Development of a bait for boll weevil control and ecological studies. Folia Ent. Mex. No. 18/19:25.
- de la Garza, M. A. and de la Fuente, J. M. 1968. Assessment of the toxicity of malathion for the cotton boll weevil, Anthonomus grandis. Folia Ent. Mex. No. 18/19:26. In Sp.
- Fye, R. E. 1969. Boll weevil investigations. Ariz. Univ. Ext. Ser. Pub. 15:46-47.
- Fye, R. E. 1969. Longevity and fecundity of the boll weevil complex in Arizona. J. Econ. Ent. 62(6):1408-1412.
- Fye, R. E., Patana, R., and McAda, W. C. 1969. Developmental periods for boll weevils reared at several constant and fluctuating temperatures. J. Econ. Ent. 62(6):1402-1405.
- Graves, J. B., Earle, N. W., Bradley, J. R., and Clower, D. W. 1969. Field studies of an attractant in the male boll weevil. La. Agr. 12(3):14-15.

- Hardee, D. D. and Cross, W. H. 1968. Trapping female boll weevils in a large cage at Iguala, Mexico, using male sex attractant. *Folia Ent. Mex.* No. 18/19:27.
- Harris, F. A., Lloyd, E. P., Lane, H. C., and Burt, E. C. 1969. Influence of light on diapause in the boll weevil. II. Dependence of diapause response on narrow bands of visible radiation and a broad band of infrared radiation used to extend the photoperiod. *J. Econ. Ent.* 62(4):854-857.
- Himel, C. M. and Moore, A. D. 1969. Spray droplet size in the control of spruce budworm, boll weevil, bollworm, and cabbage looper. *J. Econ. Ent.* 62(4):916-918.
- Hopkins, A. R., Taft, H. M., and James, W. 1969. Life history of the boll weevil in field cages. *J. Econ. Ent.* 62(4):964-965.
- Joiner, R. L. and Lambremont, E. N. 1969. Hydrocarbon metabolism in insects: oxidation of hexadecane-1-<sup>14</sup>C in the boll weevil and the house fly. *Ent. Soc. Amer. Ann.* 62(4):891-894.
- Kirk, I. W. and Bottrell, D. G. 1969. A mechanical sampler for estimating boll weevil populations. *J. Econ. Ent.* 62(5):1250-1251.
- Klassen, W., Norland, J. F. and Briggs, R. W. 1969. Sterilization of boll weevils with combinations of chemosterilants and X-rays, gamma rays, thermal neutrons, or fast neutrons. *J. Econ. Ent.* 62(5):1204-1216.
- Luna, R. and de la Fuente, J. M. 1968. Assessment of Temik for the control of *Anthonomus grandis* under field conditions. *Folia Ent. Mex.* No. 18/19:24-25. In Sp.
- Maxwell, F. G. and Jenkins, J. N. 1968. Field plot evaluations of selected cotton lines for boll weevil resistance, 1965-66. *Folia Ent. Mex.* No. 18/19:28.
- Maxwell, F. G., Jenkins, J. N., Parrott, W. L., and Buford, W. T. 1969. Factors contributing to resistance and susceptibility of cotton and other hosts to the boll weevil, *Anthonomus grandis*. *Ent. Expt. et Appl.* 12(5):801-810. *Ger. Sum.*
- McGovern, W. L., Hardee, D. D. and Davich, T. B. 1969. Chemo-sterilants applied as sprays against populations of boll weevils on cotton in field cages. *J. Econ. Ent.* 62(5):1144-1147.
- McLaughlin, R. E., Cleveland, T. C., Daum, R. J., and Bell, M. R. 1969. Development of the bait principle for boll weevil control. IV. Field tests with a bait containing a feeding stimulant and the sporozoans *Glugea gasti* and *Mattesia grandis*. *J. Invert. Path.* 13(3):429-441.
- Minyard, J. P. and Coauthors. 1969. Constituents of the cotton bud compounds attractive to the boll weevil. *J. Agr. and Food Chem.* 17(5):1093-1097.
- Mitlin, N. and Wiygul, G. 1969. Incorporation and metabolism of <sup>14</sup>C-labeled tryptophan-3 in the boll weevil, *Anthonomus grandis* Boheman. *Comp. Biochem. Physiol.* 30(2):375-381.

- Mitlin, N., Wiygul, G., and Mauldin, J. K. 1968. The free amino acids in the haemolymph of the maturing adult boll weevil, Anthonomus grandis Boheman. *Compar. Biochem. Physiol.* 25(1): 139-148.
- Nemec, S. J. and Adkisson, P. L. 1968. Laboratory tests of effectiveness of certain insecticidal sprays for controlling the bollworm, tobacco budworm and boll weevil. *Tex. Agr. Expt. Sta. Misc. Pub.* 876. 7 pp.
- Parrott, W. L., Maxwell, F. G., Jenkins, J. N., and Mauldin, J. K. 1969. Amino acids in hosts and nonhosts of the boll weevil, Anthonomus grandis. *Ent. Soc. Amer. Ann.* 62(2):255-261.
- Russell, W. G. and Mullins, J. A. 1969. A new technique for determining direct impingement of insecticide on boll weevils. *J. Econ. Ent.* 62(5):1122-1123.
- Schuster, M. F. and Boling, J. C. 1969. Insect sterilant experiments with apholate and five bifunctional aziridine chemicals in outdoor cages against the boll weevil. *J. Econ. Ent.* 62(6):1372-1375.
- Terranova, A. C. 1969. The residual fate of N,N,N',N'-Tetramethyl-piperidinophosphonic diamide after injection, tarsal contact, and topical application to the boll weevil. *J. Econ. Ent.* 62(4):821-823.
- Tumlinson, J. H. and Coauthors. 1969. Sex pheromones produced by male boll weevil: isolation, identification, and synthesis. *Science* 166(3908):1010-1012.
- Upchurch, W. 1969. Cooperation against boll weevils. *Ext. Serv. Rev.* 40(12):4-5.
- U.S. Department of Agriculture. 1969. Thousand-year-old boll weevil identified. *Ent. News* 80(3):74, 78.
- Walker, J. K., Jr. 1969. Infestations of overwintered and summer-generation boll weevils near college station, 1960-68. *Tex. Agr. Expt. Sta. Prog. Rpt.* 2701. 9 pp.

Prepared by Economic Insect  
Survey and Detection Staff

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(24):366-368, 1972

Periodical Cicadas - Outlook for 1972

Brood XIX of periodical cicadas (13-year race) is scheduled to appear this year over the Midwest and Southeast. It will be most abundant in western Kentucky, the southern two-thirds of Illinois, most of Missouri, and in northern Arkansas. Cicadas appeared suddenly in late May. For approximately 6 weeks it will fill the countryside with its remarkable song, mate, lay its eggs in twigs, and pass away as suddenly as it appeared.

Brood XII, the 17-year race of periodical cicadas, is also scheduled to appear this year at scattered locations in Maryland, West Virginia, Ohio, Indiana, and Illinois. This gives anyone in these areas the opportunity to contribute to the knowledge of this brood.

As these insects are difficult to determine since the group was revised, Dr. R.C. Froeschner, Federal taxonomist, is anxious to receive specimens for determination. These may be sent to Dr. Froeschner, Department of Entomology, U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560. We are interested in obtaining all records possible, particularly the date of appearance, and your help will be appreciated. If you hear or see this insect, please submit the record of the exact location and date to Dr. Froeschner. Please include specimens if possible.

For maps on occurrences of Broods XII and XIX, see following page.

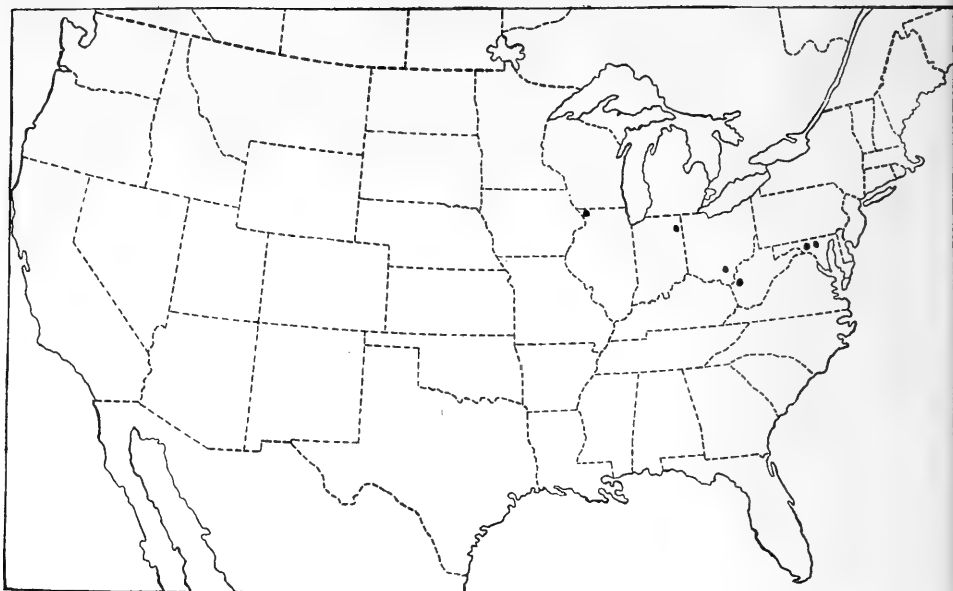
Table of Coincidence of Broods of Periodical Cicada

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII
XVIII		1945				1932				1919				1906			
XIX			1946				1933				1920				1907		
XX				1947				1934				1921				1908	
XXI	1961				1948				1935				1922				1909
XXII		1962				1949				1936				1923			
XXIII			1963				1950				1937				1924		
XXIV				1964				1951				1938				1925	
XXV	1978				1965				1952				1939				1926
XXVI		1979				1966				1953					1940		
XXVII			1980				1967				1954				1941		
XXVIII				1981				1968				1955				1942	
XXIX	1995				1982				1969				1956				1943
XXX		1996				1983				1970				1957			
XVIII			1997				1984				1971				1958		
XIX				1998				1985				1972				1959	
XX	2012				1999				1986				1973				1960
XXI		2013				2000				1987				1974			
XXII			2014				2001				1988				1975		
XXIII				2015				2002				1989				1976	
XXIV	2029				2016				2003				1990				1977
XXV		2030				2017				2004				1991			
XXVI			2031				2018				2005				1992		
XXVII				2032				2019				2006				1993	
XXVIII	2046				2033				2020				2007				1994
XXIX		2047				2034				2021				2008			
XXX			2048				2035				2022				2009		

Periodical Cicadas

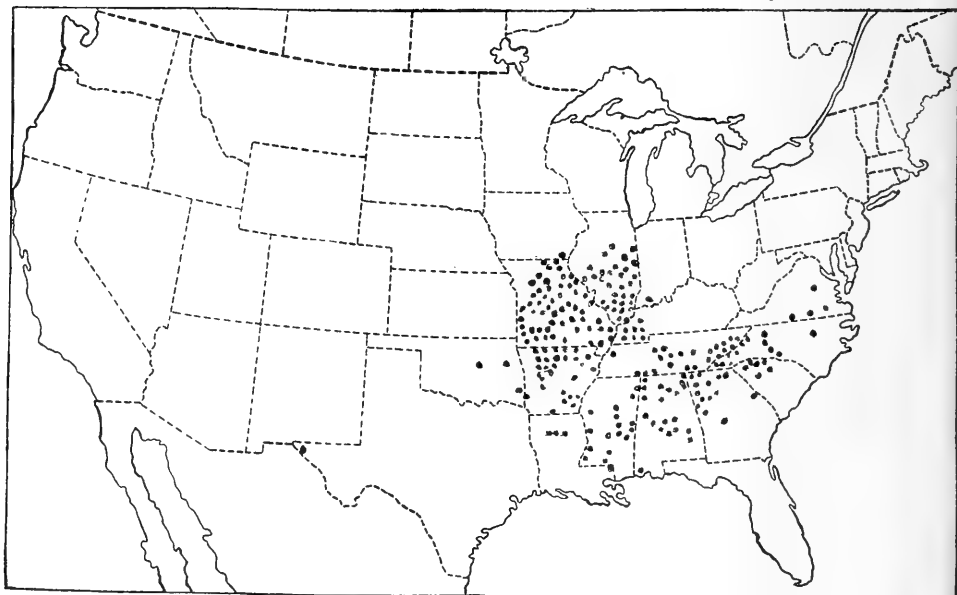
Brood XII

17-year race



Brood XIX

13-year race



Prepared by Economic Insect  
Survey and Detection Staff

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(24):369-370, 1972



INFESTATION OF OATS BY THE CEREAL LEAF BEETLE IN 1970 AND 1971<sup>1/</sup>

M. Curtis Wilson,<sup>2/</sup> Robert E. Treece<sup>3/</sup>

and Richard E. Shade

The fifth year of the annual cereal leaf beetle (Oulema melanopus (L.)) infestation and damage survey based on foliar feeding has now been completed. In this survey population levels surviving to pupation are estimated by assessing leaf surface consumed. By assuming that an approximate 20 percent of the leaf surface on a stem is consumed by a larva in its developmental stages (Wilson et al., 1969), the population level that caused that loss is calculated.

Following completion of the 1968 survey, Wilson, Treece, and Shade (1969) reported that the cereal leaf beetle was building populations at a massive rate, 300 to 500 miles east of Lake Michigan. They predicted large outbreaks within 2 to 5 years. The results of the 1970 and 1971 surveys corroborate this prediction.

This survey was commenced in mid-June in the southern areas and continued into mid-July in the northern regions. Since it is based on an estimate of total larval feeding it is not begun until 95 to 98 percent of the larvae have completed development. The population estimates shown in the figures and table indicate surviving populations that completed the fourth instar. They give no indication of initial populations or mortality that occurred during the season, either by natural means or chemical control. Seasonal data taken by Shade (unpublished) from northern Indiana show that mortality in the egg and larval stages was unusually high in 1971. He attributes this mortality to moisture stress in the host plant resulting from the drought that occurred during May and June.

---

<sup>1/</sup> The following agencies cooperated to complete this survey: USDA Plant Protection Division Offices in Illinois, Indiana, Michigan, and Ohio, Indiana State Entomologist's Office, Purdue University, Ohio Department of Agriculture, Ohio Agricultural Research and Development Center, Pennsylvania Department of Agriculture, West Virginia Department of Agriculture, Wisconsin Department of Agriculture, Cornell University, and Canada Department of Agriculture.

<sup>2/</sup> Department of Entomology, Purdue University, Lafayette, Indiana.

<sup>3/</sup> Department of Entomology, Ohio Agricultural Research and Development Center, Wooster, Ohio.

Population levels attained by the cereal leaf beetle in seven states and Ontario in 1971 are shown in Figure 1. Note how they have built up east of Lake Michigan in the direction of prevailing winds. This map also shows that large populations are not contiguous, which suggest that they have developed to the east from islands of populations resulting from the dropout of beetles carried by the prevailing wind currents. This corroborates the early observation of Shade and Wilson (1964) when they constructed a windrose and superimposed it on the known limits of the cereal leaf beetle infestation. This work, along with airplane trapping studies by Wilson and Ruppel (1964) which showed that the beetle was getting into the upper wind currents substantiated wind as a significant factor in the dispersion of this insect.

The rate in which cereal leaf beetle populations have built up in six states during the years they were surveyed since 1967 is shown in Figure 2. It is interesting to note how populations have developed in the different geographical or physical areas these states represent. Michigan and Ohio show steep inclinations year after year. However, in Ohio the greatest buildup is occurring in the central and southeastern part of the state where the countryside is generally rolling with small fields and an abundance of hedgerows and woodland cover. This type of terrain extends into West Virginia where the beetle increase appears to be exceedingly rapid. Likewise, buildup is occurring rapidly in western Pennsylvania in similar terrain.

However, in the open prairie area of northwestern Ohio, which was the first part of that state infested, populations appear to follow a pattern comparable to Indiana. It is an area similar to northern Indiana with large open fields. In both Indiana and this part of Ohio the cereal leaf beetle appears to have attained a rather stable level. In general, populations seem to be fluctuating little from year to year, producing only occasional minor peaks. Moving westward from central Indiana, populations appear to become less and less significant as areas become more open. In Illinois, after more than seven years of known infestation, one finds no more than trace levels of cereal leaf beetle feeding. These observations suggest that an expansive open environment may be an important factor in the ecology of the cereal leaf beetle. Even in Michigan, populations tend to be lowest in the large open grain areas of the "thumb".

Data from the survey have been summarized and collated in Table 1 for the U.S. and Table 2 for Canada. Counties have been averaged by districts according to the grouping used by the Agricultural Statistics Reporting Service with the exception of two districts in Indiana. Because of the variance in the distribution of populations of the cereal leaf beetle in the northwestern and north-central districts in Indiana, these districts have been subdivided as follows: Northwestern 1 contains all counties in the district with the exception of La Porte. La Porte County represents northwestern 2. The north-central district has been subdivided as follows: north-central 1 which contains the four northern counties, and north-central 2 which contains the five southern counties.

In the case of Illinois all counties sampled have been placed in a singledgroup referred to as eastern counties and in New York into a single group referred to as western counties.

Literature Cited

- Shade, R. E. and M. C. Wilson. 1964. Population Buildup of the cereal leaf beetle and the apparent influence of wind on dispersion. Purdue Univ. Agric. Exp't. Sta. Research Progress Rpt. 98, 7 p.
- Wilson, M. C., R. E. Treece, R. E. Shade, R. K. Stivers, and K. E. Day. 1969. Impact of the cereal leaf beetle on yields of oats. J. Econ. Entomol. 62:699-702.
- Wilson, M. C., R. E. Treece, and R. E. Shade. 1968. Cereal leaf beetle infestation and crop loss survey. U.S. Dept. Agri. Coop. Econ. Ins. Rpt. 19(23):409-417.
- Wilson, M. C. and R. F. Ruppel. 1964. Airplane trapping of the cereal leaf beetle and the meadow spittlebug. Purdue Univ. Agric. Exp't. Sta. Research Progress Rpt. 110, 7 p.

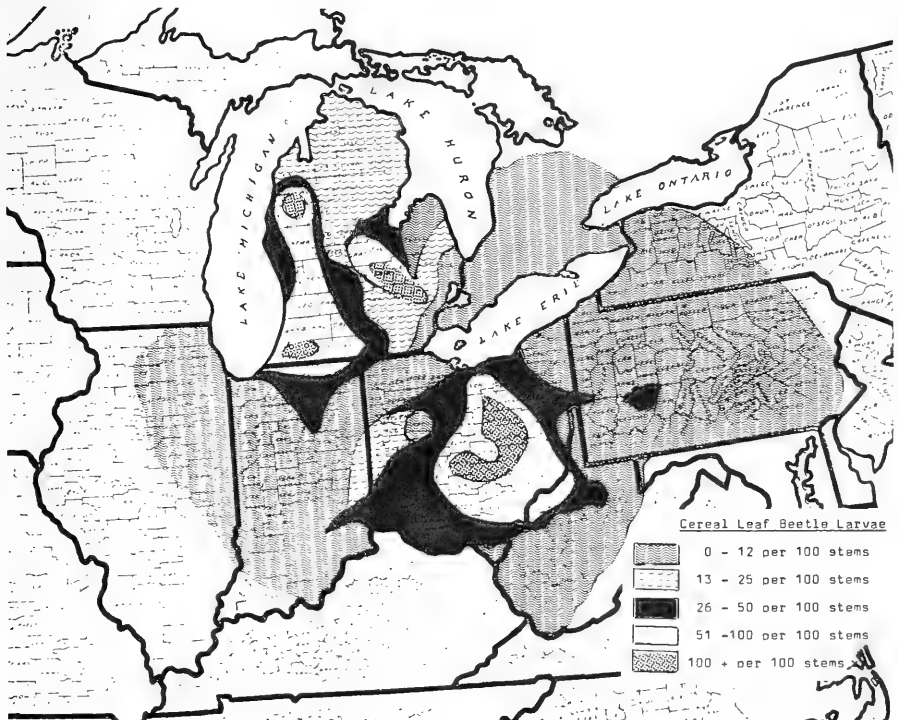
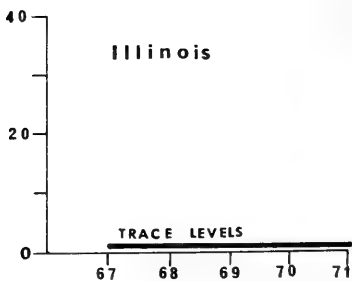
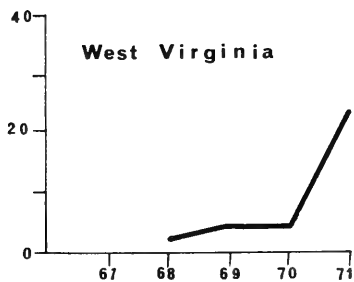
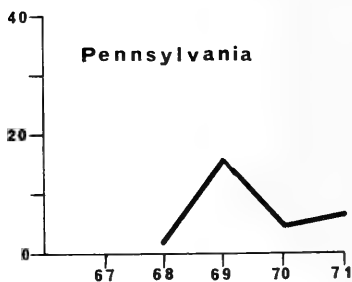
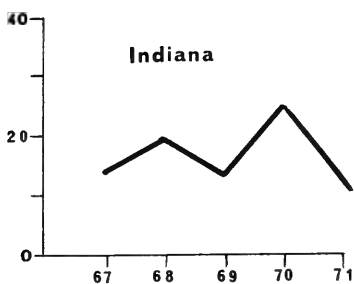
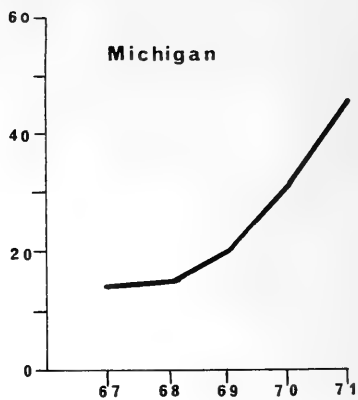
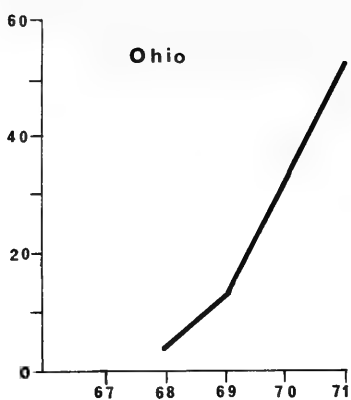


Figure 1. Cereal leaf beetle infestations on oats in 1971.



Year

Figure 2. Trend of cereal leaf beetle populations in six States.

COMPARISON OF 1970 and 1971 CEREAL LEAF BEETLE INFESTATIONS

Table 1

District	Percent Stems Infested				Larvae Per 100 Stems			
	1970		1971		1970		1971	
	Average	Range	Average	Range	Average	Range	Average	Range
ILLINOIS								
Eastern Counties	3.9	0-17	1.7	0-10	0.18	0-0.7	0.59	0-4.7
INDIANA								
North Western 1	24.0	8-52	13.1	3-34	4.0	0.3-16	1.7	0.1-4.3
North Western 2 (La Porte)	80.3		55.0		121.3		11.9	
North Central 1	74.0	48-91	86.3	82-89	52.2	7-84	35.2	27-47
North Central 2	55.1	49-73	54.8	19-91	14.7	5-27	9.6	2-17
North Eastern	78.0	51-99	75.6	57-100	44.9	10-93	19.0	6-72
West Central	28.7	9-60	16.3	10-22	5.2	1-18	3.7	1-15
Central	52.5	26-90	52.6	15-93	13.4	5-28	9.1	1-48
East Central	59.0	37-80	70.2	48-93	26.4	11-65	14.0	2-26
South Western	10.0	6-14	7.0	7-7	0.8	0.7-0.8	8.5	8-9
South Central	14.8	7-25	23.1	2-65	0.6	0.3-0.8	1.4	0.1-3.6
South Eastern	10.7	4-20	72.5	59-96	1.4	0.5-2.9	18.5	3-44
State Average	46.6		49.9		20.5		11.1	
MICHIGAN - Lower Peninsula								
North Western	54.1	17-86	61.0	46-97	35.3	4-87	52.6	17-187
North Eastern	38.7	22-71	63.5	19-93	7.6	3-13	17.0	1-29

Table 1 Continued

## MICHIGAN

District	Percent Stems Infested				Larvae Per 100 Stems			
	1970		1971		1970		1971	
	Average	Range	Average	Range	Average	Range	Average	Range
West Central	73.2	56-90	76.3	60-93	38.1	19-57	77.6	57-99
Central	79.2	64-100	71.9	48-99	27.4	6-66	25.2	5-79
East Central	65.6	49-95	78.9	62-100	6.6	4-14	27.1	9-46
South Western	87.0	58-99	81.6	59-96	81.2	24-166	84.3	11-235
South Central	84.7	65-100	77.9	57-98	33.8	8-67	52.1	3-150
South Eastern	85.8	62-99	65.4	33-96	21.3	4-52	31.2	4-126
State Average	71.2		71.2		25.7		42.6	

## OHIO

North Western	82.3	48-100	41.9	13-76	30.7	6-87	16.5	4-46
North Central	55.3	18-99	62.4	13-90	15.9	3-47	43.9	4-128
North Eastern	64.1	5-94	51.6	3-100	27.5	1-61	28.0	1-84
West Central	64.2	31-100	58.0	23-100	21.6	3-63	22.8	4-45
Central	63.0	13-88	91.1	72-100	28.2	2-91	101.1	48-292
East Central	76.2	66-87	90.8	81-100	39.3	19-76	170.4	49-292
South Western	88.7	58-100	84.7	54-98	22.6	7-39	29.1	13-49
South Central	53.2	1-80	81.5	30-100	19.4	1-50	33.1	4-78
South Eastern	72.4	20-98	92.4	83-100	28.5	5-82	78.6	18-170
State Average	68.6		69.9		25.7		51.4	

Table 1 Continued

District	Percent Stems Infested				Larvae Per 100 Stems			
	1970		1971		1970		1971	
	Average	Range	Average	Range	Average	Range	Average	Range
PENNSYLVANIA								
North Western	29.0	15-50	20.9	15-27	7.8	4-15	2.8	2-3
West Central	28.0	9-64	29.7	7-52	9.8	1-25	16.2	0.4-35
South Western	17.3	10-26	30.4	18-49	4.9	2-7	4.4	2-9
North Central	1.5	0-3	5.8	0-18	0.4	0-0.6	3.7	0-15
Central	7.5	0-28	12.9	0-42	1.6	0-8	1.8	0-6
South Central	0.5	0-1	0.9	0-1.5	0.1	0-0.1	0.1	0-0.2
Average Western Counties	25.1		28.2		6.2		8.0	
Average Central Counties	4.4		10.1		1.0		2.2	
Stage Average	13.8		16.3		4.0		5.2	
WEST VIRGINIA								
South Western	9.5	4-20	29.8	11-100	1.1	0.2-4	18.2	1-90
North Western	9.3	4-20	60.3	8-94	1.2	0.1-4	35.4	1-64
Eastern			17.5	17-18			2.9	2-4
State Average	9.4		39.1		1.2		22.5	
NEW YORK								
Western Counties	10.0	2-19	5.7	2-14	0.007	0.003-0.011	0.9	0.1-3

## Average 1972 Cereal Leaf Beetle Infestations in Ontario, Canada

Table 2

District <u>1/</u>	<u>Percent Stems Infested</u> <u>Average</u>	<u>Range</u>	<u>Larvae Per 100 Stems</u> <u>Average</u>	<u>Range</u>
Southwestern Counties	16.7	1.5-56	2.5	0.1-12
Southeastern Counties	7.1	0-22	0.9	0-2.9

1/ Data from 10 counties averaged in each district

Prepared by Economic Insect  
Survey and Detection Staff

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(24):371-378, 1972





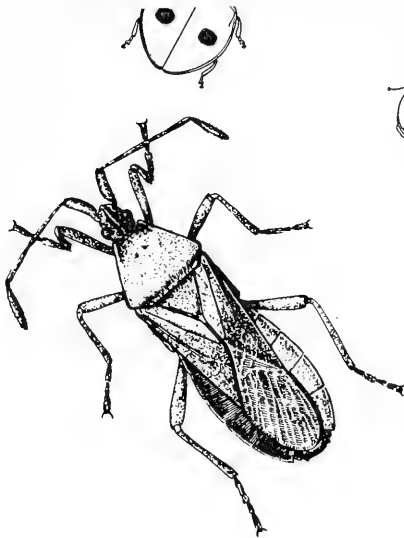
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE  
AGR 101



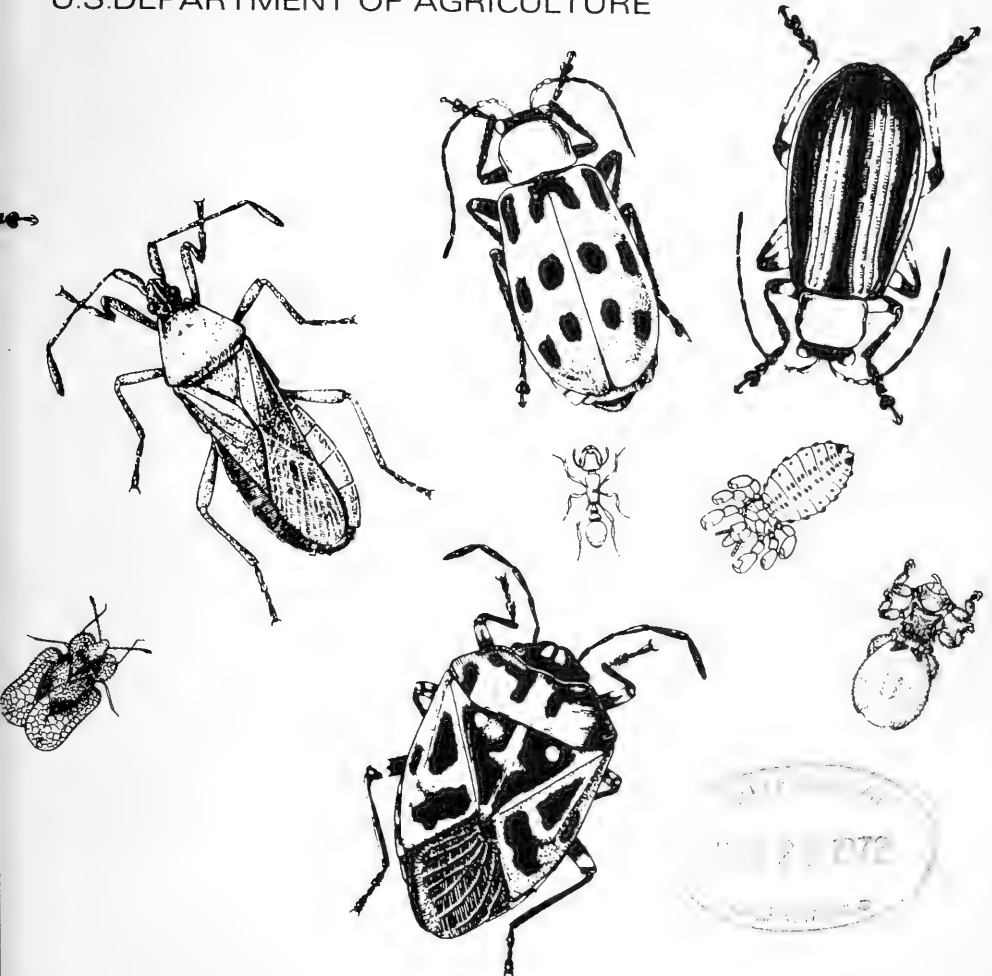
0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560



# Cooperative Economic Insect Report

Issued by

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



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

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a 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:

The Editors, CEIR  
Economic Insect Survey and Detection  
Plant Protection and Quarantine Programs  
Animal and Plant Health Inspection Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

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

ARMYWORM moth catches heavy in northeast Ohio. BLACK CUTWORM caused some damage in Ohio and 3 Central States. (p. 381).

ALFALFA BLOTCH-MINER damaged alfalfa in some Northeastern States. ALFALFA WEEVIL heavy in some Western and Central States, declining in other areas. (p. 383).

MEXICAN BEAN BEETLE and BEAN LEAF BEETLE above normal on soybeans in Maryland. (p. 384).

BOLL WEEVIL population heavier than for 2 years in northeast Alabama, emergence heavy in southern Georgia. BOLLWORM egg laying increasing in Mississippi, heavy in Alabama. (p. 385).

TOBACCO FLEA BEETLE damaged tobacco in Ohio and Kentucky; less numerous in Virginia than in 1971. (p. 385). PEA LEAF WEEVIL defoliating peas in northern Idaho. (p. 386).

HEEL FLIES running cattle in Utah and Wisconsin. (p. 389).

SCREWWORM cases continue numerous in Southwest. Buildup began week of March 19 with 22 cases, reached high of 3,014 cases week of June 4. Total of 2,664 cases reported this period. (p. 388).

Detection

New State records include ALFALFA BLOTCH-MINER in New Hampshire (p. 383), and 2 SPIDER MITES in Pennsylvania (p. 387).

For new county records see page 386.

Special Reports

JAPANESE BEETLE. Selected References 1970-1971. (pp. 395-397).

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

## CONTENTS

Special Insects of Regional Significance.....	381
Insects Affecting	
Corn, Sorghum, Sugarcane....	381
Turf, Pastures, Rangeland...	382
Forage Legumes.....	383
Soybeans.....	384
Cotton.....	384
Tobacco.....	385
Potatoes, Tomatoes, Peppers.	385
Beans and Peas.....	386
General Vegetables.....	386
Deciduous Fruits and Nuts..	387
Ornamentals.....	387
Forest and Shade Trees.....	388
Man and Animals.....	388
Detection.....	386
Corrections.....	386
Beneficial Insects.....	390
Federal and State Plant Protection Programs.....	390
Hawaii Insect Report.....	392
Light Trap Collections.....	393
Japanese Beetle. Selected References 1970-1971.....	395
Weather of the Week.....	398

---

### NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1972

The National Weather Service's 30-day outlook for mid-June to mid-July is for temperatures to average above seasonal normals over the western two-thirds of the Nation except for near to below normal along the north and central Pacific coast and in the southern Plains. Below normal temperatures are indicated for the Southeast. Elsewhere near normal temperatures are in prospect. Rainfall is expected to exceed normal over the southern Plateau region as well as the north and central Pacific coast and the southeast coast. Subnormal totals are indicated for most of the central and southern Plains, southern California, the Great Lakes region, and the Northeast. In unspecified areas, near normal amounts are expected.

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

## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - MONTANA - Infested 120 acres of winter wheat in Blaine County; about to pupate but continues to feed and keep grain eaten off. This is extremely late for this insect to be active in State. (Pratt). NORTH DAKOTA - Totally destroyed 20 acres of 40-acre sunflower field in Pembina County. (Kaatz). MINNESOTA - Damaging sugar beets in Red River Valley. Infestation centered in Norman County. (Minn. Pest Rpt.).

ARMYWORM (Pseudaletia unipuncta) - NEBRASKA - Larvae ranged 6-7 per square yard in lodged wheat near Mead, Saunders County. (Berogan, Roselle). OHIO - Damaged some corn in Belmont County; replanting required. (Bonnett). Reported cutting wheat heads in Darke County. (Vermillion). Moth catches heavy in blacklight traps at Wooster, Wayne County. (Rings). KENTUCKY - Damage light (less than 1 percent) on corn in Woodford County. (Barnett). VIRGINIA - Small grains treated for larval control in Westmoreland County. (Ptucha).

ASTER LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Nymphs present in oats, wheat, and bluegrass in southeast district. Nymphs and adults per 100 sweeps ranged 30-600 in southeast district, 10-100 per 100 sweeps in southwest and west-central districts. (Minn. Pest Rpt.). MICHIGAN - Densities of this pest and percent infectivity with aster yellows unusually high. Controls should continue. (Sauer).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Moderate to heavy on sorghum in Nowata County; ranged 0-40 per plant in young sorghum in Ottawa County. (Okla. Coop. Sur.). KANSAS - Winged forms left maturing wheat for seedling sorghum in Clay, Washington, Cloud, and Mitchell Counties; averaged up to 2 per plant in Mitchell County near Beloit. Recent heavy rains reduced infestations on sorghum in southwest area. (Bell). NEBRASKA - Populations unchanged in grain sorghum in southern area with little damage. Rain aiding small sorghum to outgrow possible damage. Few scattered reports of control activity, but treatments not widespread. No greenbugs observed in one Saunders County field, only occasional alates in another field. (Roselle, Berogan). Ranged 5-10 per plant with 70 percent of plants infested in some Lincoln County fields. (Campbell, McEvoy).

## CORN, SORGHUM, SUGARCANE

BLACK CUTWORM (Agrotis ipsilon) - KANSAS - Full-grown larvae caused light to moderate damage to corn and sorghum in Brown, Pottawatomie, Ottawa, and Osage Counties. (Bell). NEBRASKA - Caused scattered damage to corn and sorghum in Dodge, Saunders, and Nemaha Counties. Larvae past effective control in Nemaha County. (Keith, Berogan). Occasional fields in Dodge County show 20-30 percent stand reduction. (Novotny). IOWA - Damaged many low-lying corn fields in eastern, southern, and central areas week ending June 9. Replanting necessary in some fields or portions of fields. Pupation begun. Many small larvae present. Controls applied. Activity has currently subsided. Larvae cutting off corn in Wapello County. (Iowa Ins. Sur.). OHIO - Destroyed 60 percent of 5 acres of corn in 30-acre planting in Wayne County. (Musick, Rings).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - Moths increased in light traps at Aurora, Hamilton County, and at Concord, Dixon County. Moths heavy in field margins in Gothenburg and Cozad area, Dawson County. (Campbell). Egg masses ranged 1-28 per 100 24-inch corn plants, in Saunders County; near 5 percent of plants with feeding signs. Injury evident on 3 percent of plants in Nemaha County field. (Roselle et al.). MINNESOTA - First egg laying and hatch of season in southern area as far north as Dakota County. Moth emergence ranges from trace in west-central district to 30 percent in southeast district. (Minn. Pest Rpt.). WISCONSIN - Fresh eggs ranged 4-6 per 100 plants in Hancock and Endeavor areas. Adults numerous in corn, oats, and uncultivated fields that contained corn in 1971. Larval feeding not observed. (Wis. Ins. Sur.). MICHIGAN - Peak adult flight should be underway in southern areas about 7-10 days earlier than in 1971. Second-generation moths could begin emerging third week of July. (Sauer). IOWA - Moth emergence 70-75 percent by June 14. (Iowa Ins. Sur.). ILLINOIS - Egg masses averaged 18 per 100 plants (73 percent hatched) and 30 percent of plants showed whorl feeding in Pike County. (Ill. Ins. Rpt.).

MARYLAND - Egg laying by O. nubilalis continues on Eastern Shore, very little activity on western shore. First-instar larvae infested less than 5 percent of stalks in most fields in Talbot, Dorchester, and Somerset Counties. (U. Md., Ent. Dept.). DELAWARE - Larvae averaged 4 per plant in untreated field corn in one area of Sussex County; mostly second and third stage. (Burbutis, Kelsey). NEW JERSEY - Moths active, eggs hatching. Controls needed on corn statewide. Up to 3 of 10 plants found with egg masses in Burlington and Somerset County fields. (Ins.-Dis. Newsltr.). NEW YORK - First moth flight noted in Monroe, Orleans, and Genesee County area week ending June 9. Adult catches declined at Geneva week of June 6, due to cool weather. Adult emergence 90 percent by June 12. (N.Y. Wkly. Rpt.).

GRASS THRIPS (Anaphothrips obscurus) - KENTUCKY - Percent foliar loss to corn by county: Grayson 5, Muhlenberg 7, Butler 5, Hopkins 1, Breckinridge less than one. (Barnett).

CHINCH BUG (Blissus leucopterus leucopterus) - KANSAS - Up to 10 nymphs per plant found on seedling sorghum in Osage County; trace in Riley County. (Bell).

BANKS GRASS MITE (Oligonychus pratensis) - COLORADO - On corn in Pueblo, Crowley, Otero, Bent, and Prowers Counties. (Schweissing).

#### TURF, PASTURES, RANGELAND

GRASSHOPPERS - MINNESOTA - First and second-instar nymphs, mainly Melanoplus femurrubrum, averaged 12+ per square yard in alfalfa and grass field in Waseca County. Hatch well underway in sandy soil areas, just beginning in heavier soil areas, in southeast and south-central districts. Most eggs in segmented stage in west-central district; hatch expected soon. (Minn. Pest Rpt.).

BANKS GRASS MITE (Oligonychus pratensis) - NEVADA - Populations of this mite and Anaphothrips obscurus (grass thrips) increased rapidly on timothy hay in Douglas County. (Munk).



## FORAGE LEGUMES

ALFALFA BLOTCH-MINER (Agromyza frontella) - NEW HAMPSHIRE - Collected in Rockingham County June 1, 1972, by J.S. Bowman. Determined by G.S. Steyskal. This is a new State record. Infested 40-90 percent of alfalfa leaves in all alfalfa fields in every county. (Blickle). NEW YORK - Intensive survey conducted June 4-10 in Broome, Chenango, Herkimer, Madison, and Otsego Counties. Adults, larvae, and mines, found at single location in Otsego County. This is a new county record. All other sites negative. This pest now confirmed for 16 counties in State. Damage more severe than in 1972. Damaged field of alfalfa in Orange County; field gray except for lower leaves. Damage severe to alfalfa in Dutchess County; 3,000 acres treated. (N.Y. Wkly. Rpt.). MASSACHUSETTS - Damage spotty in Berkshire County; heavy in some fields, light in others. Adults 60 per 25 sweeps in one farm field. (Crop Pest Cont. Mess.).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Larval development about 2 weeks ahead of normal in White Pine County; 300+ per sweep taken before treatment in many alfalfa fields. Larvae ranged 30-35 per sweep in some treated fields; re-treating may be needed. Increasing in many treated fields in Douglas County; re-treatment may be necessary. (Lauderdale et al.). IDAHO - Damage general. Adults ranged up to 10 per sweep in year-old alfalfa at Potlatch, Latah County, June 10. (O'Keeffe). Damage light to heavy throughout Jefferson County. Some fields cut before treatment, others treated to be harvested later. Parasitic wasps, damsel bugs, and other predators scarce. (Gooch, June 9). UTAH - Caused extensive damage in Cache, Box Elder, Weber, Davis, Salt Lake, Utah, and Millard Counties, where adequate control not applied. Much alfalfa cut early to stop larval damage. Adults of Bathyplectes curculionis (an ichneumon wasp) very numerous, often 3-10 in 10 sweeps, in Delta, Sutherland, Oasis area of Millard County. (Knowlton). COLORADO - Larval numbers declining in the lower Arkansas Valley. (Schweissing). NEBRASKA - Two larvae taken in 2 sweeps in Valley County, one larva in 200 sweeps in Greeley County. These are new county records. (Manglitz). SOUTH DAKOTA - Very heavy in alfalfa near Spearfish, Lawrence County. Heaviest in untreated fields, 96 adults and 11,762 larvae per 100 net sweeps. Most larvae first instar. Damaging populations reported east of Red Owl, in north-eastern Meade County. (Walstrom, Jones).

ARKANSAS - H. postica larvae in northwest area declined to low level; 25-30 per 100 sweeps in uncut experimental alfalfa field. Larvae first found first week of March; increased to 15,000 per 100 sweeps in mid-April. (Boyer). IOWA - Larvae per 100 sweeps in alfalfa by county averaged 25 in Warren, 40 in Wayne, 90 in Appanoose, 43 in Mahaska, and 38 in Poweshiek. Adults less than 4 per 100 sweeps in same counties week ending June 9. Damage light in all fields; chemical treatments not required due to maturity of alfalfa. B. curculionis collected from larvae in Appanoose County. H. postica collected in Humboldt, Pocahontas, Calhoun, Carroll, Crawford, Harrison, Shelby, Audubon, Guthrie, Dallas, Cass, Fremont, Page, and Taylor Counties week ending June 9. These are new county records. Reported for first time in Cerro Gordo, Franklin, Black Hawk, and Chickasaw Counties week ending June 16. Now recorded in all but 18 northern and northwestern counties. (Iowa Ins. Sur.). WISCONSIN - Counts in Outagamie, Waupaca, Portage, and Waushara Counties ranged 2-6 per 10 sweeps. Counts in Columbia

and Dodge Counties averaged 3 per 10 sweeps. Parasitism by Bathyplectes sp. ranged 33-100 percent at 6 selected sites. (Wis. Ins. Sur.). MINNESOTA - Found for first time in Watonwan, Martin, Sibley, and McLeod Counties. (Minn. Pest Rpt.). MARYLAND - Some larval activity in alfalfa statewide. Most fields ranged well below 10 larvae per sweep in Montgomery, Talbot, Dorchester and Prince Georges Counties. (U. Md., Ent. Dept.). MASSACHUSETTS - Larvae 550 per 25 sweeps in one Berkshire County field. (Crop Pest Cont. Mess.).

LYGUS BUGS (Lygus spp.) - UTAH - Ranged 0-12 per 10 sweeps, averaged 4, in chemically treated alfalfa seed fields in Delta and Sutherland area of Millard County. (Knowlton, Parrish). OKLAHOMA - L. lineolaris (tarnished plant bug) heavy in alfalfa in Caddo and Washita Counties. (Okla. Coop. Sur.).

## SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Overwintered adults above normal. Heaviest in the past 5 years in Wicomico, Somerset, Dorchester, and Worcester Counties. Controls applied to several hundred acres in Dorchester County. Many growers used systemic compounds to avoid expected heavy populations on lower Eastern Shore. Counts ranged from 1-10 per yard of row, averaged 2 in most fields. (U. Md., Ent. Dept.). INDIANA - Averaged 1 adult per 2 row feet of soybeans with 2 trifoliolate leaves in Morgan County. Egg masses averaged 1 per 4 row feet. Observed in one field in county in area where species was pest in 1971. (Meyer).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Above normal, with moderate to heavy damage in 10 percent of acreage in Dorchester and Wicomico Counties. Most fields on Eastern Shore outside these counties had light counts of 2-4 per 10 row feet. (U. Md., Ent. Dept.). KENTUCKY - Caused 5 percent foliar loss to soybeans 1-2 inches tall in Breckinridge County. Minor damage in Hopkins and Butler Counties. (Barnett).

GRASSHOPPERS - OHIO - Nymphs ranged 0-4 per plant on 4-inch soybeans in Fayette County; feeding damage evident on about every plant. (Fox).

## COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, punctured squares averaged 0.9 percent in 58 treated fields, maximum 6.2; averaged 2.8, maximum 21, percent in 8 untreated fields. (Cowan et al.). MISSISSIPPI - Averaged 3.1 per trap per county in 10 southern counties. Weevils averaged 8.3 and 6 per trap for 10 traps, respectively, in Grenada and Yalobusha Counties. (Robinson). ALABAMA - Counts per acre on 5 to 10-leaf cotton on 4 farms in Marshall County, 88, 22, 66, and zero. (Murphy). Counts per acre light on 4 farms in Morgan County; only one, first of season, collected. (Rutledge). Overwintered weevils in most of 10 fields surveyed in Cherokee County; population much

heavier and earlier than in 1970 and 1971. Occasional weevil observed in Limestone County; heavy in Lee County. (McQueen). GEORGIA - Emergence from hibernation continues heavy; up to 25 percent punctured squares on some older cotton over southern area. (Womack, June 9). TENNESSEE - Overwintered weevils light in fields in southern tier of counties. Some feeding noticed. (Gordon, Bruer).

BOLLWORMS (Heliiothis spp.) - ARIZONA - H. zea larvae averaged 3 per 5 plants in some Yuma County cotton fields. (McHenry). TEXAS - Heliiothis spp. eggs averaged 1.5, larvae 0.6 per 100 terminals in 70 treated fields in McLennan and Falls Counties. In 11 untreated fields, eggs averaged 0.4 and larvae 0.2 per 100 terminals. Injured squares averaged 2.8 percent in 58 treated fields, 0.9 percent in 8 untreated fields. Of 36 larvae collected from cotton, 28 or 78 percent H. virescens. (Cowan et al.). MISSISSIPPI - Egg laying increasing over State. Light traps indicate moth flight underway in delta counties. H. zea dominant. Eggs found in several southern counties, and in Noxubee, Rankin, Tunica, and Warren Counties. (Robinson). OKLAHOMA - H. zea larvae appearing in young cotton in Chickasha area, Grady County. (Okla. Coop. Sur.). ALABAMA - Egg laying by H. zea heavy throughout State; larvae ranged 1-5 per 100 terminals due to predators and parasites. (James et al.). TENNESSEE - Eggs and small larvae of H. zea found in some fields in western areas. Counts per terminal very low. (Gordon, Bruer).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - OKLAHOMA - Heavy, 100 per 100 terminals, in cotton in Caddo and Washita Counties. Some nymphs seen in Grady County. (Okla. Coop. Sur.).

APHIDS - TENNESSEE - Infesting cotton in middle and western areas. Have reached control levels in some fields and some farmers have begun controls. Terminals are being damaged. Beneficial insect populations are not present in numbers enough to provide control in fields where aphids are at control levels. (Delap et al.).

## TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Adults light to moderate and feeding on newly transplanted tobacco in Pittsylvania County. Overwintering beetles less numerous than in 1971. (Dominick, June 1). KENTUCKY - Percent foliar loss to tobacco by counties: 2 on 4-leaf stage in Woodford; 6 on 2 to 3-leaf stage in Grayson; less than one percent in Shelby; 10 on 2 to 3-leaf stage in Hardin. Minor damage in Breckinridge. (Barnett). OHIO - Adults ranged 2-9 per plant in tobacco bed in Brown County. Every leaf per plant with small holes. Most plants weakened, with one or more yellowed and wilted leaves. (Fox).

TOBACCO HORNWORM (Manduca sexta) - GEORGIA - Light to moderate on tobacco over southern area. (French, June 9).

## POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NORTH DAKOTA - Adults up to 5 per 50 plants taken in Pembina County, up to 15 per 50 plants in Walsh County. Egg masses ranged up to 20 per 50 plants; hatch occurred in some fields. Larvae ranged up to 25 per 50 plants. (Kaatz). NEW JERSEY - Still abundant and laying eggs in many potato plantings. Larvae stripping leaves at row ends where little insecticide applied. (Ins.-Dis. Newsltr.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - Second and third instar larvae infested 5 percent of potatoes in 200 acres in Somerset and Worcester Counties. (U. Md., Ent. Dept.).

#### BEANS AND PEAS

PEA LEAF WEEVIL (Sitona lineatus) - IDAHO - Adults, 4 per sweep (30 per square foot), severely defoliating pea field stands at Potlatch, Latah County. (Tekleab, O'Keefe).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MISSISSIPPI - Moderate in 10 fields of lima and string beans in Copiah County. (Robinson).

#### GENERAL VEGETABLES

MOTTLED TORTOISE BEETLE (Deloyala guttata) - MARYLAND - Populations on sweetpotatoes slightly above 1971 levels. Controls applied to 200 acres in Wicomico County. (U. Md., Ent. Dept.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MISSISSIPPI - Light to medium damage to sweetpotato plants set in fields in May in Calhoun and Chickasaw Counties. (Killebrew, Clayton).

#### DETECTION

New State Records - ALFALFA BLOTCH-MINER (Agromyza frontella) - NEW HAMPSHIRE - Rockingham County. (p. 383). SOUTHERN RED MITE (Oligonychus ilicis) - PENNSYLVANIA - Monroe County. (p. 387). A SPIDER MITE (O. bicolor) - PENNSYLVANIA - Allegheny County. (p. 387).

New County Records - ALFALFA WEEVIL (Hypera postica) NEBRASKA - Valley, Greeley. IOWA - Humboldt, Pocahontas, Calhoun, Carroll, Crawford, Harrison, Shelby, Audubon, Guthrie, Dallas, Cass, Fremont, Page, Taylor, Cerro Gordo, Franklin, Black, Chickasaw. MINNESOTA - Watonwan, Martin, Sibley, McLeod (p. 383). CEREAL LEAF BEETLE (Oulema melanopus) ILLINOIS - Schuyler, Adams, Brown, De Kalb, Monroe, Pope, Lee, Union, Pulaski. INDIANA - Daviess. MARYLAND - Frederick, Howard, Montgomery, Carroll. VIRGINIA - Stafford, Culpeper, Madison, Clarke, Rappahannock (p. 390). LONE STAR TICK (Amblyomma americanum) INDIANA - Martin (p. 390). SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) CALIFORNIA - Napa (p. 388).

#### CORRECTIONS

CEIR 22(19):267 - ARMYWORM (Pseudaletia unipuncta) - Delete Nevada from paragraph. Nevada should read: ARMY CUTWORM (Euxoa auxiliaris).

## DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - MAINE - Heavy in pheromone traps; no oviposition seen. (Wave). NEW JERSEY - First-generation moth emergence peaked end of May; now on decline. (Ins.-Dis. Newsltr.). ALABAMA - Larval damage ranged 2-15 percent on untreated apples in Randolph and Morgan Counties. (Shumpert et al.). WASHINGTON - In Yakima County, first full-grown larvae seen June 12, first exit holes June 13, fresh larval entries June 13. (Gregorich).

PLUM CURCULIO (Conotrachelus nenuphar) - MARYLAND - Heavy damage to apples and peaches in 60-acre orchard near Hancock, Washington County. (U. Md., Ent. Dept.).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Oviposition begun. First summer-generation egg hatch June 6 at West Valley, Yakima County. (Gregorich).

APPLE MAGGOT (Rhagoletis pomonella) - NEW JERSEY - First flies of year caught in bait traps at Glassboro, Gloucester County, and Allentown, Ocean County, week of June 7-14. (Ins.-Dis. Newsltr.).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Increased in central and southern districts; not yet economic. Few successive days of hot, dry weather will cause rapid and heavy increase in population. (Holdsworth).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First-generation damage heavy on pecans in Cotton County, light to moderate in Garvin County, and light in Marshall County. (Okla. Coop. Sur.).

BLACKMARGINED APHID (Monellia costalis) - MISSISSIPPI - Heavy buildup on pecans in Warren, Harrison, Madison, and Lee Counties. Light to medium on pecans in Lowndes County; honeydew present in all areas. (Neel).

## ORNAMENTALS

SPIDER MITES (Oligonychus spp.) - PENNSYLVANIA - All stages of O. bicolor found on pin oak in Pittsburgh, Allegheny County, July 28, 1971, by R. Henry and L. Garrett. All stages of O. ilicis collected from Buxus sempervirens in Stroudsburg, Monroe County, July 29, 1971, by A. Wheeler. Both species determined by E.W. Baker. These are new State records. (Kim).

BAGWORM (Thyridopteryx ephemeraeformis) - TENNESSEE - Damaged junipers, viburnum, and white pine in south-central area. Populations high with several hundred bagworms on some plants. (Cagle). PENNSYLVANIA - First egg hatch of season noted on Pyramidal arborvitae in Colonial Park, Dauphin County, June 6. (Simons).

AZALEA LACE BUG (Stephanitis pyrioides) - GEORGIA - Unusually heavy this year and damaging azaleas in Spalding and Peach Counties. (Tippins, June 9).

## FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - WISCONSIN - Defoliation moderate to heavy on 1,000 acres of balsam and white spruce in Oneida County; most larvae pupated. (Wis. Ins. Sur.).

PENNSYLVANIA - Larvae damaged 90 percent of Pinus strobus foliage in Berks County. Taken on Norway spruce in Lehigh County June 5. (Stearns, Henry). NEW YORK - Minor infestation primarily on ornamental blue spruce in Lockport area, Niagara County. (N.Y. Wkly. Rpt., June 9).

OAK LEAFTIER (Croesia albicomana) - PENNSYLVANIA - Heavy feeding on all trees except white oak and chestnut in Wayne and Pike Counties; 100 percent foliage loss reported. (Kim, June 6).

SPRING CANKERWORM (Paleacrita vernata) - SOUTH DAKOTA - This pest and Alsophila pometaria (fall cankerworm) defoliated elms in southeastern area. Larvae averaged 40 per 2-3 feet of branch in southeastern Moody County. (Jones, Kantack, June 9).

ELM LEAF BEETLE (Pyrrhalta luteola) - NEW MEXICO - Damage heavy to elm trees in Alameda, Bernalillo County. (Heninger). OKLAHOMA - Damage moderate to heavy to Siberian elms in most of State. First-generation pupae most common form in Major County, adults active in Payne County. (Okla. Coop. Sur.). KANSAS - First-generation adults emerged and severely damaged Siberian elm foliage in Sedgwick, Butler, and Reno Counties. (Bell). INDIANA - First-generation larval populations much smaller than last two years in west-central and central areas. Oviposition considerably less than before, adults fewer than normal. (Meyer).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Larvae pupae, and adults in Napa County. This is a new county record. (Cal. Coop. Rpt.).

## MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - Total of 2,664 cases reported in U.S. June 11 thru 17, 1972, as follows: TEXAS: Andrews 1, Aransas 1, Archer 1, Atascosa 67, Bandera 26, Bastrop 19, Bee 91, Bexar 42, Blanco 8, Borden 12, Bosque 1, Brazos 1, Brewster 17, Briscoe 1, Brooks 83, Brown 6, Burleson 2, Burnet 4, Caldwell 21, Callahan 3, Cameron 1, Clay 1, Cochran 1, Coke 4, Coleman 7, Colorado 5, Comal 16, Comanche 6, Concho 4, Coryell 1, Crockett 27, Culberson 2, Dawson 1, De Witt 87, Dimmit 60, Duval 74, Eastland 2, Edwards 77, Ellis 2, Erath 4, Falls 1, Fayette 5, Fisher 2, Frio 70, Garza 1, Gillespie 43, Glasscock 1, Goliad 88, Gonzales 70, Guadalupe 20, Hardeman 1, Haskell 2, Hays 4, Hidalgo 33, Hill 1, Hood 1, Howard 4, Hudspeth 1, Irion 5, Jackson 5, Jeff Davis 1, Jim Hogg 36, Jim Wells 68, Johnson 1, Jones 2, Karnes 32, Kendall 16, Kenedy 39, Kent 1, Kerr 23, Kimble 26, Kinney 58, Kleberg 17, Knox 1, Lampasas 1, La Salle 64, Lavaca 45, Leon 1, Live Oak 55, Llano 6, Madison 1, Mason 14, Maverick 27, McCulloch 4, McMullen 27, Medina 72, Menard 9, Milam 2, Mills 2, Mitchell 10, Nolan 4, Nueces 22, Pecos 8, Polk 1, Presidio 7, Real 30, Reeves 2, Refugio 35, Robertson 18, San Patricio 9, San Saba 3, Schleicher 3, Scurry 5, Shackelford 1, Somervell 1, Starr 114, Stephens 2, Sterling 2, Stonewall 4, Sutton 22, Taylor 2, Terrell 22, Throckmorton 12, Tom Green 3, Travis 2, Upton 1, Uvalde 72, Val Verde 77, Victoria 30, Webb 101, Wilbarger 2, Willacy 24, Williamson 10, Wilson 70, Young 3, Zapata 30, Zavala 53.

ARIZONA: Cochise 6, Gila 1, Graham 1, Maricopa 7, Pima 12, Pinal 6, Santa Cruz 11, Yuma 1. NEW MEXICO: Dona Ana 1, Grant 1, Hidalgo 2. Total of 762 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 148, Chihuahua 74, Coahuila 185, Nuevo Leon 105, Tamaulipas 250. Total of 27 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 screwworm flies released: Texas 163,250,000; New Mexico 1,960,000; Arizona 7,990,000; California 600,000; Louisiana 1,230,000; Mexico 11,840,000. (Anim. Health Div.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Up to 500 per cow in Hinds, Lawrence, Itawamba, Prentiss, Benton, Amite, Warren, Madison, Monroe, and Oktibbeha Counties. (Robinson). ILLINOIS - Absent in Fayette County (east-southeast area). Counts per head on pastured cattle by area: Southern 20, central 145, northern 19.4. (Ill. Ins. Rpt.). NEBRASKA - Counts per head on cattle on irrigated pastures in Logan and McPherson Counties: 100-200 on young animals, 300-400 on older animals. Counts on dryland range herds in Lincoln, Logan, McPherson, and Keith Counties averaged 100 per head on young animals, and up to 500 on older animals. H. irritans averaged several thousand per head on bulls. (Campbell). OKLAHOMA - Averaged 600 per head on cows and 1,600 per head on bulls in Payne County. Moderate to heavy on cattle in Nowata, Okfuskee, Muskogee, Atoka, Cleveland, Pottawatomie, Oklahoma, Garvin, and Cotton Counties. (Okla. Coop. Sur.). UTAH - Ranged 100-350 per animal on range cattle in Oak Creek Canyon, Millard County. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Heavy on cattle in Polk and Calumet Counties. Increasing in Dane and Walworth Counties. (Wis. Ins. Sur.).

MOSQUITOES - MINNESOTA - Moderate hatch of Aedes vexans in upland areas of metropolitan Minneapolis and St. Paul after rains. Flooding of many backwaters along Minnesota River resulted in heavy hatches of A. vexans. Trap collections increased; total of 5,989 female mosquitoes taken in 16 traps. (Minn. Pest Rpt.). ARKANSAS - Psorophora confinnis increased, averaged 150 per New Jersey light trap in Prairie and Lonoke Counties. Anopheles spp., mostly A. quadrimaculatus, ranged 20-30 per trap in same areas. Populations very low in Lawrence County, probably due to extended hot, dry weather. (Meisch). OHIO - Heavy and annoying to man and animals throughout State. (Fox). NEVADA - Aedes spp. adults heavy in Douglas County. (Lauderdale).

FACE FLY (Musca autumnalis) - NEBRASKA - First of season noted on range animals in Lincoln County. (Campbell). WISCONSIN - Moderate annoyance to cattle in Chippewa and Columbia Counties. (Wis. Ins. Sur.). MISSISSIPPI - Up to 25 per face on cattle in Lee, Chickasaw and Monroe Counties. (Robinson).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Adults causing cattle to run in Smithfield and Amalga area of Cache County and Collinston and Fielding area of Box Elder County. (Knowlton). WISCONSIN - Cattle chased by H. bovis in Grant, Lafayette, and Chippewa Counties. (Wis. Ins. Sur.).

LONE STAR TICK (Amblyomma americanum) - INDIANA - One female and 2 second instar nymphs removed from human at Crane Naval Ammunition Depot property, Martin County. This is a new county record. Determined by D.P. Saunders. (Meyer).

## BENEFICIAL INSECTS

A KLAMATHWEED BEETLE (Chrysolina quadrigemina) - CALIFORNIA - Heavy adult populations on Hypericum in San Rafael, Marin County. Klamath weed starting to bloom in lower elevations. Beetles seen in foothill areas where Klamath weed occurs. (Cal. Coop. Rpt.).

## FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Live larvae collected on oats: By T.S. Smith in Schuyler County June 5, in Adams County June 6, in Brown County May 31; by R.B. Halstead in De Kalb County June 7; on wheat by T.S. Smith in Monroe County May 22. Live adults collected on oats in Pope County May 31 and Lee County June 9 by J.E. Schafer; in Union County May 31 and in Pulaski County June 1 by R.W. Elmore. INDIANA - Live adults collected on wheat in Daviess County May 11 by J.C. Larson. MARYLAND - Live adults collected on oats in Frederick County May 18 by G.L. Cunningham, in Howard County May 24 by C.L. Staines, in Montgomery County June 9 by R. Blake; on wheat in Carroll County May 17 by G.L. Cunningham. VIRGINIA - Live larvae on oats in Stafford County May 24 by E.L. Thomson; in Culpeper and Madison Counties May 24 by A.B. Hamon and R.H. Morris. Live adults on oats in Clarke County May 22 by A.B. Hamon and R.H. Morris and in Rappahannock County May 23 by A.B. Hamon and R.H. Morris. All determinations by R.E. White. These are new county records. (PP).

INDIANA - Oviposition near complete in New Carlisle area. Larval populations declined. Most of oats in area beginning to head. (Shade). PENNSYLVANIA - O. melanopus light on oats in Mercer County and barley in Westmoreland County. (Thurston, Ode). WEST VIRGINIA - Larvae averaged 2 per stem on 5 acres of headed oats, Pleasants County; 10 per square foot in 1 acre of oats, Wood County; and 3 per stem in 2 acres of oats with 70 percent damage to flag leaf in Mason County. (W. Va. Ins. Sur.).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Door to door survey for release sites for predator release has been completed in Tulare County. Some 2,135,500 Cryptolaemus spp. (lady beetles) released at Porterville. Total number for release in 1972 is 3 million. Lacewing eggs released on high hazard trees at rate of 150,000 per week. (Cal. Coop. Rpt.).

GRASS BUGS - IDAHO - Large numbers of undetermined black species found in Howe, Butte County, alfalfa June 8. (Judd). UTAH - Irbisia pacifica averaged one per 25 sweeps on crested wheatgrass in Snowville area, Box Elder County. (Knowlton). NEVADA - I. brachycera heavily damaged crested wheatgrass east of Ely, White Pine County. (Lauderdale).

GRASSHOPPERS - WISCONSIN - Melanopus differentialis, M. femurrubrum, and M. sanguinipes counts high in Portage, Waupaca, and western Outagamie Counties; counts of 15 per 10 sweeps common. (Wis. Ins. Sur.). NORTH DAKOTA - Dominant species M. sanguinipes, M. bivittatus, and M. packardii (from first instar through adults) economic in several counties. Populations per square yard by county: Bottineau, up to 50 (averaged 8) in margins and roadsides;



McHenry, up to 50 (averaged 11) in margins and roadsides, up to 20 (averaged 2) in fields. Highest infestations seen in untilled stubble fields. Controls applied. (Brandvik). SOUTH DAKOTA - Camnula pellucida eggs hatched near Custer, Custer County, in Black Hills. Nymphs 75-80 per square yard in egg bed areas. Light hatch of other grasshoppers noted across State. (Burge, Rieckman). OKLAHOMA - Cooperative control program underway on 43,500 acres of rangeland in Carter and Murray Counties. Counts of 150-200 per square yard reported from Caddo, Washita, and Kiowa Counties and 10-30 per square yard from Love and Cimarron Counties. Heavy in grassland in Pontotoc and Greer Counties, moderate in Pottawatomie County, and light in Atoka and Oklahoma Counties. Scattered heavy infestations reported from cropland in Marshall County, moderate numbers damaged home gardens in Ottawa and Cotton Counties. Spot treatment of heavy spots, fence rows, and crop margins in Cimarron, Love, and Marshall Counties. (Okla. Coop. Sur.). NEW MEXICO - About 200,000 acres infested in Tatum and Crossroads area in Lea County, economic in 60,000 acres in Union County near Amistad and about 120,000 acres infested in Harding County near infested area in Union County. Infestations spotted in Roosevelt County. (N.M. Coop. Rpt.). NEVADA - Approximately 13,000 acres of cropland and rangeland in Kings River Valley, Humboldt County, and 36,000 acres of cropland and rangeland in Diamond Valley, Eureka County, treated for control of Melanopus sanguinipes and M. bivittatus. (Martinelli et al.).

MORMON CRICKET (Anabrus simplex) - IDAHO - Nymphs and adults ranged up to 4 per square yard in about 200 acres of Willow Creek, Payette County, rangeland. (Homan, June 2).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - Larvae moving from defoliated areas, becoming a nuisance pest crawling on and into dwellings. (Ins.-Dis. Newsltr.).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Grubs in lawns in Providence and Washington Counties. Infestations heavier in Providence and Kent Counties than in 1971. (King et al., June 8). PENNSYLVANIA - Larvae less than 2 per square foot in Vernon Township, Crawford County, grain fields. (Palisin). NORTH CAROLINA - First adult of season in Rowan County found in cornfield June 15. Expect damage to grapevines, flowering plums, and soybeans in Piedmont in 14 days. (Bowers, Hunt). SOUTH CAROLINA - Adult feeding heavy on grape vines and roses in Oconee County; controls applied. (McCaskill). ALABAMA - First adult for 1972 trapped June 21 at Haleyville, Winston County. (Pigott).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - A single female taken June 1 in McPhail trap in orange tree in Santa Barbara, Santa Barbara County. Determined as a virgin female, 2-3 days old with developing eggs. Determined by M. Wasbauer. (Cal. Coop. Rpt.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - First-instar larvae light and scattered adjacent to areas treated in Lincoln County in 1971. (Perry).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Delimiting survey shows 12 square miles involved in infested area in Santa Clara County. No live skeltonizer recorded for past two years in Sacramento, Placer, or El Dorado Counties. (Cal. Coop. Rpt.).

WHITEFRINGED BEETLES (Graphognathus spp.) - ALABAMA - Adults feeding on peanut plants in Cottonwood area of Houston County. Controls applied to reduce larval damage in future. (Wilson, Stephenson).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Survey continued with few new infestations found in San Diego County. (Cal. Coop. Rpt.).

---

#### HAWAII INSECT REPORT

Turf and Pasture - GRASS WEBWORM (Herpétogramma licarsisalis) larvae trace in 100+ acres of pasture at Kokomo, Maui; less than one larva per 100 square feet. Infestation confined to crabgrass; nil in areas of pangola and Kikuyu grass. Trace in Kikuyu grass pastures at Waihee, Ulupalakua, Kula and Makawao; negligible in same host situation at Haiku and Kaupakulua. (Ah Sam, Miyahira).

General Vegetables - Larval mines of LEAFMINER FLIES (Liriomyza spp.) moderate in 5,000 square feet of long beans at Keeau, Hawaii; 70 percent of leaves with mines affecting 30-50 percent of leaf area. Mines heavy on 5 percent of mostly older leaves; affecting 90+ percent of leaf area. Negligible in 0.25 acre of cucumber seedlings and 0.1 acre of eggplant at Honomu. Larval mines in cucumber planting restricted to cotyledons. (Matayoshi). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) generally trace to light in commercial eggplant, long beans, cucumber, and tomato at Keeau, Hawaii. THREE LINED POTATO BEETLE (Lema trilineata) adults light in yard planting of eggplant at Ewa, Oahu; averaged 5 per plant. (Kahale). TOMATO FRUITWORM (Heliothis zea) light in 0.15 acre of tomato at Keeau, Hawaii; 6 percent of fruits with one or more early instar larvae. Trace in adjacent 0.2 acre of same crop; less than 5 percent of fruits infested. (Matayoshi).

Ornamentals - Larvae of a NOCTUID MOTH (Chrysodeixis chalcites) light in commercial plantings of ti (Cordyline terminalis) at Keeau, Hawaii; up to 40 percent of foliage affected in 1.5 acre planting. Fifteen percent of foliage of same ornamental affected in nearby 0.5 acre planting. (Matayoshi).

General Pests - Nymphs and adults of a FLATID BUG (Melormenis antillarum) light on foliage of a citrus tree at Kaneohe, Oahu. Moderate on guava trees and lantana throughout Hilo, Hawaii. M. antillarum first reported in State in September 1970. Activity has been restricted primarily to roadside guava trees. Collected on numerous plants in Puerto Rico, including coffee, lantana, in grapefruit groves and cane fields. (Komatsu, Kawamura).

Beneficial Insects - Moderate to heavy LANTANA CERAMBYCID (Plagiohammus spinipennis) grub activity noted in 0.5 acre of lantana at Ulupalakua, Maui; 114 adults released at this site in April and May 1972. P. spinipennis purposely introduced from Mexico in 1959 to aid in control of lantana. (Ah Sam, Miyahira). On Hawaii, field examination of Indian rhododendron (Melastoma malabathricum) at various areas during May showed average of 46 percent infestation of fruits and terminals by an ARCTIID MOTH (Selca brunella). On Kauai, fruits examined in early May found to be infested 48 and 27 percent respectively, at Hanahanapuni and Knudsen Gap. (Yoshioka, Sugawa).





JAPANESE BEETLE  
Popillia japonica Newman

Selected References  
1970-1971

Copies of this bibliography are available from Economic Insect Survey and Detection Staff.

- Adler, V. E. and Jacobson, M. 1971. Electroantennogram responses of adult male and female Japanese beetles to their extracts. J. Econ. Ent. 64(6):1561-1562 (Scientific note).
- Bennett, G. A. and Shotwell, O. L. 1970. A lipoglycoprotein from hemolymph of healthy and diseased larvae of the Japanese beetle, Popillia japonica. J. Invert. Pathol. 15(2):157-164.
- Goonewardene, H. F. 1970. Effect of wick area on attractancy of some lures for the Japanese beetle. J. Econ. Ent. 63(2):663-665.
- Goonewardene, H. F., White, J. H., Grosvenor, A. E., and Zepp, D. B. 1970. Host plants and the performance of some lures for Japanese beetles. J. Econ. Ent. 63(4):1289-1292.
- Goonewardene, H. F. and Zepp, D. B. 1970. Rearing the immature feeding stages of the Japanese beetle in pans. J. Econ. Ent. 63(3):859-860.
- Goonewardene, H. F., Zepp, D. B., and Grosvenor, A. E. 1970. Virgin female Japanese beetles as lures in field traps. J. Econ. Ent. 63(3):1001-1003.
- Hamilton, D. W. and Coauthors. 1971. Low-volume aerial application of carbaryl over a large area to reduce a population of Japanese beetles. J. Econ. Ent. 64(1):68-70.
- Hamilton, D. W., Schwartz, P. H., and Townshend, B. G. 1970. Capture of bumble bees and honey bees in traps baited with lures to attract Japanese beetles. J. Econ. Ent. 63(5):1442-1445.
- Hamilton, D. W., Schwartz, P. H., Townshend, B. G., and Jester, C. W. 1970. Attractants for Japanese beetles screened in the field 1965-67. J. Econ. Ent. 63(3):832-834.
- Hamilton, D. W., Schwartz, P. H., Townshend, B. G., and Jester, C. W. 1971. Effect of color and design of traps on captures of Japanese beetles and bumblebees. J. Econ. Ent. 64(2):430-432.
- Hamilton, D. W., Schwartz, P. H., Townshend, B. G., and Jester, C. W. 1971. Traps reduce an isolated infestation of Japanese beetle. J. Econ. Ent. 64(1):150-153.
- Ladd, T. L., Jr. 1970. Mating competitiveness of male Japanese beetles sterilized with tepa. J. Econ. Ent. 63(2):438-439.

- Ladd, T. L., Jr. 1970. Screening of candidate chemosterilants against the Japanese beetle. *J. Econ. Ent.* 63(2):458-460.
- Ladd, T. L., Jr. 1970. Sex attraction in the Japanese beetle. *J. Econ. Ent.* 63(3):905-908.
- Ladd, T. L., Jr. 1971. Attractancy of mixtures of lures containing methyl cyclohexanepropionate for the Japanese beetle. *J. Econ. Ent.* 64(6):1560.
- McGovern, T. P. and Beroza, M. 1970. Volatility and compositional changes of Japanese beetle attractant mixtures and means of dispensing sufficient vapor having a constant composition. *J. Econ. Ent.* 63(5):1475-1479.
- McGovern, T. P. and Coauthors. 1970. Methyl cyclohexanepropionate and related chemicals as attractants for the Japanese beetle. *J. Econ. Ent.* 63(1):276-280.
- McGovern, T. P. and Coauthors. 1970. Phenethyl propionate, a potent new attractant for Japanese beetles. *J. Econ. Ent.* 63(6):1727-1729.
- Payne, J. A. and Schwartz, P. H., Jr. 1971. Feeding of Japanese beetles on phylloxera galls. *Ent. Soc. Amer. Ann.* 64(6):1466-1467.
- Schwartz, P. H., Jr., Hamilton, D. W., and Townshend, B. G. 1970. Mixtures of compounds as lures for the Japanese beetle. *J. Econ. Ent.* 63(1):41-43.
- Schwartz, P. H., Jr., and Jurimas, J. P. 1970. An inexpensive machine for dispensing soil and water into 1-oz plastic cups used to rear Japanese beetles in the laboratory. *J. Econ. Ent.* 63(3):992-993.
- Schwartz, P. H., Jr., and Jurimas, J. P. 1970. Development and survival of Japanese beetle larvae on carrot and other foods. *Ent. Soc. Amer. Ann.* 63(4):1047-1048.
- Schwartz, P. H., Jr., Jurimas, J. P., and Hickey, L. A. 1970. Substrata for rearing the Japanese beetle in the laboratory. *Ent. Soc. Amer. Ann.* 63(4):1083-1085.
- St. Julian, G., Sharpe, E., and Rhodes, R. A. 1970. Growth pattern of Bacillus popilliae in Japanese beetle larvae. *J. Invert. Pathol.* 15(2):240-246.
- Turco, C. P. 1970. Neoplectana hoptha, sp. n. (Neoplectanidae: Nematoda), a parasite of Japanese beetle, Popillia japonica Newm. *Helminthol. Soc. Wash. Proc.* 37(1):119-121.

\* \* \* \* \*

ADDITIONAL REFERENCES 1968 AND 1969

(Continued on next page)

These references supplement those published in CEIR 19(48):857, 1969.

- Bennett, G. A., Shotwell, O. L., Hall, H. H., and Hearn, W. R. 1968. Hemolymph proteins of healthy and diseased larvae of the Japanese beetle, Popillia japonica. J. Invert. Path. 11(1):112-118.
- Cartier, J. J. 1969. Popillia japonica in the south of Quebec (first found in 1957). Ent. Soc. Quebec Ann. 14(1):10. In Fr.
- Goonewardene, H. F. and McKay, J. E. 1969. An artificial diet for the adult Japanese beetle. J. Econ. Ent. 62(4):964.
- Schwartz, P. H. and Townshend, B. G. 1968. Effects of milky disease on hemolymph coagulation and on the number of hemocytes in infected larvae of the Japanese beetle. J. Invert. Path. 12(3):288-293.
- Weiner, B. A., St. Julian, G., and Kwolek, W. F. 1969. Rate of oxygen uptake of healthy and diseased larvae of the Japanese beetle. J. Invert. Path. 13(2):250-255.

Prepared by Economic Insect  
Survey and Detection Staff

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(25):395-397, 1972

## WEATHER OF THE WEEK ENDING JUNE 19

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

**PRECIPITATION:** Thunderstorms were widespread over much of central and eastern portions of the Nation early in the week. Some thunderstorms in the central Great Plains were accompanied by hail and damaging winds. Late Monday evening, June 12, thunderstorms lashed Peoria, Illinois with winds gusting to 58 m.p.h. Strong winds downed trees and power lines in the De Kalb and Elgin, Illinois vicinities Monday night. At Bismarck, North Dakota, winds gusted to 56 m.p.h. and hail up to  $\frac{1}{2}$  inch in diameter pounded Dickinson, North Dakota. Numerous thunderstorms developed at midweek from the Great Plains to the middle Atlantic coast in warm, humid gulf air that covered the area. Some produced heavy rain, hail, and high winds. Some 24-hour totals in the Mississippi River Valley exceeded 3 inches. Generous rains soaked the large area from northeastern Texas to western Indiana where May precipitation totals were generally less than 50 percent of the normal. Local flash floods occurred late Wednesday in low areas. Showers and thunderstorms continued Thursday along a cold front that extended from western New York to eastern Texas. The Pacific Northwest and northern Rocky Mountains also received scattered showers Thursday. The weather became quite disagreeable over much of the Nation Friday afternoon. Thunderstorms spotted the northern and central Great Plains and were numerous from eastern Texas to New York. A few funnel clouds and tornadoes occurred in the northern portions of Louisiana and California. Many citizens in parts of Rapid City, South Dakota left their homes Saturday when 2-3 inches of rain fell in the area, accompanied by winds gusting to 50 m.p.h. Also Saturday, tornadoes struck spots in Colorado, Wyoming, and Texas, and heavy rains fell in some localities in West Virginia and Virginia. Hurricane Agnes developed late in the week and by late Sunday was approaching the Florida Panhandle. Heavy thunderstorms continued in the Great Plains.

**TEMPERATURE:** A large high drifted eastward across the middle Atlantic coast Monday forenoon June 12, bringing recordbreaking cold to many eastern States. Concord, New Hampshire registered 30 degrees and Columbia, South Carolina 46 degrees Monday morning. The rest of the Nation was comfortably warm except for hot weather over the southwestern deserts. Minneapolis, Minnesota and Lafayette, Louisiana registered 92 degrees Monday afternoon and the mercury at Blythe, California climbed to 110 degrees. By midweek, tropical gulf air covered the eastern half of the Nation. With it came hot, humid weather characteristic of summers in the East. Rochester and Syracuse, New York, recorded 93 and 92 degrees respectively, Thursday afternoon. Meanwhile, cooler, drier air moved into the northern Great Plains where Thursday's maximums were mostly in the 60's. Bemidji and Duluth, Minnesota, registered 53 degrees Thursday afternoon. Cool air moved into the northern Great Plains and Great Lakes region late in the week with parts of those areas 20 degrees cooler Saturday afternoon than a few days before. Maximums continued in the 80's and 90's over the Deep South and in the southwestern deserts. Afternoon temperatures soared above the century mark each afternoon. Blythe, California registered 106 degrees to 109 degrees each afternoon from Thursday to Sunday.





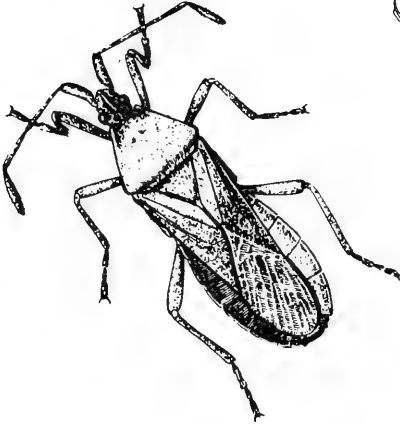
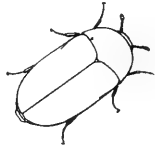
U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE  
AGR 101



0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560

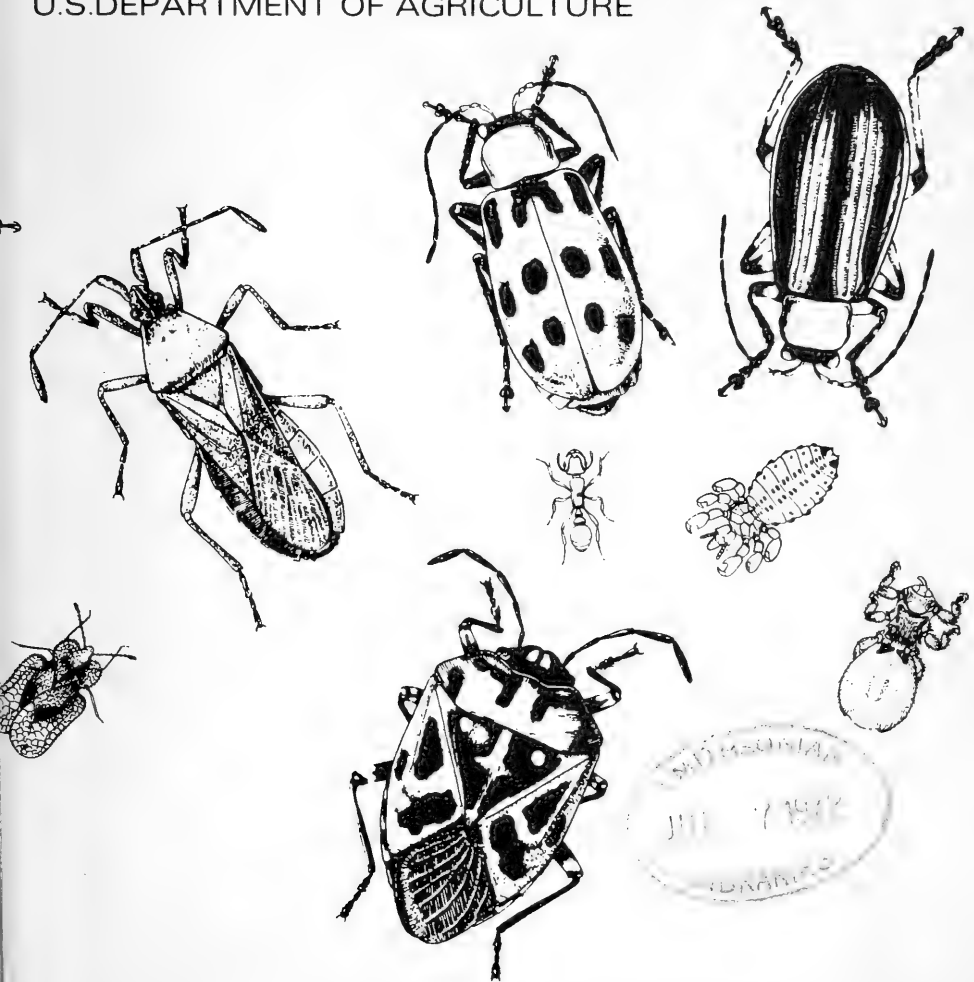


SB  
823  
C97 Ent.

# Cooperative Economic Insect Report

Issued by

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



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

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

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

The Editors, CEIR  
Economic Insect Survey and Detection  
Plant Protection and Quarantine Programs  
Animal and Plant Health Inspection Service  
United States Department of Agriculture  
Federal Center Building  
Hyattsville, Maryland 20782

## COOPERATIVE ECONOMIC INSECT REPORT

## HIGHLIGHTS

Current Conditions

GREENBUG increase on sorghum explosive in southeast Kansas; significant in some northeast counties. Also heavy on sorghum in areas of Oklahoma and Texas. (p. 401).

EUROPEAN CORN BORER first generation potentially heavy in Minnesota; cool weather reduced economic potential in Iowa. (p. 402). CHINCH BUG damage heavy to sorghum in Kansas and Oklahoma. (p. 403).

ALFALFA WEEVIL damage heavy on alfalfa in several western States; populations in northeast Colorado heaviest in many years. ALFALFA LEAF BLOTCH-MINER damage severe on alfalfa in southeast New York. (pp. 404, 405). MEXICAN BEAN BEETLE heavy on soybeans on Eastern Shore of Maryland, increasing in northeast North Carolina. (p. 405).

BOLL WEEVIL punctured squares increased to levels requiring controls in South Carolina, Georgia, and Alabama. TWOSPOTTED SPIDER MITE on cotton heavier than for 10 years statewide in Alabama. (pp. 405, 406).

LARGE ASPEN TORTRIX activity increased, and OAK LEAFTIER outbreaks continue for fourth consecutive year in Upper Michigan (p. 410).

HORN FLY heavy in several States. (pp. 410-411). GRASSHOPPERS economic on large acreages in eastern Oregon; heavy on several hundred thousand acres of rangeland in Idaho. (p. 412).

Detection

● A European weevil reported for first time in the United States. (p. 418).

New State records include a BAMBOO APHID from Maryland (p. 409), a CECIDOMYIID MIDGE from Pennsylvania (p. 409), a BARK BEETLE from Michigan (p. 411), and a SCARAB from South Dakota (p. 411).

For new county records see page 415.

Special Reports

A European weevil, Larinus carlinae Olivier, Collected in Maryland. (p. 418).

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

Special Insects of Regional Significance.....401

Insects Affecting

Corn, Sorghum, Sugarcane....	402	Deciduous Fruits and Nuts..	408
Turf, Pastures, Rangeland...	403	Citrus.....	408
Forage Legumes.....	404	Small Fruits.....	409
Soybeans.....	405	Ornamentals.....	409
Peanuts.....	405	Forest and Shade Trees....	409
Cotton.....	405	Man and Animals.....	410
Tobacco.....	406	Households and Structures..	411
Potatoes, Tomatoes, Peppers.	407	Stored Products.....	411
Beans and Peas.....	407		

Beneficial Insects.....411

Federal and State Plant Protection Programs.....412

Hawaii Insect Report.....414

Corrections.....414

Detection.....415

Light Trap Collections.....416

A European Weevil, Larinus carlinae Olivier, Collected in Maryland.....418

---

WEATHER OF THE WEEK ENDING JUNE 26

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

PRECIPITATION: Hurricane Agnes played a star roll in the weather news last week. She reached hurricane strength Saturday, June 17, about 300 miles southwest of Key West, Florida. She crossed the Florida Panhandle Monday, winds decreased, and she was downgraded to "Tropical Storm" Agnes. This powerful storm continued northward dumping 6 to 12 inches of rain over the Appalachians and eastward to the Atlantic Ocean. Agnes deluged the central and southern Appalachians and their eastern slopes and foothills early in the week and by midweek was soaking northern Virginia before continuing on to Pennsylvania, New York, and New England. Torrential rains forced thousands of persons from their homes, dozens were drowned. Roads became flooded and bridges were washed away. Property damages were estimated in hundreds of millions of dollars. Losses in Pennsylvania were estimated at over one billion dollars. Scattered rains continued in the Northeast late Sunday evening. Rivers were receding slowly. Thunderstorms rumbled through the Great Plains early in the week. Showers fell over the northern and central Great Plains Monday and Tuesday and north-central and northeastern Texas Wednesday. On Monday evening, thunderstorms damaged aircraft, homes, and mobile homes at Stillwater, Oklahoma. Sprinkles spattered southern California Tuesday and Utah, Colorado, Arizona, and New Mexico Wednesday. A few sprinkles fell in the Great Lakes region. Powerful thunderstorms occurred in the Tucson, Arizona, vicinity Wednesday afternoon damaging homes, mobile homes, and other property. Phoenix, Arizona, received 1.64 inches of rain Wednesday and Thursday. This is more rain than ever fell in the month of June at Phoenix. The locality a few miles north of the Phoenix airport received 4.20 inches in 2½ hours. This is one of the vagaries of Weather of the week continued on page 415.

**ARMYWORM** (*Pseudaletia unipuncta*) - MICHIGAN - Small bands of larvae present in scattered wheatfields in Berrien County. Damage limited to borders; no "marching" nor damage to corn seen. (Musgrove). OHIO - Moth collections in blacklight traps exceeded all previous records for mid-June. For comparable period, increased from 15 in 1969 to 1,702 in 1972. (Rings). Larvae ranged 0-3 per square foot of turf sampled in vicinity of Columbus, Franklin County. (Niemczyk). VIRGINIA - Larval damage still severe to no-till corn in some mountain fields. Damage reported from Highland, Madison, Montgomery, Pulaski, and Rockingham Counties. Little damage expected in future. (Allen). KENTUCKY - Larvae averaged 6.4 per 100 linear feet of no-till corn in Scott County. (Barnett, Gregory).

**ASTER LEAFHOPPER** (*Macrostelus fascifrons*) - WISCONSIN - Populations still heavy in grain in southwest; about 20 per 10 sweeps. Few found in central area grain; indicates dispersal already begun. (Wis. Ins. Sur.). NORTH DAKOTA - Remains low in Pierce, Ward, Logan, McIntosh, and Emmons Counties; ranged 4-130 per 100 sweeps in flax, rye, wheat, and barley. Highest counts (130 per 100 sweeps) on flax in bloom stage in Pierce County. (Brandvik, Kaatz).

**BEEF LEAFHOPPER** (*Circulifer tenellus*) - CALIFORNIA - Curly top increased in several beet fields in San Joaquin Valley. Infection currently ranges 30-40 percent. Controls applied. In Fresno County curly-top infection unchanged. Thunder showers in northern and eastern Kern County and in Carrisa Plains area of San Luis Obispo County changed beet leafhopper situation. Survey underway to determine effect on beets and pests. (Cal. Coop. Rpt.). UTAH - Infestation and curley-top damage to tomatoes light in Washington County. (Huber).

**CORN LEAF APHID** (*Rhopalosiphum maidis*) - TEXAS - Light to moderate in whorls of grain sorghum throughout Rolling Plains area. Beginning to infest maturing heads in Bell, Falls, and Hill Counties. Predator populations increasing rapidly. (Boring, Hoelscher). OKLAHOMA - Ranged 100-400 per plant in older sorghum and 0-80 per plant in younger fields in Noble, Kay, Garfield, Grant, Major, and Woods Counties. Light parasitism, probably by *Aphelinus* sp., noted in few older fields. *R. maidis* ranged moderate to heavy in Caddo and Washita Counties, light to heavy in Wagoner County, reported light in Pawnee County. (Okla. Coop. Sur.). KANSAS - Heavy whorl infestations reported in scattered sorghum fields in several southeast counties and in Coffey County of east-central district where some treatment reported. Populations increasing in whorls of early planted sorghum in some Riley County fields. (Bell).

**GREENBUG** (*Schizaphis graminum*) - SOUTH DAKOTA - Feeding on seedling grain sorghum in Clay County; about 8 percent of plants with 4-5 per plant. All sorghum fields should be carefully checked. (Jones, Tyler). KANSAS - Increase explosive in some fields in several southeast counties, especially in fields not treated during previous outbreak this season in Woodson, Wilson, Montgomery, Allen, Neosho, Labette, Bourbon, Crawford, and Cherokee. Treatment began in fields where up to half of lower leaves reported dead or seriously damaged. Lady beetles and parasitic wasps not found in control quantities in fields

with significant infestations. Significant population increases of Schizaphis graminum also noted in few fields in Riley, Brown, Jackson, and Coffey Counties; treatments reported in Coffey County. Heavy rains probably reduced greenbug infestations in some areas of central and western districts. (Bell). COLORADO - Light, ranged 1-2 per sweep on wheat in Weld County. (Colo. Ins. Sur.). OKLAHOMA - Reported heavy on sorghum in Grady County. Light to absent (0-7 per plant) in 3 fields of small sorghum in Noble, Kay, and Woods Counties. Ranged 0-100 per plant in 3 fields of 12 to 18-inch sorghum in Major, Noble, and Grant Counties. Ranged 50-200 per leaf on lower 4-6 leaves in field of 24-inch sorghum in Garfield County. Light in Caddo and Washita Counties. (Okla. Coop. Sur.).

TEXAS - S. graminum heavy in untreated sorghum fields in Hill County; light to moderate in McLennan and Bell Counties. Lodging scattered where heavy infestations occurred in Hill County. Moderate damage to small grain sorghum plants in Wichita and Knox Counties. Larger colonies ranged 50-300 individuals. Infestations generally spotted in fields. Reported light in most areas of High Plains. (Hoelscher et al.). ARKANSAS - Infestations on sorghum found in Hempstead, Lafayette, and Little River Counties. Lafayette and Little River Counties are new county records. Infestations present in all fields from "hip-high" to late bloom stage. Aphids common, especially on older sorghum in late bloom. Infested some 10-20 percent of plants; counts low to as high as 500 or more per single blade. Extremely dry weather may be contributing factor in area. (Boyer).

#### CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - MINNESOTA - Cool weather slowed moth activity. Some egg laying and hatch occurred but counts low. If warm weather returns, sharp increase in egg laying expected. Potential for heavy first-generation remains. (Minn. Pest Rpt.). SOUTH DAKOTA - Egg laying underway on corn in southeast counties. (Jones, Kantack). IOWA - Moth emergence complete in central area. Unseasonably cool weather delayed egg laying. Extended cool weather has reduced economic potential of first brood. (Iowa Ins. Sur.). MISSOURI - Damaged 5-55 percent of corn in southwestern area. Damage in central area ranged 12-76 percent. Pupation began in southeast area, larvae entering stalks in southwest area. (Munson). ILLINOIS - Third-instar larvae in field corn in Montgomery County; second-instars found in field corn in Tazewell County where 2 percent of plants showed whorl feeding. In Ogle County, 4 percent still in larval stage, pupation 16 percent, moth emergence 80 percent. (Ill. Ins. Rpt.).

INDIANA - O. nubilalis egg masses on less than 5 percent of corn in any field examined in northern third of State. Feeding observed with small larvae present. (Meyer). Third-instar larvae present in south-central district (Huber), and stalk penetration noted in southwestern district near Vincennes (Matthew). KENTUCKY - At economic levels in corn in Caldwell, Todd, Logan, and Christian Counties. Controls applied. (Barnett, Raney). NORTH CAROLINA - Scattered stand loss to young corn in Coastal Plain. Fields with 25+ percent losses noted in Wilson and Johnston Counties. (Hunt). DELAWARE - Light trap catches low in Sussex County. (Kelsey). NEW JERSEY - Eggs hatching, larvae entering whorls of sweet corn in Middlesex County area. (Ins.-Dis. Newsltr.). NEW YORK - First-



generation moths peaked in Geneva area; 86 taken in blacklight trap June 13-19. Eggs heavy on weeds in vicinity of trap. (N.Y. Wkly. Rpt.).

**CORN EARWORM (Heliothis zea)** - ILLINOIS - Egg laying underway on sweet corn in Madison and St. Clair Counties; 2 moths caught in light trap June 16 in Champaign County. (Ill. Ins. Rpt.). ALABAMA - Larvae damaging most corn in gardens and early planted fields in Cullman County. (Baswell).

**BLACK CUTWORM (Agrotis ipsilon)** - NEBRASKA - Destroyed 30 percent of corn stands in 2 fields near North Bend, Dodge County, and 5-20 percent of stands destroyed in 3 fields in Nemaha County (Keith, Berogan).

**CHINCH BUG (Blissus leucopterus leucopterus)** - KANSAS - Heavy, damaging seedling sorghum stands in Washington and Jackson Counties. Ranged 15-30 nymphs per plant in some fields, treatments applied. Ranged from trace to 3 per plant in seedling sorghum bordering matured wheat near Navarre, Dickinson County; little damage seen. Treatments may not be very successful, most chinch bugs found feeding at base of plants beneath soil surface, in loose soil, or in cracks in soil. (Bell). OKLAHOMA - Very heavy and causing much damage to sorghum in Comanche and Kiowa Counties. Light numbers in sorghum in Kay and Garfield Counties and in corn field in Osage County. (Okla. Coop. Sur.).

**NORTHERN CORN ROOTWORM (Diabrotica longicornis)** - OHIO - Eggs hatching statewide. First-instar larvae found in Wayne and Morrow Counties. Farmers urged to be alert for damage in untreated fields of continuous corn. (Musick).

**AMERICAN GRASSHOPPER (Schistocerca americana)** - FLORIDA - Nymphs and adults severe (12 per square foot) on about 100 acres of slash pine with Bahia grass undergrowth in Alachua County; adjacent 20-acre field of corn severely defoliated. (Strayer).

**SORGHUM MIDGE (Contarinia sorghicola)** - TEXAS - Very heavy in grain sorghum in all Blackland Counties. Some fields with 6-7 midges per head. Late-blooming fields should be treated to avoid damage. Emergence noted in Crosby, Lynn, Lubbock, Floyd, and Garza Counties; this is one month earlier than in 1970. Bloom still 4-5 weeks away. (Hoelscher, McIntyre).

**TWOSPOTTED SPIDER MITE (Tetranychus urticae)** - CALIFORNIA - Increased on sweet corn in several areas in Kern County; nuisance to workers. Treatment not required but manual harvest operations now a problem. (Cal. Coop. Rpt.).

## **TURF, PASTURES, RANGELAND**

**SAGEBRUSH DEFOLIATOR (Aroga websteri)** - OREGON - Larvae very heavy on extensive acreage of big sagebrush in rangeland areas west of Merrill, Klamath County. Complete defoliation of individual bushes common in areas observed June 20. (Penrose).

**GRASSHOPPERS** - ILLINOIS - Populations on roadside grasses throughout central area sporadic; ranged 0-20 per sweep. Most grasshoppers still very small. Very little feeding in corn and soybeans bordering grassy areas. (Ill. Ins. Rpt.).

## FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - IDAHO - Larvae continue to cause heavy damage to alfalfa throughout southern area. Damage not economic in Genesee, Latah County, as of June 19. (Brusven). Larvae 797 and adults 22 per 25 sweeps at Aberdeen Experiment Station, Bingham County, June 12. (Carpenter). Larvae ranged up to 75 per sweep in Pleasant Valley area of Kootenai County June 21. (Stranahan, Portman). NEVADA - Larvae (90 percent first and second instars) ranged 10-20 per sweep in alfalfa seed fields at Orovada, Humboldt County, and up to 20 per sweep in Lovelock area, Pershing County. Hatch occurred after previous treatments; current treatments difficult since pollinators present in these areas. (Stitt). UTAH - Larvae holding back second-growth alfalfa where very heavy and no stubble spray applied throughout most of State (Knowlton); causing moderate damage in Enterprise area of Washington and Iron Counties (Huber). Heavy near Price, Carbon County, and Monroe, Sevier County. (Roberts). COLORADO - Larvae averaged 50 or more per sweep in Larimer County alfalfa. Counts in one field averaged 70 per sweep. Moderate to heavy damage seen in many fields. Populations heaviest in this area in many years. (Simpson). Counts in Garfield County ranged 6-10 per sweep. (Colo. Ins. Sur.).

SOUTH DAKOTA - New H. postica adults in treated alfalfa near Spearfish, Lawrence County. Damage severe in Maurine area of southern Perkins County. (Bentley). NORTH DAKOTA - Larvae averaged 1 per 100 sweeps of alfalfa in Des Lacs River Valley in Ward County and 2 per 100 sweeps in Mouse River Valley in McHenry County. These are new county records. (Brandvik). ILLINOIS - Ranged 50-100 per 100 sweeps on second-growth alfalfa in south-central area. (Ill. Ins. Rpt.). NEW YORK - Damage at peak in Niagara, Genesee, Orleans, and Monroe Counties; heavy in southern Genesee and Monroe Counties. Peaked June 15 in Rensselaer County; damage 15-20 percent. Feeding very heavy in Livingston County. Continues to cause much damage in Orange County. (N.Y. Wkly. Rpt., June 19).

PEA APHID (Acyrtosiphon pisum) - UTAH - Heavy on alfalfa and yellow sweetclover in Rich County and much of Millard County; serious in several other areas. (Knowlton). Moderate in Washington County irrigated alfalfa fields. (Huber). NEVADA - Ranged 50-200 per sweep in alfalfa seed fields at Dixie Valley and Lovelock, Pershing County. Treatments applied or planned. Averaged 200+ per sweep on 4,000 acres of alfalfa hay in Hualapai Valley, Washoe County. (Adams, Stitt). OKLAHOMA - Ranged 100-150 per square foot in alfalfa in Roger Mills County. Very light (1-15 per 10 sweeps) in alfalfa in Garfield, Grant, Alfalfa, Woods, and Major Counties. (Okla. Coop. Sur.). KENTUCKY - Averaged 1,200 per 100 sweeps in alfalfa in Jessamine County, 3,500 per 100 sweeps in Garrard County. (Barnett). WISCONSIN - Increased, as many as 50 per sweep in Iowa County. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Ranged 10-15 per sweep on 200 acres of seed alfalfa in Dixie Valley, Pershing County. (Stitt).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Mostly adults ranged 3-10 per sweep in southwest area alfalfa. Mating and dispersal into regrowth and new seedlings underway. (Wis. Ins. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Mostly adults ranged 6-17 per 10 sweeps in alfalfa in Garfield, Grant, Alfalfa, Major, and Woods Counties, except for one field in Grant County with average of 45 per 10 sweeps. Moderate to heavy in irrigated alfalfa in Jackson, Greer, and Washita Counties. (Okla. Coop. Sur.).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - NEW YORK - Adults present in experimental alfalfa in Dutchess County. Leaf mines empty, but pupae in soil. Insecticides for Hypera postica (alfalfa weevil) gave good control of A. frontella. Damage severe in untreated alfalfa. A. frontella caused severe damage to alfalfa in areas of Dutchess, Orange, Columbia, Schoharie, and other Hudson Valley counties. Damage increasing in Rensselaer County. (N.Y. Wkly. Rpt., June 19).

### SOYBEANS

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults and newly hatched larvae active and heavy (1-5 per row foot) at several locations in Wicomico, Somerset, Dorchester, and Worcester Counties. Egg laying underway in all sections of State. (U. Md., Ent. Dept.). NORTH CAROLINA - Building up, especially in north-eastern counties. Small plants (10 inches or less tall) defoliated in Camden County. Few fields damaged at present; watch small beans. (Sawyer, Hunt).

### PEANUTS

THRIPS (Frankliniella spp.) - OKLAHOMA - Moderate to heavy on peanuts in Marshall County. (Okla. Coop. Sur.). ALABAMA - Extensive damage by F. fusca (tobacco thrips), other thrips, and leafhoppers developing in peanuts in Geneva County where systemic insecticides not used at planting time. (Reynolds).

### COTTON

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Weevils infesting 5 to 6-leaf cotton on San Mountain in Marshall County. Counts continue low in Morgan County. Damaged squares in fully fruiting cotton in Wilcox, Dallas, Monroe, and other southern counties heavy; ranged up to 35 and 65 percent. Few growers in Henry and Monroe Counties started control programs. Damaged squares ranged up to 6 and 66 percent in 2 fully fruiting fields as far north as Shelby County. (McQueen). GEORGIA - Punctured squares ranged 0-10 percent in Crisp County, up to 25 percent in southern areas of state. (Womack et al.). SOUTH CAROLINA - Weevils emerged after recent rains. Square infestations increased; up to 10 percent punctured squares noted. Controls should be applied. (Sparks).

TEXAS - Infestation of A. grandis remains light in McLennan and Falls Counties; however, new weevils now appearing will cause increase in damage. Punctured squares averaged 1.6 (maximum 28) percent in 56 treated fields; averaged 2.1 (maximum 9.5) percent

in 7 untreated fields. (Cowan et al.). OKLAHOMA - Punctured squares averaged 3 percent in field in Bryan County. Occasional punctured squares found in Jackson County. (Okla. Coop. Sur.). MISSISSIPPI - Infestations of Anthonomus grandis remain stable, average less than 3 percent over State. Leggett trap catches in southern area averaged from 1.5 weevils per trap in Lamar County to 8.8 per trap in Lawrence County. (Robinson).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Small larvae appearing. Growers should begin controls where 5 percent of squares damaged. (Sparks). GEORGIA - H. zea larval and egg counts per 100 terminals by county, respectively: Crisp 0-16 and 0-44; Wilcox 0-3 and 0-12; 0-40 and 0-100 with up to 90 percent injured squares in southern areas. (Womack et al.). ALABAMA - H. zea larvae light in most fields throughout State although egg counts remain moderate to high. (McQueen). MISSISSIPPI - First-generation Heliothis spp. larvae appearing on cotton. In many areas, beneficial insects heavy enough to take out most of this generation. (Robinson).

TEXAS - In McLennan and Falls Counties, Heliothis spp. eggs averaged 1.7 (maximum 9) and larvae averaged 0.8 (maximum 7.2) per 100 terminals in 58 treated fields. In 7 untreated fields, eggs averaged 1.2 (maximum 3) and larvae 0.7 (maximum 1.8). Injured squares averaged 4.7 (maximum 29.5) percent in 56 treated fields and 1.1 (maximum 3) percent in 7 untreated fields. Injured bolls averaged 4.5 (maximum 27.2) percent in 11 treated fields; averaged 0.9 (maximum 1) percent in 2 untreated fields. Of 128 larvae collected from cotton, 88 determined as H. virescens. (Cowan et al.).

PLANT BUGS - OKLAHOMA - Pseudatomoscelis seriatus (cotton flea-hopper) heavy in Bryan County, moderate in Harmon and Greer Counties. Averaged 100 per 100 sweeps in Caddo County. (Okla. Coop. Sur.). ARIZONA - Lygus spp. averaged 28 adults per 100 sweeps at Avra Valley, Pima County. Treatments applied at some Dome and Wellton area fields in Yuma County. (Ariz. Coop. Sur.).

THRIPS - TENNESSEE - Damaged cotton in Lincoln County. (Cagle). OKLAHOMA - Frankliniella spp. moderate to heavy in cotton in Marshall County, moderate in Okmulgee County, light in Kiowa County. Averaged 1.5 per plant in Payne County field. (Okla. Coop. Sur.).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - ALABAMA - Present in 95 percent of 50 fields surveyed in Limestone County. Continues more of a problem in Limestone and Madison Counties than at other locations in State. Heavier statewide than in about 10 years. (Turner et al.). CALIFORNIA - T. urticae and T. pacificus (Pacific spider mite) increased on cotton in Kern County. Cotton squaring in most areas of county. (Cal. Coop. Rpt.).

#### TOBACCO

TOBACCO HORNWORM (Manduca sexta) - KENTUCKY - Damaged tobacco in Daviess County. (Barnett, Raney). GEORGIA - Eggs and larvae light to heavy in south-central area. (French).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to heavy, severely damaged tips over tobacco belt. (French).

**TOBACCO FLEA BEETLE (Epitrix hirtipennis)** - KENTUCKY - Adults caused 7-10 percent foliar loss to tobacco in Lincoln County, 5 percent in Clinton County, less than 1 percent in Garrard County. No extensive damage found on tobacco in Jessamine County. (Barnett).

### **POTATOES, TOMATOES, PEPPERS**

**COLORADO POTATO BEETLE (Leptinotarsa decemlineata)** - MAINE - Adults increasing on potatoes in Aroostook and Penobscot Counties especially in early planted fields. No egg laying reported. (Gall). VIRGINIA - Populations lighter than for several years on Eastern Shore. Heavy rains believed responsible. Adult emergence began in Painter area, expect increase next 7 days in Accomack and Northampton Counties. (Hofmaster). COLORADO - Larvae and adults light in potato fields in Larimer and Weld Counties. (Colo. Ins. Sur.).

**GREEN PEACH APHID (Myzus persicae)** - OREGON - Alates moving into potato plantings north of Adrian, Malheur County, June 16. Counts heavy, some fields may need treatment. (Henninger).

### **BEANS AND PEAS**

**MEXICAN BEAN BEETLE (Epilachna varivestis)** - IDAHO - Surveys in Twin Falls, Twin Falls County, June 13-20 revealed 21 adults, 7 egg masses, but no larvae in 6 gardens infested. (Youtz). Adults found June 13 in Boise, Ada County. (Butcher et al.). NEBRASKA - Counts 0-2 per 5 plants in Scotts Bluff County. Controls applied. (Hagen).

**BEAN LEAF BEETLE (Cerotoma trifurcata)** - GEORGIA - Heavy feeding on lower leaves of pole beans in Spalding County. (Dupree).

**SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi)** - GEORGIA - Heavy feeding on string bean pods in Spalding County. (Dupree).

**PEA APHID (Acyrtosiphon pisum)** - WISCONSIN - Ranged 4-17 per 10 sweeps on peas in southwestern counties, below economic levels. (Wis. Ins. Sur.).

## DECIDUOUS FRUITS AND NUTS

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CALIFORNIA - Moth flights of this species, Anarsia lineatella, and Laspeyresia pomonella increased; should peak this period. Some treatment will be necessary by July 1 in peaches and walnuts. (Cal. Coop. Rpt.).

APPLE APHID (Aphis pomi) - MAINE - Reported building up rapidly on terminal growth of apples. (Wave). MASSACHUSETTS - Heavy populations, 38-40 per terminal, noted in unsprayed Delicious and McIntosh apple trees in Hampshire County. In plots with alternate row spraying, counts 4.7 and 15.6 per terminal on McIntosh and Delicious varieties, respectively; in regularly sprayed orchards, 6 and 3.7 per terminal found on same varieties. (Blyth).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Counts of this species and Tetranychus urticae (twospotted spider mite) low in sprayed orchards in Franklin County. P. ulmi heavy in some unsprayed apple trees in Hampshire County; up to 47 eggs and 23 mites per leaf. (Jensen). OHIO - P. ulmi increased on apple; 3 weeks ahead of last year at this date in Wayne County. Presents very serious potential problem. (Hall).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - SOUTH CAROLINA - Sudden buildup on apple foliage in northern part of State occurred about June 17. Buildup coincided with dry weather which permitted migration of mites from winter hosts to apple foliage. (Nettles).

WALNUT CATERPILLAR (Datana integerrima) - OKLAHOMA - Heavy on walnut trees in Coal County. Very young larvae noted on walnut in Mayes County. (Okla. Coop. Sur.).

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Heavy on pecans in Grady County. Young larvae light in Noble and Rogers Counties. (Okla. Coop. Sur.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - First-generation larval damage in untreated orchards averaged 42 percent in Rogers County, 16 percent in Noble County. (Okla. Coop. Sur.).

## CITRUS

Insect Situation in Florida - Mid-June - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 69 (norm 49) percent of groves; economic in 41 (norm 30) percent. Population to remain in high range and above normal. Will show little change until July when rapid increase on new fruit expected. Highest districts south, central, and north. TEXAS CITRUS MITE (Eutetranychus banksi) infested 64 (norm 64) percent of groves; economic in 43 (norm 43) percent. Population increasing rapidly. Will attain normal high summer level in late June then decrease in July. About 20 percent of groves will harbor heavy infestations. Highest districts central and south. CITRUS RED MITE (Panonychus citri) infested 33 (norm 63) percent of groves; economic in 14 (norm 32) percent. Also increasing, will remain below normal summer abundance. About 10 percent of groves will develop heavy infestations. Highest districts west and south. BLACK SCALE (Saissetia oleae) infested 74 (norm 62) percent of groves; economic in 60 (norm 41) percent. Population highest for June in 21 years of record. Building up to

high level earlier than usual and expected to peak about mid-July. Highest districts east, central, and north. GLOVER SCALE (Lepidosaphes gloverii) infested 82 (norm 87) percent of groves; economic in 5 (norm 26) percent. Population lowest for June since 1964. Little change expected from current moderate level. Highest district west. PURPLE SCALE (L. beckii) infested 69 (norm 77) percent of groves; economic in 4 (norm 9) percent. Population will remain below normal and in low to moderate range in all districts. CHAFF SCALE (Parlatoria pergandii) infested 38 (norm 62) percent of groves; economic in 1 (norm 10) percent. YELLOW SCALE (Aonidiella citrina) infested 38 (norm 63) percent of groves; economic in less than 1 (norm 8) percent. These scales will remain below normal and in low range in all districts. An ARMORED SCALE (Unaspis citri) infested 31 percent of groves; economic in 2 percent. WHITEFLIES infested 76 percent of groves; economic in 27 percent. Population above normal and in high range. Increase expected. Highest districts east and west. MEALYBUGS infested 59 percent of groves; economic in 14 percent. Population increasing and expected to enter high range by end of June. A summer peak near normal level expected mid-July. GREEN SCALE (Coccus viridis) infested 25 (norm 6) percent of groves; economic in 7 (norm 1) percent. This uncommon species suddenly became more abundant than any month in 21 years of record. Spotty infestations occur in east, central, and south districts. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

#### SMALL FRUITS

A CECIDOMYIID MIDGE (Neolasioptera nodulosa) - PENNSYLVANIA - Galls noted on 2 to 3-foot blackberry plants in Gilford Pinchot State Park, York County, March 21, 1971. Collected by G.B. Slesman. Determined by R.J. Gagne. This is a new State record. (Kim).

TARNISHED PLANT BUG (Lygus lineolaris) - OHIO - Ranged 0-3 per plant on 80 percent of strawberry plants in 5-acre plot in Muskingum County. (Fox).

#### ORNAMENTALS

A BAMBOO APHID (Takecallis arundinariae) - MARYLAND - Specimens reared from dwarf bamboo (Shibataea kumasasa) near Chevy Chase, Montgomery County, May 5-10, 1972, by E.J. Hambleton. Determined by L.M. Russell. This is a new State record and a new record for the Eastern U.S. This species, known previously from California and Oregon, discovered on foliage of its host grown as potted house plant taken in November 1971 near Purcellville, Loudoun County, Virginia. Examination of original planting and five additional bamboo species during May showed no indication of infestation. (Hambleton).

A PLUME MOTH (Platyptilia pica crataea) - CALIFORNIA - Larvae damaged pelargonium nursery plants in Smith River, Del Norte County; and geranium plants in Santa Barbara, Santa Barbara County, and in Sacramento, Sacramento County. (Cal. Coop. Sur.).

#### FOREST AND SHADE TREES

RED PINE SAWFLY (Neodiprion nanulus nanulus) - WISCONSIN - Large larvae and prepupae prevalent June 4 in southern Portage and

northern Adams Counties. About 99 percent dropped to ground to spin cocoons. About 20,000 acres of jack pine showed varying degrees of defoliation. (Wis. Ins. Sur.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - MASSACHUSETTS - Larvae heavily defoliated Scotch pines in Berkshire County. (Jensen).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ARKANSAS - Minor outbreak occurred in southeastern Ashley County. About 200 trees at each of 6 locations in area infested. (Gresham).

LARGE ASPEN TORTRIX (Choristoneura conflictana) - MICHIGAN - Activity increased in Upper Peninsula. New outbreaks found in Iron County near Crystal Falls, along Lake Superior near Luce and Alger County line, and near Melstrand in Alger County. Adults emerged in Crystal Falls area; still in pupal stage at other locations. (Sauer).

OAK LEAFTIER (Croesia albicomana) - MICHIGAN - Outbreaks continue for fourth consecutive year in southeastern Chippewa County. Defoliation averaged 60 percent per oak tree. Now pupated in leaf litter. (Sauer).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Adults in light trap in Washington County since June 7. Nightly catches ranged 0-15. This is heaviest early emergence since 1967. First larval colonies in county observed June 20 on black walnut. (Warren).

WOOLLY ALDER APHID (Prociphilus tessellatus) - NEW MEXICO - Heavy on mountain alder around camp grounds between Questa and Red River, Taos County. (N.M. Coop. Rpt.).

#### MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 2,664 confirmed cases for week ending June 17 in Continental U.S. by State as follows: TEXAS 2,615, NEW MEXICO 4, ARIZONA 45. Total of 965 confirmed cases in MEXICO. Number of sterile flies released in U.S. totalled 175,030,000 as follows: TEXAS 163,250,000, NEW MEXICO 1,960,000, ARIZONA 7,990,000, CALIFORNIA 600,000, LOUISIANA 1,230,000. Total of 11,840,000 sterile flies released in MEXICO. (Anim. Health).

FACE FLY (Musca autumnalis) - SOUTH DAKOTA - Building up in Moody County. Counts per head ranged 8-12 on cows, up to 5 per head on calves. (DelFosse). IOWA - Ranged 0-15 (averaged 5) per animal on beef cattle in Cerro Gordo County. (Iowa Ins. Sur.). WISCONSIN - Moderate annoyance to cattle in Jefferson, Chippewa, Columbia, St. Croix, and Calumet Counties. (Wis. Ins. Sur.). MISSISSIPPI - Up to 25 per face on 200 head of cattle in Monroe County. (Robinson).

HORN FLY (Haematobia irritans) - TEXAS - Still increasing in Panhandle. Heavy on cattle and sheep in Crockett County in Trans-Pecos area. Moderate in Wichita, Baylor, and Wilbarger Counties in Rolling Plains. Heavy in Falls and Coryell Counties; counts of 300-500 per animal common. (Clymer et al.). OKLAHOMA - Averaged 600 per head on cows and 2,000 per head on bulls in Payne County. Heavy in Cotton, Pontotoc, Marshall, and Garvin Counties; moderate



o heavy in Coal, Oklahoma, and Okmulgee Counties; moderate in Cleveland, Beaver, and Mayes Counties; light in Rogers County. (Okla. Coop. Sur.). SOUTH DAKOTA - Building up in Moody County. Counts ranged 50-60 per side on cows, 10-30 on calves. (DelFosse). IOWA - Ranged 50-200 (averaged 130) per animal on beef cattle in Cerro Gordo County. (Iowa Ins. Sur.). WISCONSIN - Moderate annoyance to dairy cattle in some areas of Chippewa County. (Wis. Ins. Sur.). OHIO - Counts per side on cattle by county ranged as follows: Guernsey 0-7; Medina 10-27; Lorain 0-3; Erie 0-2; Huron 0-5; Stark 22-38; Harrison 1-5; Belmont 40-60. (Fox).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Moderate to severe annoyance to dairy cattle in Kewaunee, Jefferson, and Calumet Counties. Increased in Wood, Waukesha, and Walworth Counties. (Wis. Ins. Sur.).

MOSQUITOES - UTAH - Very annoying and abundant in mountain areas in Rich County and some parts of Cache County. Very annoying along Virgin River in Washington and in Millard Counties. (Knowlton et al.). MAINE - Aedes spp. still problem in most areas of State. Two hatches of A. vexans seen during June; this is unusual since A. vexans not abundant in State under normal conditions. (Dearborn).

#### HOUSEHOLDS AND STRUCTURES

A BARK BEETLE (Monarthrum fasciatum) - MICHIGAN - Adults collected from pine windowsills of home in Detroit, Wayne County, February 11, 1972, by D. Cress. One windowsill damaged. Determined by D.M. Anderson. This is a new State record. (Sauer).

A SCARAB (Phanaeus vindex) - SOUTH DAKOTA - Female collected in hospital at Hot Springs, Fall River County, May 22, 1972, by F.F. Wiedmeier. Determined by E.U. Balsbaugh. This is a new State record. (Weidmeier).

#### STORED PRODUCTS

LEADCABLE BORER (Scobicia declivis) - CALIFORNIA - This species and Lyctus sp. created severe problem in specialty logging mill in Oroville, Butte County. Populations of both beetles heavy in freshly sawed oak lumber in mill lot; lumber not kiln dried. Control measures may necessitate dipping of sawed lumber at green chain. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - NEBRASKA - Adults in greenbug infested sorghum averaged 22 per 30 row feet. Feeding on aphids in plant whorls; no lady beetle larvae or eggs found. (Keith). OKLAHOMA - Adults and larvae, mainly Hippodamia convergens (convergent lady beetle), ranged 3-6 per plant on aphid infested sorghum in Garfield County. Mainly H. convergens averaged 12 per 100 sweeps in cotton in Bryan, Wagoner, and Muskogee Counties. (Okla. Coop. Sur.).

ICHNEUMON WASPS - INDIANA - Tetrastichus julis recovered from field insectary in Tri-County Wildlife Area in Kosciusko County during week of June 2. This is a new State record for this larval parasite of Oulema melanopus (cereal leaf beetle). OHIO - T. julis

recovered from field insectary in Woodbury Wildlife Area in Coshocton County week ending June 23. This is a new county record. MICHIGAN - T. julis recovered from field insectary in Berrien County for first time week ending June 15, and recovered for third consecutive year in Cass County during same period. Introduced species of larval parasites of O. melanopus of the genus Diaparsis recovered from field insectary in Tri-County Wildlife Area in Kosciusko County, Indiana, during week ending June 2. This is first recovery in State. Also collected in La Porte County during period June 9-15 for a new county record. In Ohio, Diaparsis recovered from field insectary in Woodbury Wildlife Area of Coshocton County week ending June 23 for first recovery in State. Diaparsis was being recovered in significant numbers at field insectary in Berrien County, Michigan, week ending June 2. (PP). KENTUCKY - Parasitism of Hypera postica (alfalfa weevil) by Bathyplectes curculionis ranged 5-47 percent in Warren and Fayette Counties April 12 through June 2. Parasitism of same host by B. anurus ranged 2-9 percent in Fayette County during same period. Survey of 5 fields in Fayette County June 5 showed parasitism of 66.4 percent after first cutting of alfalfa; no stubble treatment. (Barnett, Parr).

### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - The following are new county records: ILLINOIS - Larvae on oats: Stark June 16 and Boone June 13 by R.D. Lovejoy; Winnebago June 13 by J.E. Schafer; McDonough June 9 by T.S. Smith. Adults on oats: Knox June 16 by A.D. Lovejoy; Whiteside June 14, Hancock June 15, and Rock Island June 19 by J.E. Schafer; Ogle June 7 by L. Porter. INDIANA - Larvae on oats in Perry June 8 and on wheat in Crawford May 16, and adults on wheat in Posey May 18 by T.S. Smith. VIRGINIA - Larvae on wheat in Warren May 23 by A.D. Hamon and R.H. Morris, and in Fauquier June 7 by G. Huddleston. All determinations by R.E. White. (PP). OHIO - In 18-acre oat field in Highland County, adults 115 per 50 sweeps and larvae 23 per square foot. (Rechner). Larval counts 1 per 10 stems and 0-50 per 10 stems in Lorain and Belmont Counties respectively. Adults 6-8 per 50 sweeps in Lorain County. (Fox). KENTUCKY - Damage moderate to heavy to oats in Campbell County. (Barnett, Crouch).

GRASSHOPPERS - WASHINGTON - Melanoplus sanguinipes, M. bivittatus, Aulocara elliotti, and Oedaleonotus enigma migrating from rangeland and abandoned cropland into irrigated areas of Whitman, Walla Walla, Benton, Asotin, and Yakima Counties. (Harwood). OREGON - Rangeland species, primarily M. sanguinipes, Camnula pellucida, and O. enigma economic on extensive acreage in eastern part of State. Indication is infestations more extensive than in 1971 Controls planned for 140,000 acres in Umatilla County, 130,000 acres in Baker County, 110,000 acres in Grant County, 100,000 acres in Union County, and 130,000 acres in Wallowa County. (Goeden et al.). IDAHO - Grasshoppers exceed 100 per square yard on total of 352,000 acres of rangeland, indicate possible cooperative control program in Washington, Adams, Camas, Gooding, Blaine, Lincoln, Minidoka, Jerome, Twin Falls, and Cassia Counties. Controls by individual farmers anticipated on 25,000 to 50,000 acres in Gooding, Nez Perce, Idaho, Power, and Bannock Counties. (Pollard et al.).

NEVADA - M. sanguinipes and M. bivittatus infested total of 33,288 acres of private cropland and rangeland and 2,360 acres of Federal rangeland in Diamond Valley, Eureka County. Second treatment for these species in Kings River Valley, Humboldt County, totaled 14,720 acres of private land. About 6,000 acres of Federal land to be treated next 7 days. Nymphs, mostly of M. sanguinipes and some M. bivittatus, ranged up to 20 per square yard on 1,900 acres of cropland and rangeland at Reese River, Lander County. Treatment applied. (Bechtel). OKLAHOMA - Grasshoppers per square yard on rangeland by county: Beaver 30-40; southern Woods and western Major 10-20; western Pawnee 8-12; Pontotoc 30-40. Counts heavy in Roger Mills, Grady, and Jefferson Counties; none to moderate in Oklahoma County, moderate in Rogers County. (Okla. Coop. Sur.). Control applications to be completed by June 30 on 43,500 acres in Carter and Murray Counties and on 40,000+ acres in Kiowa and Comanche Counties. Results excellent to date. (PP). NEBRASKA - Nymphs of Melanoplus spp. heavy in field margins, up to 25 per square yard. Feeding in rank bromegrass; will hold nymphs in margins for longer period. (Staples, Roselle).

SOUTH DAKOTA - Grasshoppers still in localized egg-bed areas in Black Hills in Custer and Pennington Counties. Development up to fourth instar; about 500 nymphs per square yard in egg-bed areas. Controls expected to be applied. (Burge). NORTH DAKOTA - Infestations in Pierce and Ward Counties mostly economic except for few alfalfa fields and weedy fence rows. (Brandvik). MINNESOTA - Scattered infestations of Melanoplus bivittatus nymphs noted along Highway 75 in Clay and Wilkin Counties. Counts of 12 per square yard found but egg hatch continues in area. Control recommended before migration into cropland. More than one treatment may be needed as egg hatch is extended. (Minn. Pest Rpt.). WISCONSIN - M. femurrubrum, mainly first instar, increased in second-growth alfalfa in Iowa, Grant, and Sauk Counties. Counts up to 20 per 10 sweeps common. (Wis. Ins. Sur.).

MORMON CRICKET (Anabrus simplex) - UTAH - Scattered, solitary crickets found in Tabiona area of Duchesne County and Dinosaur National Monument area of Uintah County. (Judd).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - Larvae defoliating oaks, white pine, blueberry, hickory, and gray birch in Washington County. (Field et al.).

JAPANESE BEETLE (Popillia japonica) - TENNESSEE - Adults emerged in Sullivan and Monroe Counties. One adult taken in West Jackson, Madison County. (Turpen et al.). OHIO - Third-instar larvae averaged 24 per square foot in sod at country club in Ashtabula County; in infested areas ranged 12-36 per square foot. Small mammals caused additional damage when digging for grubs. (Custer). ALABAMA - Nine adults collected while feeding on dogwood and rose in Jackson County June 15 by J.R. Goodlett. Determined by R.D. Gordon. This is a new county record. (PP).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Light on rangeland in Lincoln County. (Perry).

General Vegetables - GREEN PEACH APHID (Myzus persicae) trace in 0.25 acre of sweet peppers at Waimanalo, Oahu; about 5 percent of plants with small colonies of nymphs and adults. Larval mines of LEAFMINER FLIES (Liriomyza spp.) light in 0.5 acre of green onion at Koko Head, Oahu; 30-50 percent of leaves with mines affecting about 10 percent of leaf surface. Mines light to moderate in 5,000 square feet of tomatoes at Waianae, Oahu; confined to older leaves. (Kawamura). BLACK CUTWORM (Agrotis ipsilon) larvae moderate to heavy in 5 acres of bulb onions at Palaau, Molokai; damage heavy to seedlings. Larvae heavy in recently harvested lettuce beds; damage light to about 3 acres of adjacent seedlings. (Fujimoto, Kawamura). SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs and adults light in 1,000-square foot planting of bush beans at Waianae, Oahu. Eggs of Trichopoda pennipes (a tachina fly) noted on 9 of 12 N. viridula adults checked. N. viridula light in yard plantings of long beans at Ewa; 5 of 7 adults (71 percent) observed also parasitized. (Kumashiro et al.).

Beneficial Insects - Adults of a SCIOMYZID FLY (Sepedon sauteri) collected during May at Waipio Valley, Hawaii. This is second recovery since original release in September 1968. Numerous adults observed at Kulani Puu in November 1969. More than 8,000 adults released on island to date. (Yoshioka).

Fruits and Nuts - COCONUT LEAFROLLER (Hedylepta blackburni) and COCONUT SCALE (Aspidiotus destructor) light on fronds of 82 coconut trees in proximity of Honolulu International Airport, Oahu. Adults of Lindorus lophanthae and Cryptolaemus montrouzieri (lady beetles) light amid scale colonies. Leafroller damage heavy on about 200 coconut trees at Kahe Point, Oahu; all but very young fronds skeletonized. Hymenopterous pupal cases light in both situations. (Kumashiro et al.).

Miscellaneous Pests - Several adults of an ICHNEUMON WASP (Pachysomoides stupidus) emerged from nest of Polistes exclamans collected at Honolulu, Oahu. P. stupidus first reported in State in September 1970. Although several specimens subsequently taken, this is first report establishing its parasitic host association in Hawaii. (Funasaki). GIANT AFRICAN SNAIL (Achatina fulica) - On Kauai, second of three planned aerial drops made at Poipu during second week of May; 6,000+ pounds of metaldehyde bait applied over 30+ acres. Collected and destroyed 420 snails in this area during May; none at Wahiawa. On Hawaii, preparation continues for aerial drops at Kona. Snail activity noted at residence in Kahaluu following heavy showers; area subsequently treated by hand. (Yoshioka, Sugawa).

---

#### CORRECTIONS

CEIR 22(25):390 - LONE STAR TICK (Amblyomma americanum) - INDIANA - Delete note. Previously reported as new county record in 1967. See J. Parasitol. 53(1):104. (Meyer). Also delete under New County Records on page 386. (PP).

New United States Record - A EUROPEAN WEEVIL (Larinus carlinae) - MARYLAND - Washington County. (p. 418).

New State Records - A BAMBOO APHID (Takecallis arundinariae) - MARYLAND - Montgomery County. (p. 409). A BARK BEETLE (Monarthrum fasciatum) - MICHIGAN - Wayne County. (p. 411). A CECIDOMYID MIDGE (Neolasioptera nodulosa) - PENNSYLVANIA - York County. (p. 409). AN ICHNEUMON WASP (Tetrastichus julis) - INDIANA - Kosciusko County. (p. 411). A SCARAB (Phaneus vindex) - SOUTH DAKOTA - Fall River County. (p. 411).

New County Records - ALFALFA WEEVIL (Hypera postica) - NORTH DAKOTA - Ward, McHenry (p. 404). CEREAL LEAF BEETLE (Oulema melanopus) - ILLINOIS - Stark, Boone, Winnebago, McDonough, Knox, Whiteside, Hancock, Rock Island, Ogle. INDIANA - Perry, Crawford, Posey. VIRGINIA - Warren, Fauquier (p. 412). GREENBUG (Schizaphis graminum) - ARKANSAS - Lafayette, Little River (p. 402). AN ICHNEUMON WASP (Tetrastichus julis) - OHIO - Coshocton. MICHIGAN - Berrien (p. 412). JAPANESE BEETLE (Popillia japonica) - ALABAMA - Jackson (p. 413).

---

Weather of the week continued from page 400.

desert climate - that the wettest June of record can follow the driest 5-month period in weather history. By Sunday evening, there were three areas of light showers: The Pacific Northwest, the Northeast (from remnants of Agnes), and from Missouri to Florida.

TEMPERATURE: The southwestern deserts continued hot, typical for this time of year. Maximum temperatures neared or exceeded 100 degrees on several afternoons. Blythe, California, registered 114 degrees Monday and 112 degrees Tuesday and Wednesday. A large high was centered over southwestern Saskatchewan Monday morning. By Wednesday it had moved to eastern South Dakota. It was responsible for chilly weather over Montana, Wyoming, the Dakotas, and Minnesota. Dickinson, North Dakota, and Big Piney, Wyoming, recorded 33 degrees Tuesday and Leadville, Colorado, 30 degrees Wednesday. The mercury fell to 43 degrees at Grand Island and Lincoln, Nebraska, Wednesday morning. These temperatures are 17 and 21 degrees colder than respective normals for Grand Island and Lincoln for the June 21 date of summer solstice. Cold air spread southward and eastward. Temperatures in the 40's were common from Washington to Wisconsin and northern Indiana Thursday morning. Friday morning, Evansville, Indiana, and Louisville, Kentucky, registered 45 and 47 degrees, respectively. Duluth recorded 35 Friday morning, the coldest temperature of record for so late in the season. As cold air poured southward over the Great Lakes to the Ohio River, holding minimum temperatures in the 40's and 50's, 45 degrees at Cincinnati, Ohio, Monday morning, hot moist gulf air warmed Texas to near or above 100 degrees on several days late in the period. Abilene, Childress, and Ft. Worth registered 105 degrees Sunday afternoon.

**LIGHT TRAP COLLECTIONS**

State	Locality	Date	Precipitation	Temperature	Wind direction	Wind velocity	Relative humidity	Barometric pressure	Moon phase	Time of day	Type of trap	Crops	
												Height	Number
FLORIDA	Gainesville	6/16-22										1	1
IOWA	Dubuque	6/7-15										120	13
	Kanawha	6/7-15										332	30
	Sutherland	6/7-15										423	27
KANSAS	Hiawatha	6/19										216	7
	Mannattan	6/21-22										12	3
	Wichita	6/20										32	45
KENTUCKY	Leitchfield	6/19										11	7
												10	3
MINNESOTA	Crookston	6/14-19										2	13
	Fergus Falls	6/14-19										18	30
	Worthington	6/14-19										53	27
MISSISSIPPI	Okribbena	6/16-22										9	7
	Sharkey	6/12-19										17	3
	Stoneville	6/16-22	67-97									32	7
MISSOURI	Fair Grove	6/15-21										17	3
	Portageville	6/16-22										55	7
NEBRASKA	Lincoln	6/22										14	9
	Plymouth	6/15										426	45
	Scottsbluff	6/21										22	7
NEW HAMPSHIRE (County)	Lee	6/18										4	4
												21	20
NORTH DAKOTA	Bismarck	6/13-15										4	4
	Bottineau	6/8, 12, 13										5	20
	Fargo	6/20-22										40	5



Janice C. White 1/

One specimen of Larinus carlinae Ol., previously unknown in the United States, was collected on thistle (Cirsium sp.) in Maugansville, Washington County, Maryland, June 15, 1971, by Richard E. White. 2/ Rose Ella Warner 2/ identified the specimen and noted that this is the first United States record of this genus and species. It is of particular interest that the specimen was collected in the same field where Altica carduorum Guer.-Men. (a European flea beetle) had been released for experimental control of Canada thistle (Cirsium arvense (L.) Scop.).

The genus Larinus is separated from its nearest North American relative, Lixus, by its shorter, more robust form, by its transverse pronotum and by having the tips of its elytra always rounded together. The adult of L. carlinae is oblong and black with fine yellowish pubescence. It is illustrated in Hoffmann on page 540.

The species is found throughout Europe and is known to feed on a number of composites including Carduus, Cirsium, Carlina, and Centaurea. The young achenes are often damaged by the larvae feeding in the flower buds where the pupae, too, develop, but the plant is apparently still able to recover from the damage.

#### References

Hoffmann, A., 1954. Fauna de France 59:487-1208.

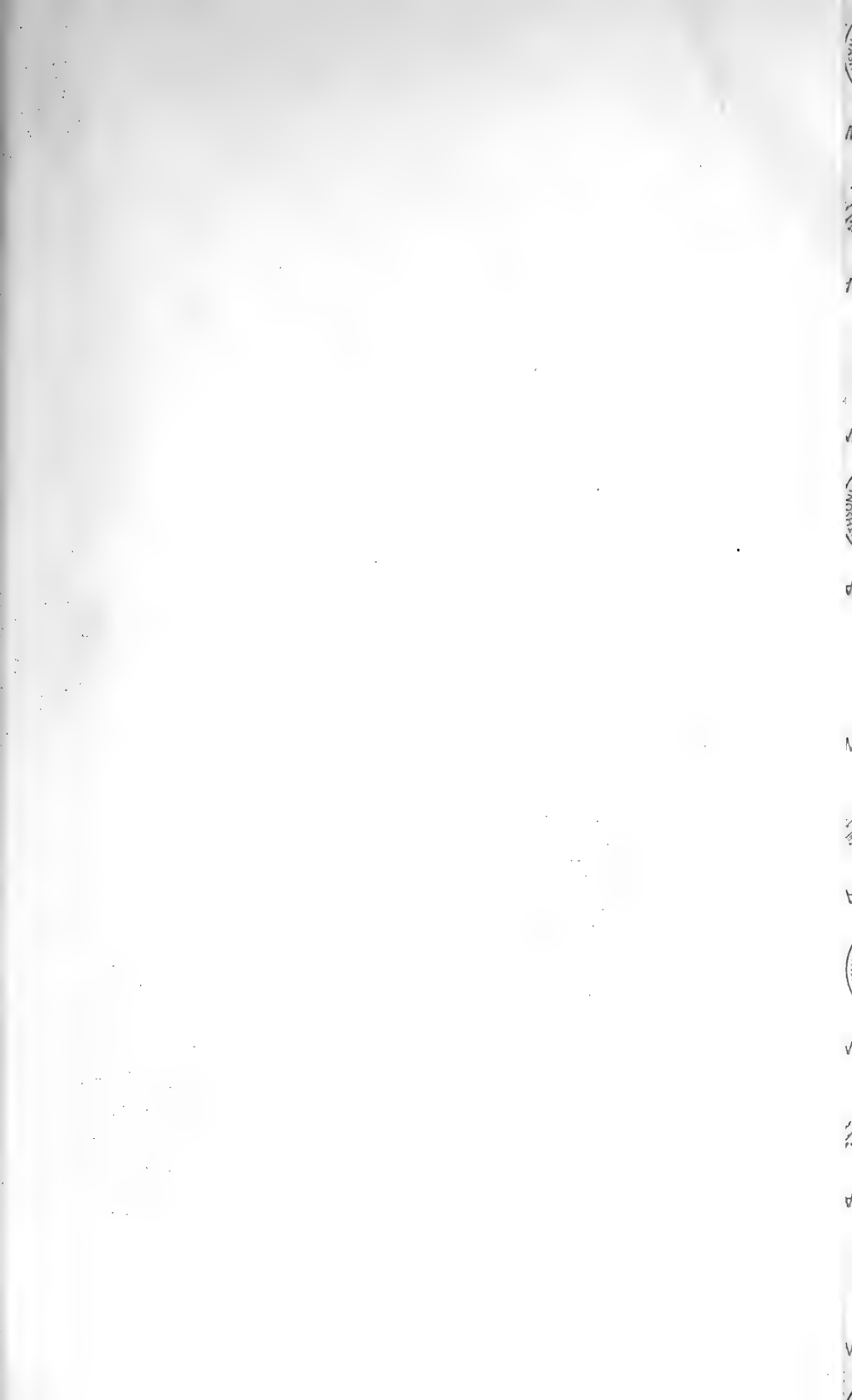
Scherf, H., 1964. Die Entwicklungsstadien der mitteleuropäisbhen Curculioniden (Morphologie, Bionomie, Ökologie) Abh. senckenb. naturf. Ges. 506:1-335.

1/ Upper Marlboro, Maryland.

2/ Systematic Entomology Laboratory, ARS, USDA, Washington, D.C. 20560.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(25):418, 1972





U.S. DEPARTMENT OF AGRICULTURE  
HYATTSVILLE, MARYLAND 20782

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF  
AGRICULTURE  
AGR 101



0004 SMINLISMIA122 33017 0001  
SMITHSONIAN INSTITUTION LIBR-  
ARIES SMITHSONIAN INST  
WASHINGTON DC 20560









SMITHSONIAN INSTITUTION



SMITHSONIAN INSTITUTION



SMITHSONIAN INSTITUTION



SMITHSONIAN INSTITUTION



SMITHSONIAN INSTITUTION



SMITHSONIAN INSTITUTION



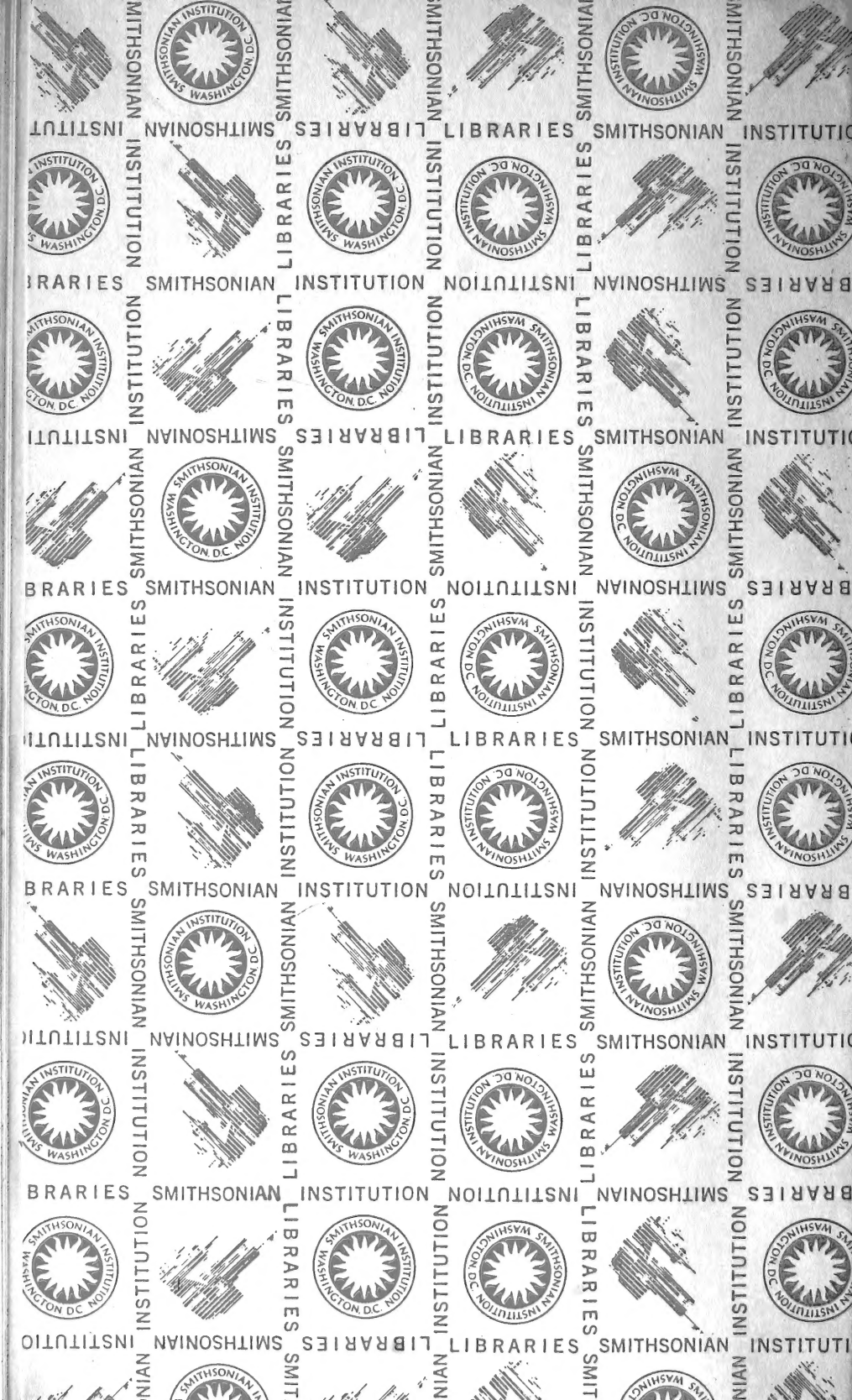
SMITHSONIAN INSTITUTION

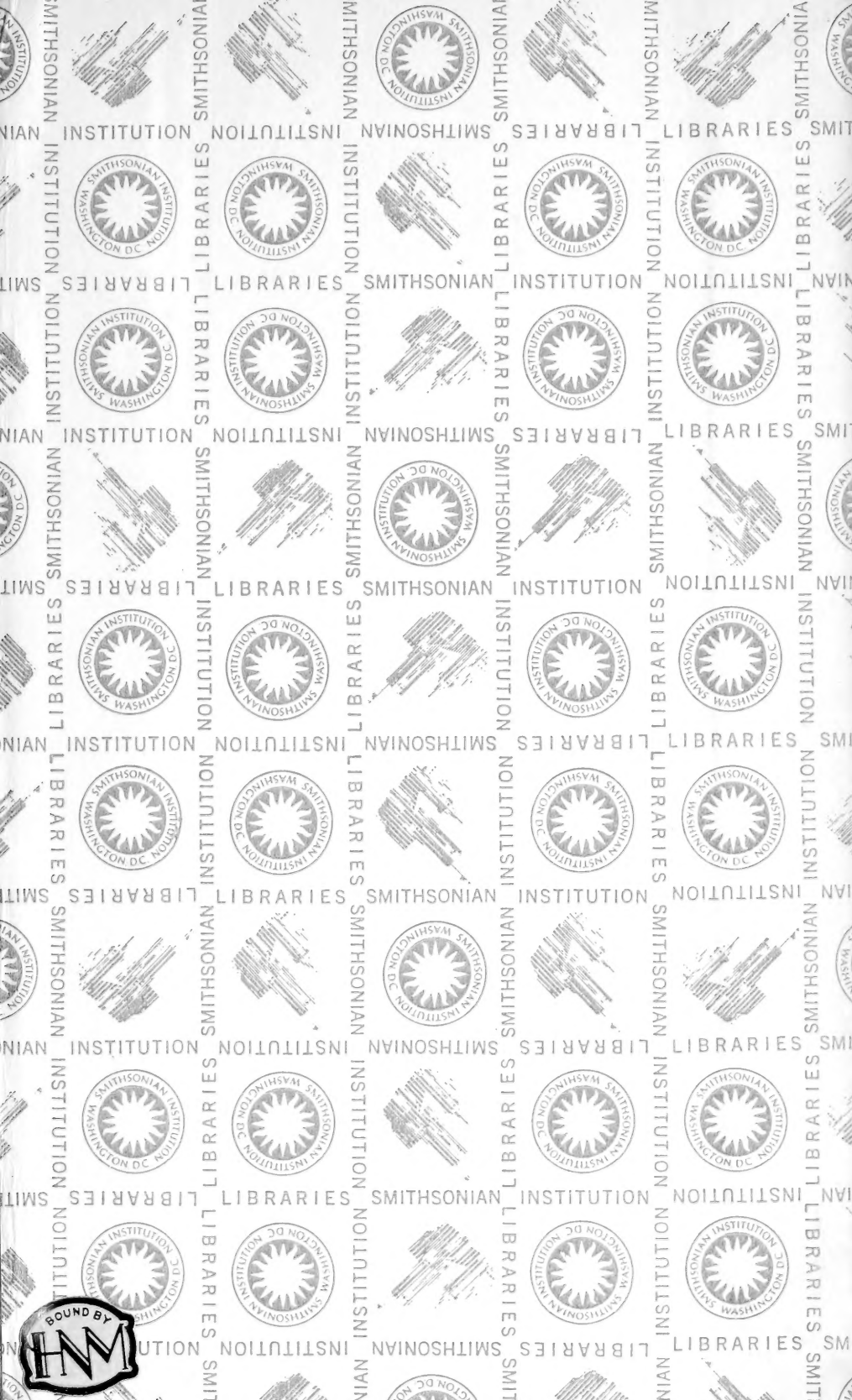


SMITHSONIAN INSTITUTION



SMITHSONIAN INSTITUTION





SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01271 7682