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U. S. DEPARTMENT OF AGRICULTURE

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

**PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE**

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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 Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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United States Department of Agriculture
Washington 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID heavy in some areas of southwestern Arkansas. Active also in sections of Oklahoma, Texas and Kansas. (p. 31).

BOLL WEEVIL hibernation counts higher than last year in Georgia but somewhat lower in Hempstead County, Arkansas. (p. 31).

SUMMARY OF INSECT CONDITIONS - 1956 - New Jersey (p. 34), South Dakota (p. 36), Colorado (p. 40).

INSECTS not known to occur in the United States. (p. 43).

Distribution of EUROPEAN PINE SHOOT MOTH. (p. 49).

STATE CLEARING OFFICES for economic insect survey reports. (p. 45).

Distribution of RANGELAND GRASSHOPPERS (p. 50).

Reports in this issue are for the week ending January 11 unless otherwise designated.

WEATHER OF THE WEEK ENDING JANUARY 14, 1957

Successive outbreaks of unseasonably cold Arctic air east of the Divide were responsible for the below normal temperature conditions which extended southward into portions of the southern Plains and middle Atlantic States; heavy to moderate rains during the week in the Pacific Coastal States relieved drought conditions in California which have existed since November; and along the leading edge of cold air snowfalls were frequent and winds sometimes excessive. Weekly temperature averages were below normal by 18° in north-central Montana where 2 weeks ago they averaged more than 24° above. Subzero minima were experienced as far south as Kansas, Missouri, the southern Great Lake States, and southeastern New York with La Guardia Field recording -3° on the morning of the 15th. On this same date, Boonville reported a low of -55° which is the lowest temperature ever observed in New York State. Numerous states in the North reported the coldest weather in many years. In that portion of the country not under the influence of the Arctic air masses, temperatures were near to much above normal. Temperatures were exceptionally mild in Arizona, New Mexico and Texas, with average departures of the week ranging from 6° to 12° above normal. In addition to the Pacific coastal area, precipitation totals were moderate to heavy in northern portions of the middle Mississippi Valley, throughout the Ohio Valley, and in the Middle Atlantic States, also in eastern Arizona, extending into western New Mexico and over southwestern Colorado. Among the heavier weekly accumulations were 3.74 inches at Tatoosh Island, Washington, 2.65 at San Diego, California, 1.41 at Blanding, Utah, and 2.00 inches at Durango, Colorado.

A line extending from southern Nebraska through central Virginia marked the southern border of the 1-inch snow cover at lower elevations on Monday. While Oregon reports the lack of snow cover of serious concern, the Washington wheat-section is now covered with 1 to 3 inches. One of the greatest depths at lower elevations is 36 inches at Houghton, Michigan. At higher elevation in the West, Mount Baker Lodge, Washington, has 131 inches; West Yellowstone, Montana, 36 inches; Crater Lake, Oregon, 55 inches, and Soda Springs, California, 39 inches. Ice thickness reports this week include 12 inches at Huron, South Dakota on the James River, and 18 inches at Bismarck, North Dakota and 15 inches at Williston, North Dakota on the Missouri; 18 inches at Caribou and 16.5 inches at Greenville in Maine; 11 inches at Coudersport, Pennsylvania; and 14 to 20 inches in northern Wisconsin and Minnesota. (Summary Supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID - OKLAHOMA - General light infestation in Canadian, Oklahoma and the northern part of McClain and Grady Counties. Counts from 100 to 4000 per square foot of alfalfa crown. (Coppock). TEXAS - Medium infestations on alfalfa in Brazos and Burleson Counties. (Randolph). KANSAS - Occurring in nearly every county in eastern one-third of State. All stages present and aphids feeding where alfalfa plants were in favorable condition. (Burkhardt et al., Jan. 7). ARKANSAS - Infestations heavy some areas of southwestern part of State. Some alfalfa being killed. (Barnes, Jan. 8). NEW JERSEY - Survey throughout State revealed no infestations. (N. J. Ins.-Dis. Newslr.).

A MITE (possibly Penthaleus major) - ARKANSAS - Reported killing oat stands in Miller County. (Barnes, Jan. 8).

MEADOW SPITTLEBUG (Philaneus leucophthalmus) - NEW JERSEY - The average number of eggs masses in fall, 1956, was 1.8 per field, compared with 1.2 in fall 1955. In the 1956 growing season, infestations were low, being four times lower than 1954 and twice as low as 1955. On the basis of surveys, prospects for infestation in 1957 are low. (N. J. Ins.-Dis. Newsl.)

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - Preliminary survey results in Warren County show infestations as heavy as in areas of Salem County. Trouble expected in northern areas. Some fields in Sussex County also have considerable infestations, based on number of eggs deposited in alfalfa stems. (N. J. Ins. Dis. Newsltr.).

FRUIT INSECTS

WOOLLY APPLE APHID (Eriosoma lanigerum) - VIRGINIA - Severe on roots of apple trees in an Albemarle orchard. Fifteen-year-old trees severely stunted. (Raffensperger, Wingard).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - In eastern area, 45,124 trees were inspected on 1173 properties. In a grove of 700 trees at Palo Atlo, Tamps. near Hidalgo, 30 trees on one property were found infested, Dec. 17 and 18. Spraying begun immediately. Property was previously infested and spraying completed about one year ago (Mex. Reg. PPC, Jan. 11).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARKANSAS - Through November, 10,460 bushels of gin trash were examined from sites in 50 counties. A total of 194 larvae were found in 14 counties. Inspections of lint cleaners in eight counties showed four larvae, all from Hempstead County. A total of 7063 bolls from 30 fields in nine counties were examined and nine larvae were recovered from Crawford, Little River, Logan, Polk and Sevier Counties. (Barnes, Jan. 8).

Boll Weevil Hibernation Counts in Arkansas and Georgia: ARKANSAS - Forty-four trash samples for hibernation studies were processed for Hempstead, Columbia and Nevada Counties. The average number of weevils per county is as follows: Hempstead, 1398; Columbia, 628; Nevada, 942. Average for the area was 989. Hempstead County in winter of 1955 showed 1777 weevils average per acre. (Barnes, Jan. 8). GEORGIA - Fall examinations of surface woods trash were made in four regions from Nov. 12 to Dec. 5. The average was 1,936 live weevils per acre, about two and one-half times more than the 799 count in 1955 and higher than the 1169 state average for six years. Averages by region as follows: northeast (Gordon County) 2904, north central (Spalding, Butts, Pike, Henry and Lamar) 2299, east central (Burke) 774, south (Tift) 1355. Five samples or 90 square feet were taken from each of 50 farms. Live weevils were found on 68 percent of farms examined. The maximum number found per acre was 21,780 on one farm in Lamar County. (Beckham).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

CABBAGE LOOPER (Trichoplusia ni) - PENNSYLVANIA - Abundant on roses in greenhouse in Columbia County, Dec. 12. Det. S. W. Frost. (Gesell).

MAGNOLIA SCALE (Neolecanium cornuparvum) - VIRGINIA - Heavy on magnolia twigs in Leesburg, Loudoun County. (Amos).

ORANGE TORTRIX (Argyrotaenia citrana) - OREGON - Larvae webbing tips of 200 Norway spruce plants in a Gresham greenhouse Jan. 9. (Capizzi).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - OKLAHOMA - Survey of carcasses at Oklahoma City slaughtering plants showed the following: 64 aged cows averaged 3.9 grubs per animal; 61 fat young cows averaged 6.7 grubs; 63 fat heifers averaged 7.4 grubs; and 31 fat yearling steers averaged 12.3 grubs per animal. More dead than live grubs in animals, especially fat animals. (Coppock). KANSAS - In Ellis County, 60 large steers averaged 2.7 grubs per animal. In Riley County, 32 local feeder calves averaged only 1.8 grubs per animal. (Matthew).

EAR TICK (Otobius megnini) - OKLAHOMA - Heavier infestation in Custer County than for some time. (Griffin).

TICKS - OKLAHOMA - Fewer on native deer in eastern area than in previous years. (Carlile).

STORED PRODUCTS INSECTS'

STORED GRAIN INSECTS - OKLAHOMA - Light infestations of the following noted in three feed and seed establishments in Pottawatomie and Oklahoma Counties: LESSER GRAIN BORER (Rhyzopertha dominica), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), INDIAN-MEAL MOTH (Plodia interpunctella) and DERMESTIDS. (Coppock). ARKANSAS - In the Stuttgart-Dewitt area, 228 bins of rice were examined during December. Of these 45 were infested as follows: 8 bins with Tribolium sp.; one bin with Sitophilus oryza; 18 bins with Oryzaephilus surinamensis; 7 bins with Sitotroga cerealella; two bins with Plodia interpunctella; two bins with Rhyzopertha dominica; and 37 bins with PSCOCIDS and two bins with FUNGUS BEETLES. (Rouse). OREGON - Survey of grain storage sites in Lane County showed a high percent of Lepidoglyphus destructor and other mites, Oryzaephilus surinamensis and Tribolium castaneum. (Krantz, O'Brien).

KHAPRA BEETLE (Trogoderma granarium) - OKLAHOMA - Statewide survey begun. No infestations to date. (Coppock). OREGON - A survey of seven grain storage sites in Grant County in December showed no infestations. (Chinn).

MISCELLANEOUS INSECTS

CLOVER MITE (Bryobia praetiosa) - VIRGINIA - Extremely heavy in and outside industrial plant at Waynesboro. (Bobb).

BROWN-BANDED ROACH (Supella supellectilium) - VIRGINIA - Heavy in home in Rockbridge County. (Rowell). UTAH - Infesting several homes at Logan and one in Salt Lake City. (Knowlton).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Feltia subt.	Laphyg. frugip.	Perid. marg.
<u>TEXAS</u>						
College Station 1/11/57	3		4	1	3	
*Winter Haven 12/16-31	25	5	3	9	2	15
<u>ARKANSAS</u>						
Stuttgart 12/20/56-1/2/57	12	6				10
Fayetteville 12/21/56- 1/1/57		1				
<u>SOUTH CAROLINA (Counties)</u>						
Charleston 1/1-6/57	13	9		19		
Oconee 12/29/56-1/4/57		2		2		

*Also includes 1 Heliothis zea

SUMMARY OF INSECT CONDITIONS - 1956

NEW JERSEY

Reported by Cooperative Economic Insect Survey, N. J. Dept. Ag. and Dept. Ent., Rutgers Univ., Cooperating

Cereal and Forage Insects: ALFALFA WEEVIL (Hypera postica) caused heavy commercial damage in all but the northwestern sections of New Jersey. In three year's time this insect has spread essentially throughout the entire State, causing heavy damage wherever it occurs. PEA APHID (Macrosiphum pisi) caused moderate damage to alfalfa in southern New Jersey only. A late-occurring (June) population increase was noticed in central area, but little damage to alfalfa was sustained. MEADOW SPITTLEBUG (Philaenus leucophthalmus) populations were quite low in 1956. In red clover plantings in central counties, some damage was incurred, although major damage to alfalfa was not observed. POTATO LEAFHOPPER (Empoasca fabae) was found throughout the State in considerable numbers, but populations did not reach high levels and generally were less than one per sweep at any time during the season. EUROPEAN CORN BORER (Pyrausta nubilalis) caused the heaviest damage to field and sweet corn in several years. Small grains were heavily damaged in some areas, and a great variety of crops not usually considered to be host plants for the corn borer were attacked. HESSIAN FLY (Phytophaga destructor) populations were lower in 1956 than in 1955 in all counties, probably due to a general later planting caused by drought conditions. Populations of WHEAT STEM SAWFLIES (Cephus pygmaeus and C. tabidus) were lower in 1956 than in 1955 in all counties surveyed. CORN FLEA BEETLE (Chaetocnema pulicaria) was less numerous than in previous years. Bacterial wilt, which follows the feeding of this pest, did not appear as a major problem. FALL ARMYWORM (Laphygma frugiperda) was first noted about August 7. Damage in general was not heavy. CORN LEAF APHID (Rhopalosiphum maidis) was more numerous than for many years.

Vegetable Insects: ASPARAGUS BEETLES (Crioceris asparagi and C. duodecimpunctata) moved into fields about May 1 and were very numerous by May 15; heavy feeding was observed as early as May 9 in Salem County, and a considerable amount of damage was done this year. A high population of beetles was noticed on asparagus brush in the fall months and may indicate a heavy infestation in 1957. IMPORTED CABBAGEWORM (Pieris rapae) was first reported in the adult stage on May 8. By May 15 eggs were observed throughout the State, and another brood of moths was active about July 10 throughout the entire State. Damage from this pest was not severe in 1956. CABBAGE MAGGOT (Hylemya brassicae) did not cause heavy damage in 1956. CABBAGE APHIDS were present throughout the year, but no particular damage was reported. A FLEA BEETLE (Phyllotreta cruciferae) was observed causing considerable damage in most areas from May to July. CABBAGE LOOPER (Trichoplusia ni) was observed only in small numbers during the spring. During late summer high populations built up, and heavy damage was reported in most areas. This species was also reported on potato plants at Cranbury. CARROT WEEVIL (Listronotus oregonensis) was found on

parsley and carrots but less than normal. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) was more prevalent than during the past several years. Severe damage to tomato and potato plantings was reported in many areas. A SERPENTINE LEAF MINER (Liriomyza sp.) was present and damaging in numbers on tomato plantings all over southern New Jersey during August. This is the first heavy infestation in several years. TOMATO RUSSET MITE (Vasates lycopersici) did not cause the usual amount of damage. TWO-SPOTTED SPIDER MITE infestations were present, but populations did not reach high levels in many areas. MEXICAN BEAN BEETLE (Epilachna varivestis) was present in somewhat larger numbers than in previous years, but populations were still low compared with populations ten years ago. RHUBARB CURCULIO (Lixus concavus) caused fairly heavy damage to commercial plantings in central New Jersey.

Fruit Insects: PEACH TREE BORER (Sanninoidea exitiosa) was found in 20 percent of the peach trees surveyed in the spring. LESSER PEACH TREE BORER (Synanthedon pictipes) was generally found throughout the State, but populations were lower than in previous years. EUROPEAN RED MITE (Metatetranychus ulmi) was generally present throughout the State. Due to rather cool wet conditions, mites were not as serious as in 1955. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) showed considerable numbers for the first brood, but subsequent broods did not cause noticeable damage. CODLING MOTH (Carpocapsa pomonella) did not emerge as a major pest in 1956. Apparently, weather conditions worked against high populations of this pest. Both ROSY APPLE APHID (Anuraphis roseus) and APPLE APHID (Aphis pomi) were present in large numbers in 1956. UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) was noted throughout the southern part of the State causing slight damage to foliage of several varieties. Infestations of EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) were present in Bergen and Passaic Counties but were not noted as spreading in any additional areas of the State. APPLE MAGGOT (Rhagoletis pomonella) caused more than the usual damage in 1956, probably due to heavy rains which reduced arsenical residues required in control. PLUM CURCULIO (Conotrachelus nenuphar) caused considerable damage to apple and peach plantings. ORIENTAL FRUIT MOTH (Grapholitha molesta) was somewhat more numerous in 1956. MITES (Tetranychus sp.) were prevalent throughout the State on strawberry plantings and caused some defoliation and damage. STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) caused more than the usual damage in 1956. The second brood was particularly noticeable. BLUEBERRY MAGGOT (apple maggot) was heavier in 1956 than in the preceding three years. The cranberry blossomworm, the cranberry tipworm, and the sparganthis fruitworm were heavier than normal in cranberry plantings.

Insects of Ornamentals, Forests, and Shade Trees: EASTERN TENT CATERPILLAR (Malacosoma americanum) caused usual damage as did the ELM LEAF BEETLE (Galerucella xanthomelaena). MIMOSA WEBWORMS (Homadaula albizziae) were again reported causing defoliation of mimosa trees in southern New Jersey. MAPLE BLADDER - GALL MITES

(Vasates quadripedes) were very numerous during July. JAPANESE BEETLE (Popillia japonica) was more numerous in southern New Jersey than for the past two or three years. VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) defoliated several thousand acres of scrub oak in the southern counties.

Household Pests: PAVEMENT ANT (Tetramorium caespitum) caused a great deal of anguish to householders occupying homes with concrete slab foundations. Two colonies of rotten-wood TERMITES (Zootermopsis angusticollis) were observed in Douglas-fir shipments from Oregon. The EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) caused the usual amount of damage.

SUMMARY OF INSECT CONDITIONS - 1956

SOUTH DAKOTA

Reported by J. A. Lofgren & W. M. Hantsbarger

Highlights: EUROPEAN CORN BORER populations were the lowest for several years. ARMY CUTWORMS were more abundant and destructive than usual. GRASSHOPPERS seem to be on the increase in the State, especially in the Black Hills area where a heavy infestation exists. GARDEN WEBWORMS were more abundant than usual. SPOTTED ALFALFA APHIDS made their first appearance in the State during the latter part of August. CORN LEAF APHID populations were much higher than usual and some damage was reported to grain sorghums.

Cereal and Forage Insects: ARMY CUTWORM (Chorizagrotis auxiliaris) infestations in the spring were found in many sections of the State with most severe infestations in Jones, Jackson, Haakon, Washabaugh, and the eastern parts of Pennington and Custer Counties. Here, many acres of wheat, barley, flax and alfalfa were severely damaged. Populations in some fields averaged as high as 54 larvae per square yard. One isolated infestation in Brookings County completely destroyed a flax field. Loss to small grain in the State is estimated at 197,520 bushels of wheat, 43,928 bushels of barley and 114,526 bushels of oats or a monetary loss of approximately \$578,392. Damage estimates to alfalfa are not available but approximately 7500 acres were treated for control. During the spring light infestations of WIREWORMS were noted in the eastern half of the State on small grains and corn. Counts averaged 11 larvae per square yard, largely Limonium sp. One infestation of Melanotus sp. in Union County averaged 6 larvae per square yard. Actual damage from wireworms was slight. As a preventative measure 25,000 acres of soil were treated. FALSE WIREWORM (Eleodes sp.) infestations were found scattered throughout the winter wheat areas during spring. Counts averaged 8 larvae per square yard and only slight damage was noted. EUROPEAN CORN BORER (Pyrausta nubilalis) - Spring surveys indicated a winter survival of 71 percent in the 20 counties surveyed. Spring was retarded, and as a result, pupation did

not get underway until the first part of June. Egg masses began to appear the latter part of June. At the time of pupation and moth emergence the weather had turned very hot and dry. The majority of eggs were hatching the first part of July and by the second week shot-hole injury was prevalent throughout the corn-growing areas. The first brood infestation, which was light, averaged approximately 9 percent with an average of 15 borers per 100 plants. First-brood pupation started around the 23rd of July and reached 50 percent in the east-central region, by the 18th of August. Flight of second-brood moths, which began around the middle of August, was light. The fall survey indicates an average of 52 borers per 100 plants and a 35 percent infestation. During the year, the borer was reported for the first time from Corson County. It is estimated that approximately 308,400 bushels of corn were lost to the borer, representing a monetary loss of \$351,576. Approximately 4000 acres were treated for control. Several heavy local infestations of BILLBUGS (Calendra sp.) occurred in the southeastern area on corn. One infestation in Turner County resulted in the complete loss of six acres of corn and another infestation in Lincoln County showed ten acres of corn severely damaged. Incidence of CORN ROOTWORM damage was light although adults of NORTHERN CORN ROOTWORM (Diabrotica longicornis), SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardii) and WESTERN CORN ROOTWORM (Diabrotica virgifera) were found quite prevalent throughout the State. Mixed populations of 20 to 30 beetles per corn plant were observed in the southeast. Later in the season many adults went to alfalfa where counts showed an average of 8 beetles per 10 net sweeps. Approximately 35,000 acres of corn were treated for control. CORN LEAF APHID (Rhopalosiphum maidis) was numerous with infestations reported from all parts of the State. Heavy infestations were noted in the southern areas where some damage to grain sorghums appeared. It is estimated that 1500 acres were treated for control. Hatching of GRASS-HOPPER eggs did not get underway until the middle of June because of the cool spring. Immediately following hatching, the weather turned very hot and dry, materially aiding the development of young nymphs. Scattered infestations with accompanying damage began to appear in the east-river area and by the first part of July, movement into grain and young corn fields was observed. Many localities showed a population of 15 nymphs per square yard in alfalfa. A heavy infestation of Camnula pellucida developed in the Black Hills area; counts averaged 60 per square yard in some localities. This same area also had a fairly high population of TWO-STRIPED GRASSHOPPER (Melanoplus bivittatus) which averaged 18 per square yard. The heaviest infestation of cropland areas appeared in the northeastern regions of the State where counts in alfalfa ranged as high as 40 nymphs per square yard at mid-summer. These infestations were comprised principally of the RED-LEGGED GRASSHOPPER (Melanoplus femur-rubrum). In general, the rangeland infestation throughout the State was non-economic except those in the Black Hills. Sully and Butte Counties were the only two counties outside of the Black Hills showing an economic infestation on rangeland. Egg surveys made in the fall show scattered economic infestations in the eastern regions with a few localized areas in the northeast rated as threatening. Considering the cost of chemicals for control as loss, grasshoppers caused a loss to South Dakota estimated at

\$713,608. Approximately 80,000 acres were treated for control. SPOTTED ALFALFA APHID for the first time was reported in South Dakota. It was first discovered in the southeast corner of the State during the latter part of August. Infestations spread until 23 counties were infested by November 1. Counts indicate a very light population in its most northern range. The highest populations developed in the extreme southeastern counties where some damage was reported. SWEETCLOVER WEEVIL (Sitona cylindricollis) became active and started feeding in April. Counts reached 2 to 3 adults per crown on sweetclover in southeastern areas. Slight damage to new seedlings occurred in some localities. During the year approximately 3000 acres of sweetclover were treated for control. ALFALFA WEEVIL (Hypera postica) continues to spread eastward. New county records include Bennett and Corson Counties where the population is light, ranging from 3 to 5 larvae per 50 net sweeps. Populations in the western area were quite high, reaching 50 larvae per net sweep in untreated fields of Butte and Lawrence Counties. Actual damage to first cutting of alfalfa was light due to the late appearance of the weevil. Damage was limited mainly to delayed first cuttings. Approximately 24,000 acres were treated for control. PEA APHID (Macrosiphum pisi) began to build up during September in alfalfa fields. Counts reached as high as 300 aphids per net sweep by the first part of October. LYGUS BUGS in the east-river area did not become abundant. Damage reported by growers was limited because of the generally poor season for alfalfa seed production. Populations throughout the growing season upon alfalfa averaged from 2 to 4 bugs per net sweep. Populations in the west-river area were somewhat higher with near 8 bugs per net sweep. ALFALFA PLANT BUG (Adelphocoris lineolatus), although commonly found in alfalfa, was not abundant. Counts throughout the growing season averaged 2 bugs per net sweep. GARDEN WEBWORM (Loxostege similalis) proved troublesome in certain areas. In Lyman County a population was estimated at from 10 to 15 larvae per square foot and some damage resulted to wheat. In Beadle County a heavy infestation moved into corn with the result that approximately 40 percent of the ears were infested with from 1 to 15 larvae. Several alfalfa fields throughout the eastern part of the State were lightly infested, although economic damage was reported from an alfalfa field in Jerauld County. ALFALFA CATERPILLAR (Colias philodice eurytheme) populations were in general quite light. Larvae first appeared in alfalfa around the middle of May. Populations reached 8 larvae per 10 net sweeps by mid-August.

Fruit Insects: Several complaints were received regarding infestations of PLUM CURCULIO (Conotrachelus nenuphar) on apples and plums throughout the State. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) infestations were found on apple trees in the eastern areas. Some leaf damage noted from their feeding but infestations were generally light.

Truck Crop Insects: POTATO FLEA BEETLE (Epitrix cucumeris) became quite numerous in gardens of eastern areas where considerable damage resulted to potatoes and tomatoes. One potato field in Codington County showed a population of 20 beetles per net sweep. The first adult of POTATO LEAFHOPPER (Empoasca fabae) was reported on May 15. By the first part of June populations had increased to one adult per 10 sweeps in alfalfa.

In July and August leafhoppers became very abundant in gardens and potato fields of the eastern areas. One potato field in Codrington County showed a population of 46 adults per 10 net sweeps during August. Many untreated potatoes showed characteristic "hopperburn." It is estimated that 3860 acres of potatoes were treated for control. MELON APHID (Aphis gossypii) infestations in some eastern areas damaged cucumbers and other vine plants.

Forest, Ornamental and Shade Tree Insects: A heavy infestation of EUROPEAN ELM SCALE (Gossyparia spuria) was reported from Lawrence County. Crawlers became active in April. CANKERWORMS were numerous in western areas and many complaints were received of elm trees being defoliated by these pests. POPLAR and WILLOW BORER (Sternochetus lapathi) was found damaging willow in the Brookings area. FALL WEBWORM (Hyphantria cunea) infestations were noted all through the State. Infestations appeared heaviest on cottonwoods along the Missouri River Valley and on chokecherries and aspen in the Black Hills. ELM SAWFLY (Cimbex americana) and MOURNING CLOAK BUTTERFLY (Nymphalis antiopa) larvae were reported from several localities feeding on elm. BRONZE BIRCH BORERS (Agrilus anxius) damaged many white birch trees in the Brookings area.

Insects of Man and Animals: CATTLE LICE (Linognathus vituli, Haematopinus eurysternus and Bovicola bovis) were abundant on untreated cattle throughout the State. CATTLE GRASS (Hypoderma spp.) occurred in usual numbers. MOSQUITOES were a nuisance in the eastern part of the State early in the spring but hot, dry weather reduced the populations drastically. Irrigated areas of the west supported an abundance of mosquitoes throughout the summer. HORN FLY (Siphona irritans) and STABLE FLY (Stomoxys calcitrans) were only locally abundant. Approximately 45 percent of the cattle received some treatment for horn flies. HOUSE FLY (Musca domestica) was present in usual numbers and was especially annoying in the fall. Several outbreaks of ITCH MITE (Sarcoptes scabiei) appeared throughout the state. It is estimated that 30 percent of the swine were treated for mange.

Stored Grain Insects: Heavy infestations of A DERMESTID (Trogoderma boron) existed in stored wheat in central and southern counties. INDIAN-MEAL MOTH (Plodia interpunctella) infestations were reported from many localities throughout the eastern area, feeding on shelled corn, sorghum and other materials. Several reports were received of CADELLE (Tenebroides mauritanicus) infestations in stored wheat.

Household Insects: SUBTERRANEAN TERMITES were found damaging homes in Butte and Minnehaha Counties. One infestation was noted from a business establishment in Bon Homme County. Several infestations of the BROWN-BANDED COCKROACH (Supella supellectilum) were reported from homes in the eastern area. Many complaints were received of BRAN BEETLES (Tribolium spp. and Oryzaephilus surinamensis) infesting stored cereals and flour in homes. Many reports were received of CARPET BEETLES and CLOTHES MOTH infestations throughout the State.

Beneficial Insects: DAMSEL BUGS (Nabis spp.) were quite prevalent in alfalfa fields. In some areas populations reached 7 bugs per 10 net sweeps. LADY BEETLES (Hippodamia spp.) became numerous in the fall, especially in alfalfa fields heavily infested with pea aphids and spotted alfalfa aphids. In some localities populations as high as 40 larvae and 6 beetles per 10 net sweeps were recorded.

SUMMARY OF INSECT CONDITIONS - 1956

COLORADO

Reported by Colorado Insect Detection Committee

Cereal and Forage Insects: Wheat: PALE WESTERN CUTWORM (Agrotis orthogonia) and the ARMY CUTWORM (Chorizagrotis auxiliaris) infested a large portion of the wheat land in northeastern Colorado. Cutworms averaged 4 to 12 per lineal foot. Ninety-three percent of the population was the pale western cutworm. Estimated loss was 195,773 bushels, or 1.4 percent. BROWN WHEAT MITE (Petrobia latens) and TWO-SPOTTED SPIDER MITE (Tetranychus telarius) were the cause of some loss in scattered areas of the State. The BEET WEBWORM (Loxostege sticticalis) and the ALFALFA WEBWORM (Loxostege commixtalis) were responsible for losses of stand in fall-planted wheat in Baca, Larimer and Boulder Counties. CARROT BEETLE (Ligyrus gibbosus) reduced the wheat stand in some areas in Yuma County. Alfalfa: ALFALFA WEEVIL (Hypera postica) was a problem in Larimer, Weld, La Plata, Montezuma, Delta, Boulder, Douglas and Garfield Counties. In Otero County the area found infested in 1955 has increased in size. PEA APHID (Macrosiphum pisi) was responsible for the heaviest damage to alfalfa in all alfalfa growing areas of the State. SPOTTED ALFALFA APHID caused damage in Bent, Prowers, Otero, Crowley, Pueblo, Weld, Montezuma, and Mesa Counties. Other insects which occurred on alfalfa were BEET WEBWORM, ALFALFA WEBWORM, and ALFALFA CATERPILLAR (Colias philodice eurytheme). These insects, though of general distribution, caused losses only in isolated areas. Lygus species and the CLOVER SEED CHALCID (Bruchophagus gibbus) reduced the alfalfa seed crop. Complete information on the amount of loss is not available. The loss of alfalfa for hay has been estimated at 160,592 tons, or 11 percent. The loss of alfalfa seed in the northeastern counties has been estimated at 13,350 pounds. Corn: CORN EARWORM (Heliothis zea) has been the major insect on corn with the highest population in the Arkansas Valley; Otero, Pueblo, Prowers, Bent, Crowley, and Montrose and Mesa Counties of western Colorado. The TWO-SPOTTED SPIDER MITE occurred at damaging levels in Weld, Morgan, and Adams Counties and isolated areas in the Arkansas Valley. Some reduction of the corn crop can be attributed to the CORN LEAF APHID (Rhopalosiphum maidis) in all areas of the State. Soil-borne insects on corn have included the SEED-CORN MAGGOT (Hylemya cilicrura); WESTERN CORN ROOTWORM (Diabrotica virgifera) and WIREWORMS. Loss of corn has been estimated at 440,509 bushels, or 3.9 percent. Barley: Loss of barley can be attributed to the CORN LEAF APHID, ENGLISH GRAIN APHID

(Macrosiphum granarium), PALE WESTERN CUTWORM, ARMY CUTWORM, BROWN WHEAT MITE, and TWO-SPOTTED SPIDER MITE. Total loss of barley has been estimated at 99,325 bushels, or 2.5 percent. Sorghum: The primary insect on sorghum has been the CORN LEAF APHID. A few fields were infested with PALE WESTERN CUTWORM. Total loss of sorghum was estimated at 110,000 bushels, or 1.5 percent. Grasses on rangeland: The major insect has been GRASSHOPPERS. In 1956 on rangeland, 705,000 acres were designated to be heavily infested and 368,051 acres had controls applied. Total rangeland infestation of 1,195,000 acres is expected in 1957. Total cropland, private, expected to be 438,000 acres.

Truck and Garden Crops: Sugar Beets: Major loss has been due to the SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) in Larimer and Weld Counties. Other insects infesting sugar beets were BEET WEBWORM, BEET LEAFHOPPER (Circulifer tenellus) PALE WESTERN CUTWORM. Total estimated loss of sugar beets from insects is 19,000 tons, or 0.9 percent. Beans (dry and snap): MEXICAN BEAN BEETLE (Epilachna varivestis) has been the most troublesome insect on the bean crop in all areas raising beans. Total estimated loss of beans is 8,300 tons, or 10 percent. Potatoes: Insects infesting potatoes were POTATO PSYLLID (Paratrioza cockerelli), TUBER FLEA BEETLE (Epitrix tuberis), PALE-STRIPED FLEA BEETLE (Systema blanda), COLORADO POTATO BEETLE (Leptinotarsus decemlineata), POTATO APHID (Macrosiphum solanifolii), GREEN PEACH APHID (Myzus persicae), SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) and WIREWORMS. Control measures were a major factor in reducing loss. The total estimated loss is 368,722 sacks, or 3.6 percent. Onions: ONION MAGGOT (Hylemya antiqua) and SEED-CORN MAGGOT (Hylemya cilicrura) were the cause of loss in Weld, Adams, Otero, Prowers and Pueblo Counties. LESSER BULB FLY (Eumerus tuberculatus) and the ONION MAGGOT caused losses in Montrose and Delta Counties. ONION THRIPS (Thrips tabaci) has been present in all onion-growing areas of the State. Total loss, 1,800 tons, or 2.2 percent. Tomatoes: Damage to tomatoes resulted from the TOMATO PSYLLID (Paratrioza cockerelli), TOMATO FRUITWORM (Heliothis zea), TOMATO HORNWORM (Protoparce quinquemaculata), and FIELD CRICKET (Acheta assimilis). Losses occurred in Weld, Adams, Mesa, Delta, Otero, Crowley, Pueblo Counties. Total loss 537 tons, or 1 percent. Cabbage: Insects on cabbage were the CABBAGE APHID (Brevicoryne brassicae), BEET WEBWORM, CABBAGE LOOPER (Trichoplusia ni), CABBAGE MAGGOT (Hylemya brassicae), SPINACH LEAF MINER (Pegomyia hyoscyami), HARLEQUIN BUG (Murgantia histrionica), DIAMONDBACK MOTH (Plutella maculipennis). Total loss 1154 tons, or 2.9 percent. Losses occurred in Weld, Adams, Alamosa, Conejos, Costilla, and Rio Grande Counties. Spinach: Heavy loss reported from the BEET WEBWORM, and some loss from the SPINACH LEAF MINER. Losses occurred in Alamosa, Conejos, Costilla, Fremont, and Rio Grande Counties. Total loss, 7,000 bushels, or 3.9 percent. Green peas: In Weld, Adams, Alamosa, Conejos, Costilla and Rio Grande the major loss has been from infestation of PEA APHID (Macrosiphum pisi). There were traces of an infestation of PEA WEEVIL (Bruchus pisorum) in Weld County. Total loss 152 tons, or 0.1 percent.

Lettuce: In Alamosa, Conejos, Costilla and Rio Grande Counties losses have been due to the BEET WEBWORM, and SPINACH LEAF MINER. Total loss, 5115 crates, or one percent. Cucurbits: In Weld, Adams, Pueblo, Otero and Bent Counties losses have been due to ONION THRIPS, MELON APHID (Aphis gossypii), SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi), and SQUASH BUG (Anasa tristis). Total loss, 200 tons, or 0.5 percent. Sweet corn: CORN EARWORM was the major insect in market and canning corn. SEED-CORN MAGGOT was responsible for a stand loss of 25 percent in some fields in Pueblo County. CORN LEAF APHID was present in all fields. Total loss, 140,990 crates (five dozen ears per crate), 9.6 percent. Popcorn: Major problem has been the CORN EARWORM which destroyed up to 25 percent in some fields. Counties infested were Bent, Crowley, Otero, Prowers and Pueblo. Total loss, 75,000 bushels, or 12.5 percent.

Fruit Insects: Apples: Losses have been kept low in most commercial orchards by spray programs. The major insects have been the CODLING MOTH (Carpocapsa pomonella), CLOVER MITE (Bryobia praetiosa), and the TWO-SPOTTED SPIDER MITE (Tetranychus telarius). Total loss 47,010 bushels, or 2.8 percent. Peaches: Losses have been kept to a minimum by control measures. Infestations have included Lygus sp. TWO-SPOTTED SPIDER MITE, CLOVER MITE, PEACH TWIG BORER (Anarsia lineatella), FRUIT TREE LEAF ROLLER (Archips argyrospila), PEACH TREE BORER (Sanninoidea exitiosa) and GREEN PEACH APHID (Myzus persicae). Total loss, 40,693 bushels, or 1.5 percent.

Insects Affecting Man and Animals: MOSQUITOES have been a problem in Grand, Moffat, Routt and LaPlata Counties. HOUSE FLY (Musca domestica) has been reported as being serious in one localized urban area. The invasion of households by CLOVER MITE and BLACK WIDOW SPIDER (Latrodectus mactans) during the late fall months was reported by many housewives. The presence of A SCAB MITE on cattle has been reported in the southeastern part of Colorado. There has been an increase in the number of infestations of the BROWN-BANDED ROACH (Supella supellectilium) found in Mesa County.

Forest, Ornamental and Shade Tree Insects: SIX-SPOTTED LEAFHOPPER (Macrosteles facifrons) has caused a high incidence of aster yellows in flower plantings. WHITE-LINED SPHINX (Celerio lineata) migrated onto lawns and ornamentals in the Denver area. A TENT CATERPILLAR (Malacosoma fragilis) defoliated aspen in Huerfano County. FALL WEBWORM (Hyphantria cunea) infested chokecherry and cottonwood in Larimer County. BLACK HILLS BEETLE (Dendroctonus ponderosae) was the cause of widespread damage in Huerfano, Douglas and Elbert Counties. POTATO APHID (Macrosiphum solanifolii) damaged roses and iris in Larimer and Boulder Counties. WHITE GRUBS have caused considerable damage to lawns in Larimer, Weld and Adams Counties. AN APHID (Rhopalosiphum berberidis) damaged Japanese barberry in Larimer County.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

QUEENSLAND FRUIT FLY (Dacus tryoni (Frogg.))

Economic Importance: This tephritid is a serious pest of pome and stone fruits and is apparently very destructive to some citrus varieties during peak population years. Outbreak of 1940-41 in New South Wales caused rejection of 5-25 percent of citrus at harvest. Reports indicate the need to use systematic control in fruit areas to avoid heavy losses. Some fruits, such as grapes and bananas escape injury except during peak years.

Dacus tryoni appears to be as destructive to fruit production in its Australian range as the oriental fruit fly in the countries where it appears. Commercial stone fruit orchards have been abandoned in Queensland largely due to D. tryoni.

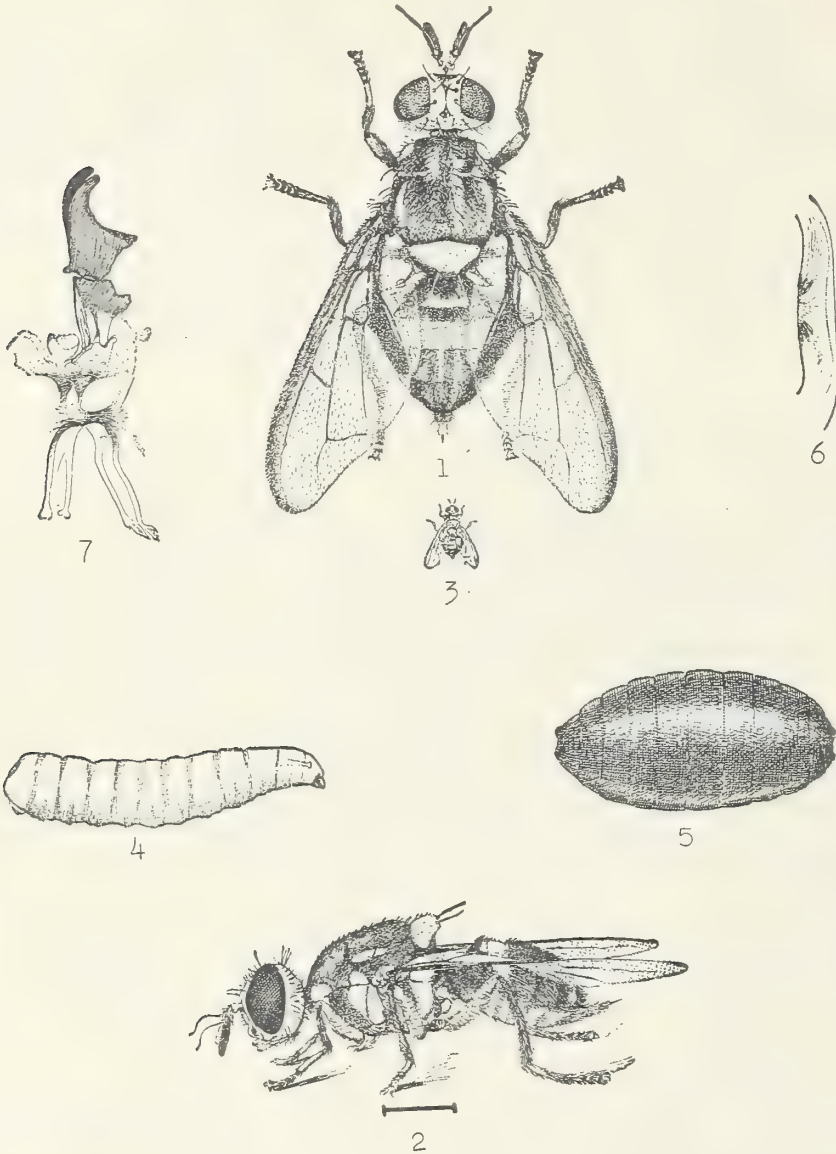
Distribution: Australia: New South Wales, Queensland, South Australia, and Victoria.

Hosts: Some of the hosts include: Papaya, sour orange, lemon, grapefruit, Mandarin orange, sweet orange, guava, cashew, cucumber, quince, persimmon, banana, loquat, fig, tomato, apple, mango, mulberry, apricot, peach, sour cherry, garden plum, nectarine, pear, grape and Rubus sp. The species has also been recorded on over 40 additional hosts.

Description: The female adult is 6 mm. long (see illustration), has a wing expanse of 10-12 mm. and transparent wings. The fly is brown marked with yellow. On the thorax a broad creamy, often pale, dorsal band runs down the scutellum and there is a well-defined narrow pale yellow stripe on each side. The abdomen is constricted at the base but broadly rounded at the tip.

Life History and Habits: This insect passes the winter (June-October) in the adult stage. Female adults, after passing through a two-week preoviposition stage following emergence from the pupae, deposit eggs in groups, up to seven eggs per group, in fruit punctures. As many as 40 larvae have been found in one peach. Under favorable conditions eggs hatch in 2-3 days and larvae are full grown in 5-7 days (average period 20 days). Pupae remain in the soil from a week in summer to a month or more in cooler weather. The total life cycle requires from 2-3 weeks in summer (February) to two months in autumn (May). Adult females live for lengthy periods and four or five overlapping generations develop annually. (Prepared in Plant Pest Survey Section in cooperation with other ARS agencies) January 18, 1957. (Continued on next page).

QUEENSLAND FRUIT FLY (Dacus tryoni (Frogg.))



1. & 2. Adult (enlarged)

3. Adult (natural size)

4. Larva (magnified 5 times)

5. Pupa (magnified 7 times)

6. Anal segment (magnified 27 times)

7. Horny mouth parts of larva (magnified 88 times)

(After Froggatt)

STATE CLEARING OFFICES
for Economic Insect Survey Reports

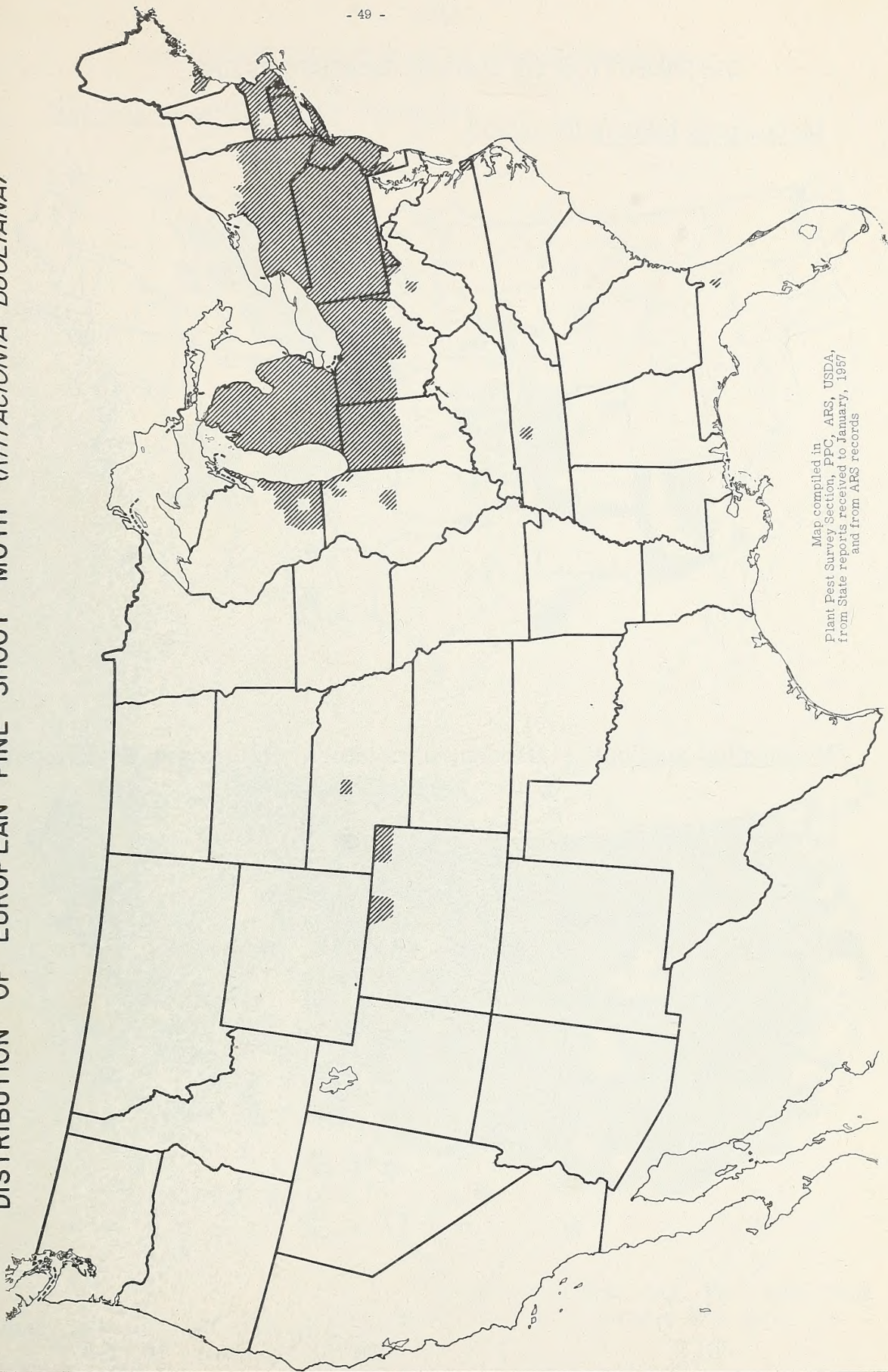
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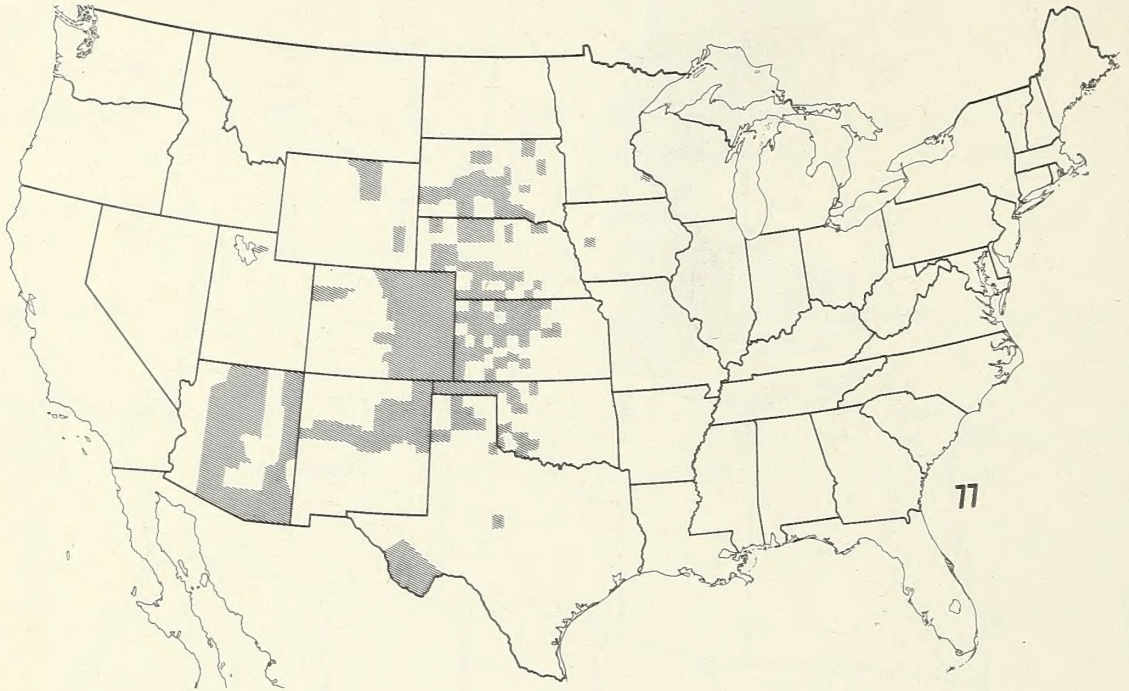
DISTRIBUTION OF EUROPEAN PINE SHOOT MOTH (*RHYACIONIA BUOLIANA*)



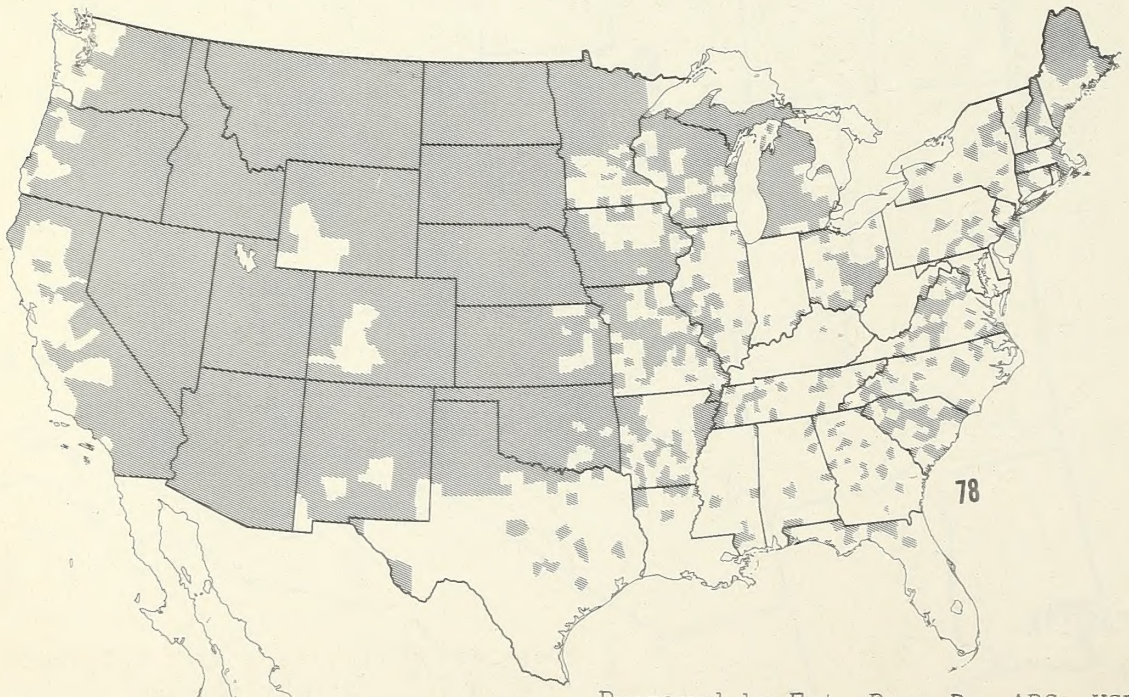
Map compiled in
Plant Pest Survey Section, PPIC, ARS, USDA,
from State reports received to January, 1957,
and from ARS records

DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus lakinus (Scudder)

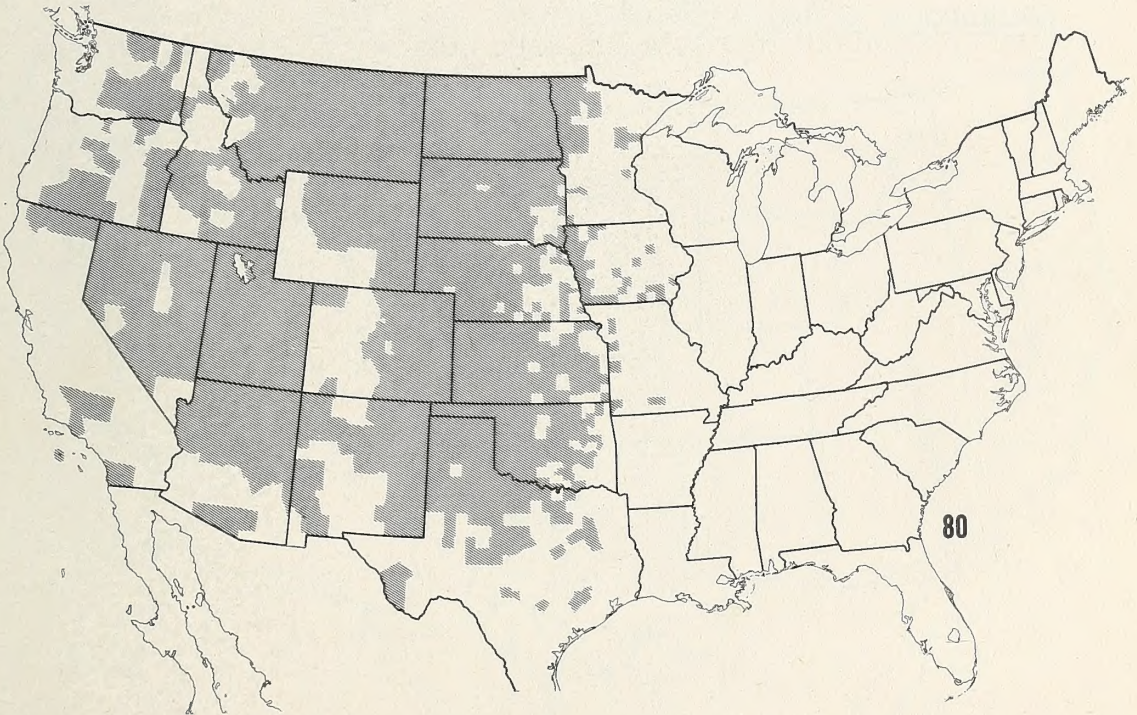
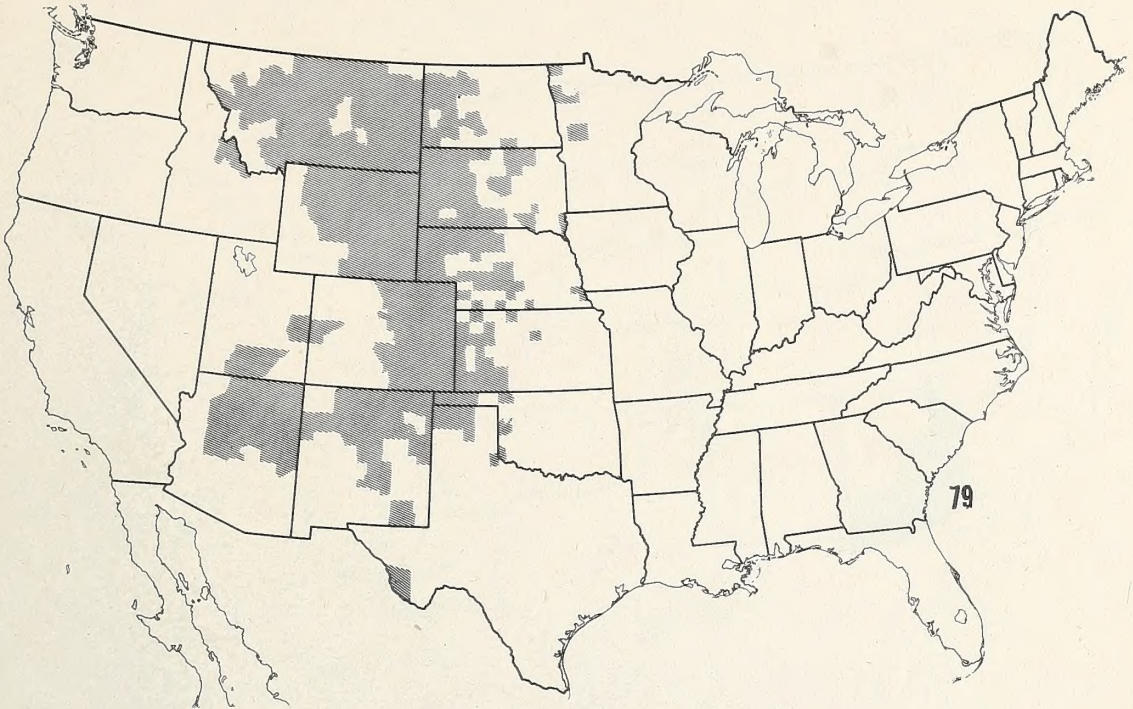


Melanoplus mexicanus (Saussure) complex Migratory grasshopper



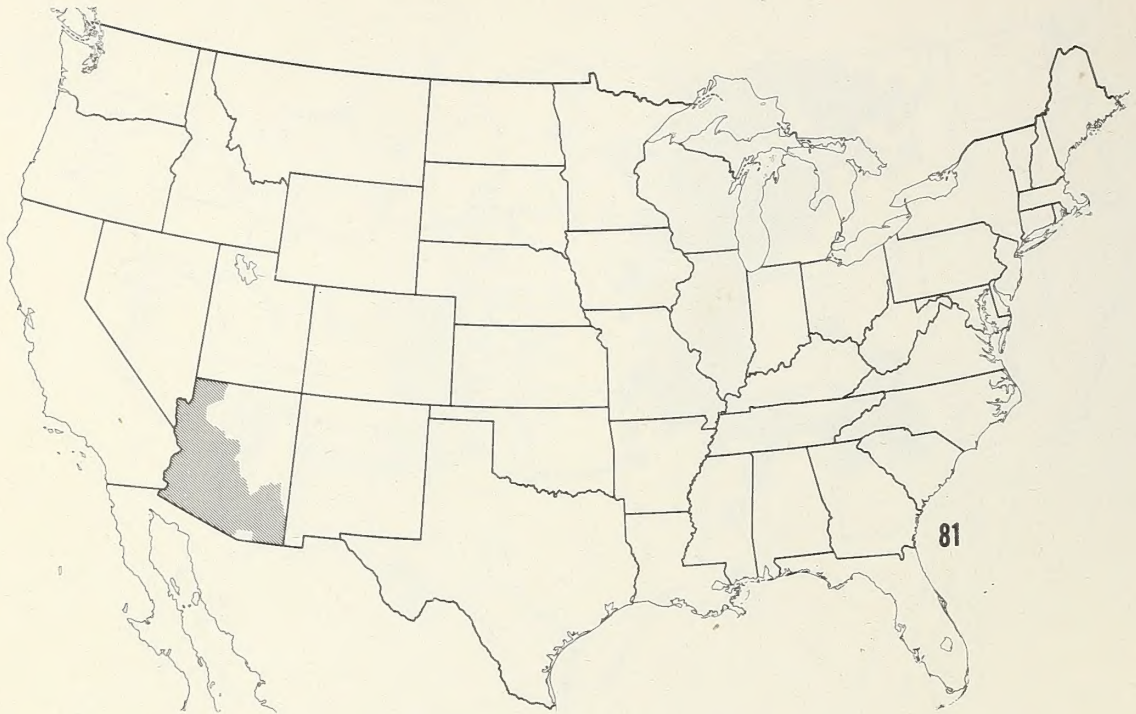
DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus occidentalis (Thomas)



DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus pictus Scudder



Melanoplus plebejus (Stal)

