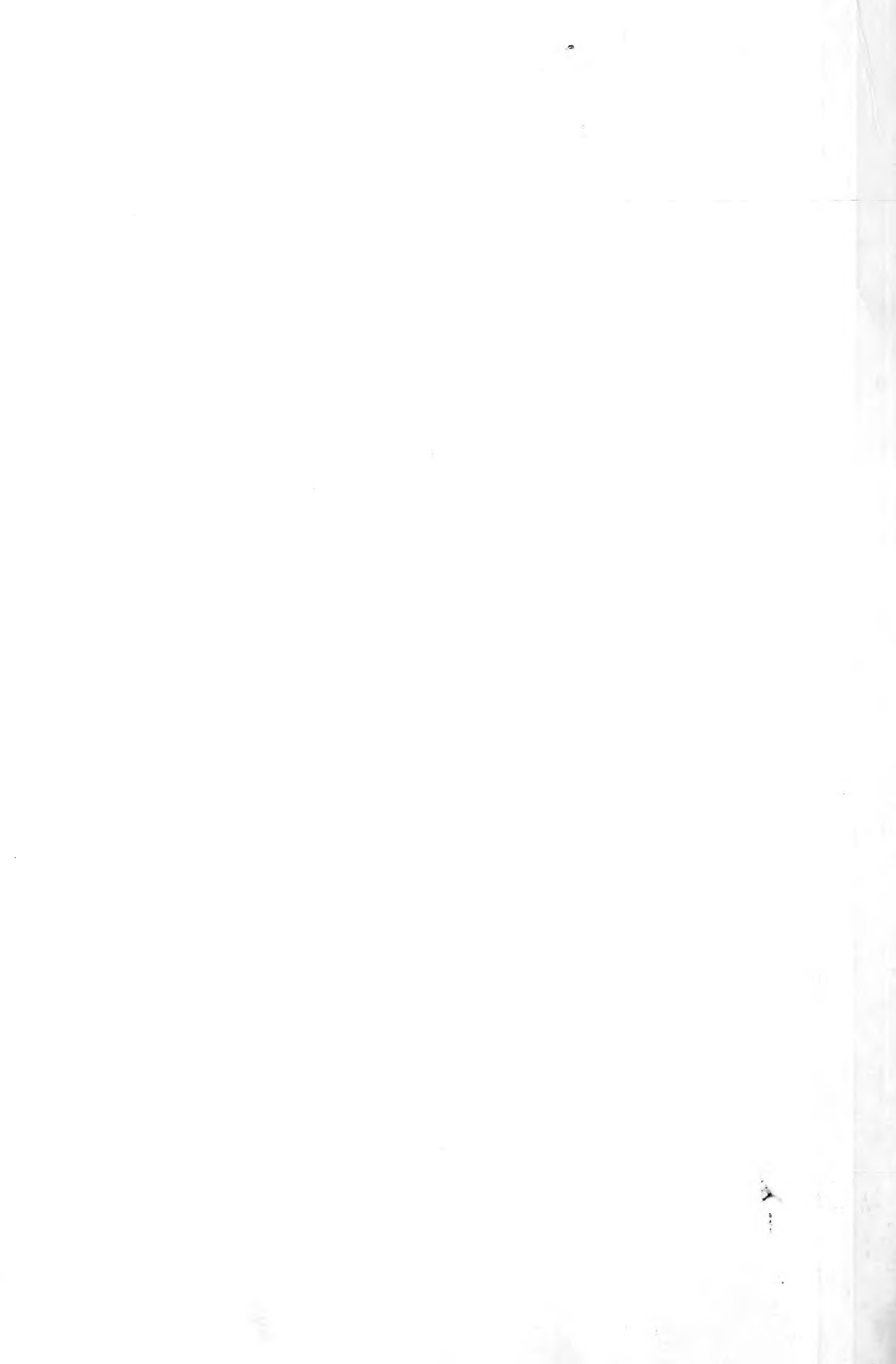
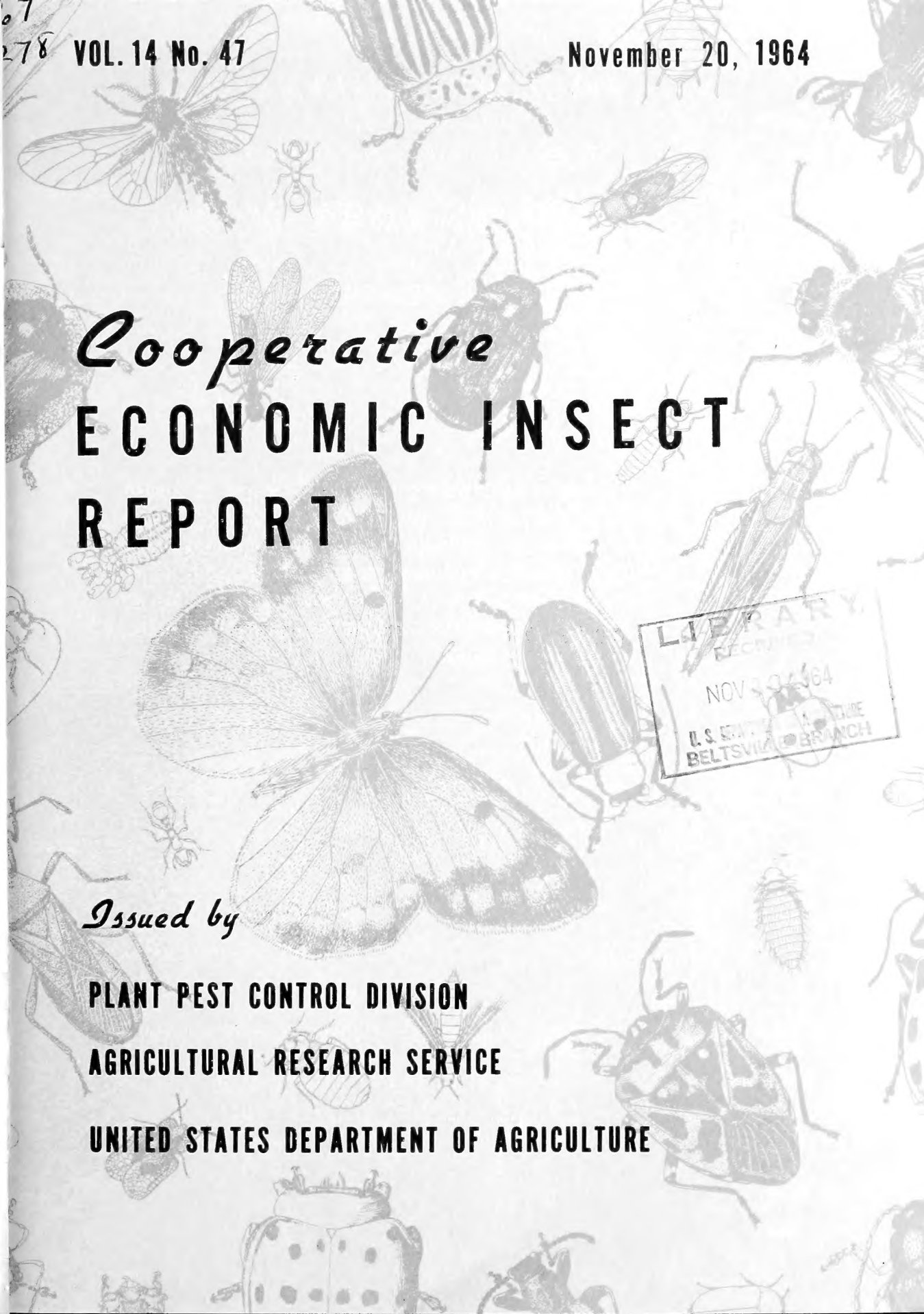


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**ECONOMIC INSECT  
REPORT**

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**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
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Hyattsville, Maryland 20781

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SPOTTED ALFALFA APHID averaged 120 and 800 per sweep in 2 fields of alfalfa in southern Illinois and PEA APHID counts of several thousand per 100 sweeps made in alfalfa in Pulaski County, Arkansas. In Arizona, THREE-CORNERED ALFALFA HOPPER continues heavy in alfalfa in Yuma and Maricopa Counties and a LEAFHOPPER (*Empoasca mexara*) remained high in same crop in Yuma County. (p. 1237). First fall activity of ENGLISH GRAIN APHID, GREENBUG and BROWN WHEAT MITE in wheat reported in areas of Oklahoma. (pp. 1237, 1238).

Adult emergence of a CONIFER SAWFLY (*Neodiprion taedae linearis*) heavy in northwest Arkansas. If emergence in the field approximates cage records, larval infestations may be high in spring of 1965. Weather conditions were very favorable for oviposition during October. (p. 1240).

DETECTION

Specimens of a PREDACEOUS MIRID (*Campyloneura virgula*) collected from dooryard pear and apple trees in Humboldt County, California, constitute the first North American record of this species. This European mirid is predaceous on mites and is known to feed occasionally on pear and apple in England. (p. 1243). New county records reported were a CORN LEAFHOPPER (*Dalbulus maidis*) in Conway County, Arkansas, (p. 1238); BLACK PEACH APHID (*Anuraphis persicaeniger*) in Butte County, California, (p. 1238); and an APHID (*Neophyllaphis podocarpi*) in San Benito County, also in California, (p. 1240).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1245).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Corn, Sorghum, Wheat, Oats, Alfalfa Seed, Hay, Soybeans, Field Beans, Potatoes and Sugar Beets in Nebraska in 1963. (pp. 1246-1250).

CORRECTIONS

See page 1243.

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Reports in this issue are for week ending November 13, unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-NOVEMBER TO MID-DECEMBER 1964

The Weather Bureau's 30-day outlook for mid-November to mid-December calls for temperatures to average above seasonal normals over the eastern third of the Nation and below normal over the western half, where greatest departures are expected in the Great Basin area. In unspecified areas near normal temperatures are anticipated. Precipitation is expected to exceed normal east of the Continental Divide except for near normal amounts over the Northern Plains as well as the Atlantic Coastal States. This outlook implies that some relief is in prospect for drought-stricken areas of the East, Midwest, and central Plains. Subnormal precipitation should be confined to the Northwest. Elsewhere near normal amounts are predicted.

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

WEATHER OF THE WEEK ENDING NOVEMBER 16

Heavy snow and abnormally cold weather occurred over the Western States during the past week. Indian summer continued over the East. Drenching rains fell over a broad band between the cold and warm air masses, alleviating the drought in some midwestern areas.

TEMPERATURE: Warm, humid air poured northward over the southern Great Plains most of the week. Afternoon temperatures in the 70's were common from the central Great Plains eastward to the Atlantic Ocean. Kansas City, Missouri, registered 77° on Tuesday afternoon and on Sunday, November 15, the mercury at Little Rock, Arkansas, climbed to 85°. A cold front entered the Pacific Northwest early in the week. As the front advanced southward and eastward, the temperatures dropped to far below freezing over the Great Basin, the northern and central Rocky Mountains, and northern Great Plains. The temperature dropped to 15° below zero at Ely, Nevada, on Saturday morning and to 25° below zero at West Yellowstone, Montana, on Sunday morning. Temperatures averaged below normal from the Pacific Ocean to the Rocky Mountains and above normal from the Great Plains to the Atlantic. A wide area extending from northern Texas to the Red River Valley of the North and eastward to the upper Ohio River Valley averaged more than 10° warmer than usual.

PRECIPITATION: As maritime polar air poured into the Far Northwest, it produced rains along the Pacific coast and heavy snow in the higher elevations. As the air mass moved inland, it brought heavy snow and cold temperatures to the Great Basin and the Rocky Mountains. By Saturday noon, parts of Utah had received 18 inches of snow. Southeastern Montana received 15 inches. The snow at Flagstaff, Arizona, accumulated to 10 inches on the level but the wind piled it in huge drifts. Some snow fell as far south as Tucson, Arizona. When the cold air met the tropical gulf air, it produced rains over a wide band from the High Plains of Texas northeastward to the Great Lakes. Topeka, Kansas, received 4.66 inches and Kansas City, Missouri, received 3.69 inches on Sunday, November 15. The rainfall amounts decreased southward to 2.58 inches at Tulsa, Oklahoma, and eastward to 2.39 inches at Indianapolis, Indiana. Most other portions of the Great Plains received less than 0.50 inch and most areas east of the Appalachians received no rain or only light sprinkles. Totals along the Pacific coast exceeded 1 inch and portions of the California coast between Eureka and San Francisco received more than 4 inches.

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - ILLINOIS - Averaged 120 and 800 per sweep in 2 fields of alfalfa in southern area November 10; 25 percent winged forms. (Ill. Ins. Rpt.). ARKANSAS - Surveys negative in Pulaski County. (Ark. Ins. Sur.). OKLAHOMA - Light (3-45 per 10 sweeps) in alfalfa in Payne, Noble, Kingfisher and Major Counties. Several fields of young alfalfa in Garfield County sprayed. (Okla. Coop. Sur.). NEBRASKA - Ranged 5-160 per 10 sweeps in alfalfa in Chase, Dundy, Hayes, Hitchcock, Keith and Perkins Counties. Only alate forms found in Hayes County. (Bergman). CALIFORNIA - Light on alfalfa at Five Points, Fresno County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - ILLINOIS - Ranged 20-50 per 100 sweeps in southern alfalfa fields. (Ill. Ins. Rpt.). ARKANSAS - Very heavy in Pulaski County; counts running several thousand per 100 sweeps in alfalfa. (Ark. Ins. Sur.). OKLAHOMA - First activity of fall season noted in alfalfa; ranged 1-12 per 10 sweeps in Payne, Noble, Kingfisher and Major Counties. (Okla. Coop. Sur.). NEW MEXICO - Generally light in alfalfa fields in Sandoval, Bernalillo, Valencia, Socorro, Sierra and Dona Ana Counties. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Averaged 7 per 10 sweeps in alfalfa in Payne and Noble Counties. (Okla. Coop. Sur.). ILLINOIS - Adults ranged 50-150 per 100 sweeps in 2 southern alfalfa fields. (Ill. Ins. Rpt.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Continues heavy in alfalfa in Yuma and Maricopa Counties; averaged 275 per 100 sweeps. (Ariz. Coop. Sur.).

A LEAFHOPPER (Empoasca mexara) - ARIZONA - Counts remain high in many alfalfa fields in Yuma County; ranged 160-430 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - ILLINOIS - None found in 2 fields known to be infested in southern area last spring. (Ill. Ins. Rpt.). ARKANSAS - Surveys negative in Pulaski County. (Ark. Ins. Sur.).

CORN EARWORM (Heliothis zea) - ARKANSAS - Larvae ranged 12-15 per 100 sweeps in alfalfa in Pulaski County. (Ark. Ins. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Ranged 0-2 larvae per 25 sweeps in alfalfa fields in Bernalillo and Sandoval Counties. (N.M. Coop. Rpt.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ILLINOIS - Field of very late corn heavily infested in early October rechecked November 9; corn not picked. Practically all infested stalks now snapped off within 4 inches of soil surface. Examination of 66 broken stalks showed 58 with living larvae, 2 with dead larvae and 6 with no larvae present. Of 58 larvae collected, 50 were white (winter form) and 8 were spotted (summer form); spots faded considerably on 6 specimens. (Ill. Ins. Rpt.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - NEBRASKA - Larvae damaged corn in York County earlier this season; evidence of larval injury in Buffalo and Dawson Counties this week. (Bergman).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Small numbers on wheat in Major, Woodward, Woods, Alfalfa, Kingfisher and Garfield Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - First fall activity noted in wheat in Payne County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Reported in wheat in Jackson and Greer Counties; averaged 1 or less per linear foot. First report of fall season. (Okla. Coop. Sur.).

A CORN LEAFHOPPER (Dalbulus maidis) - ARKANSAS - Single specimen collected by W. H. Whitcomb on grass near corn in Conway County October 15. Det. by L. W. Hepner. This is a new county record. Previously reported from Gould, Lincoln County. (Ark. Ins. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - First report of fall season in wheat in Roger Mills County. (Okla. Coop. Sur.).

GRASSHOPPERS - WISCONSIN - Melanoplus femurrubrum (red-legged grasshopper) adults continue numerous along roadsides in Richland County. (Wis. Ins. Sur.).  
ARIZONA - Recent adult surveys indicated light to abundant populations of several species on approximately 11,000 acres of rangeland in Cochise County, 11,400 in Graham County, 395,000 in Pima County, 5,000 in Pinal County and 325,000 in Santa Cruz County. (Ariz. Coop. Sur.).

AN ARMORED SCALE (Aspidiella sacchari) - FLORIDA - Severe on Bahia grass at Largo, Pinellas County. (Allen, Oct. 27).

A BERMUDA-GRASS MITE (Aceria neocynodonis) - OKLAHOMA - Probably this species killed Bermuda grass in lawn in Alva, Woods County. (Okla. Coop. Sur.).

#### FRUIT INSECTS

BLACK PEACH APHID (Anuraphis persicaeniger) - CALIFORNIA - On peach seedlings in Chico, Butte County. This is a new county record. (Cal. Coop. Rpt.).

TWIG GIRDLER (Oncideres cingulata) - ALABAMA - Many twigs cut on pecan and hickory trees in Randolph and Chambers Counties. (Barwood). FLORIDA - Adult taken on pecan tree at Winter Garden, Orange County. (Beck, Nov. 2). MARYLAND - Adults cutting twigs of walnut tree at Severna Park, Anne Arundel County. (U. Md., Ent. Dept.).

PECAN WEEVIL (Curculio caryae) - ALABAMA - Grubs numerous in pecans in Lee County. (Buttram).

A WEEVIL (Conotrachelus anaglypticus) - FLORIDA - Adult taken on bark of pecan at Monticello, Jefferson County, during October. (Phillips).

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae medium in English walnut husks in Colusa, Colusa County. (Cal. Coop. Rpt.).

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Larvae causing moderate damage to English and black walnuts at Tooele, Tooele County. (Knowlton).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - CALIFORNIA - Larvae light in avocado limbs in Uplands and Rialto, San Bernardino County. (Cal. Coop. Rpt.).

AN OTITID FLY (Physiphora demandata) - CALIFORNIA - Adults medium on fig fruit in Vista, San Diego County. (Cal. Coop. Rpt.).

COWPEA APHID (Aphis craccivora) - ARIZONA - Controls necessary on some blocks of young Valencia oranges on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - CALIFORNIA - Populations increasing at scattered locations in Fresno County. (Cal. Coop. Rpt.).

DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) - CALIFORNIA - Medium to heavy locally on orange trees in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Continues to require control on oranges and tangerines in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).



### TRUCK CROP INSECTS

TOMATO FRUITWORM (*Heliothis zea*) - ARIZONA - Medium, and requiring some control, in lettuce fields of Maricopa County. Light in Yuma County. (Ariz. Coop. Sur.).

BEET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Increasing and causing damage to lettuce in Maricopa County. Light in Yuma County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Heavy on lettuce in parts of Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

BEAN APHID (*Aphis fabae*) - CALIFORNIA - Medium on artichoke nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.).

AN ANT (*Formica altipetens*) - CALIFORNIA - Medium on artichoke nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.).

### COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - ALABAMA - Isolated heavy infestations in Morgan County. (Smith, Jarrett, Rutledge, et al.).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Light to heavy in terminal bolls in Columbus area, Luna County. (N.M. Coop. Rpt.).

BOLLWORMS (*Heliothis* spp.) - ALABAMA - Feeding on poorly developing blooms. (Smith, Jarrett, Rutledge, et al.).

COTTON APHID (*Aphis gossypii*) - ALABAMA - Common in blooms and squares. (Smith, Jarrett, Rutledge, et al.).

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Weather continued from page 1236.

Many areas in the East continued dry. Some water supplies were becoming exhausted in New England and the forest fire danger increased in West Virginia and Pennsylvania. Some areas had received little or no rain since mid-October and southern New York had received less than 30 percent of normal rain in the past 11 weeks.

The light, spotty showers from Virginia to southern New England brought little benefit. In Ohio, the drought was one of the worst of record but not so bad as last year. At the end of the week, showers in the Ohio River Valley were bringing some relief. (Summary supplied by U.S. Weather Bureau).

FOREST ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - ALABAMA - Dendroctonus terebrans (black turpentine beetle) and Platypus spp. quite numerous and feeding on freshly cut pine stumps in Lee County; cool weather should prevent attack on nearby pines. (Blake, Carter, et al.). ARKANSAS - Activity of Ips spp. and D. terebrans leveled off. In areas where dry conditions carried into fall, activity noted heavier than usual during warm periods. (Ark. For. Pest Rpt., Nov.).

CONIFER WEEVILS - ALABAMA - Pachylobius picivorus, Hylobius pales (pales weevil) and Pissodes nemorensis (deodar weevil) quite numerous and feeding on freshly cut pine stumps in Lee County; cool weather should prevent attack on nearby pines. (Blake, Carter, et al.).

PINE TIP MOTHS - ARKANSAS - Larval infestations heavy in scattered plantings over State following late summer rains where new growth provided favorable situations on pines. Damage moderate to severe. Nearly all in pupal stage by November 1; no further damage expected this year. (Ark. For. Pest Rpt., Nov.).

A CONIFER SAWFLY (Neodiprion taedae linearis) - ARKANSAS - Adult emergence heavy in northwest area. Survival of material collected in field in southern area good. If emergence in field approximates cage records, larval infestations next spring may be high. Weather conditions very favorable for oviposition; further observation underway. (Ark. For. Pest Rpt., Nov.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Causing considerable damage to Chinese elm trees in Orangevale, Sacramento County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - CALIFORNIA - Adults heavy on Chinese elm trees in Rovana district, Inyo County. (Cal. Coop. Rpt.).

BRONZE BIRCH BORER (Agrilus anxius) - MINNESOTA - Special inspection of birch trees made during past 2 weeks; trees have shed most leaves and swelling on trunks and branches more readily discernible. Untreated trees in infested areas showed marked increase in percentage of infestation. European white birch appears to be most susceptible of species inspected. Fields of this stock exposed and not previously treated showed up to 30 percent infestation. Paper birch raised under similar conditions showed lower degree of infestations but were also susceptible. (Minn. Ins. Rpt., Oct. 23).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Egg masses ranged 2-15 on all wild cherry trees examined in Morgan County. (Smith, Jarrett, Rutledge, et al.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Preliminary egg-mass survey reports show buildup in north central area; more extensive survey to delimit area planned. (Minn. Ins. Rpt., Oct. 23).

FALL CANKERWORM (Alsophila pometaria) - ARIZONA - Damaging trees and ornamentals in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

WALKINGSTICK (Diapheromera femorata) - ARKANSAS - Damage lighter this year than past 3 years; however, activity noted in usual areas; 50 percent or more in adult stage by October 6. Extent of defoliation much less, possibly due to greater amount of foliage available. (Ark. For. Pest Rpt., Nov.).

APHIDS - CALIFORNIA - Myzocallis walshi adults and nymphs medium on pin oak locally in Capitol Park, Sacramento, Sacramento County. Neothomasia populicola medium on poplar trees in Folsom, Sacramento County; light and dark forms presently occurring. Neophyllaphis podocarpi medium on podocarpus in Hollister, San Benito County; this is a new county record. (Cal. Coop. Rpt.). NEW MEXICO - Cinara sp. heavy on young willow trees in nursery in Albuquerque, Bernalillo

County. (N.M. Coop. Rpt.). MARYLAND - Lachnus salignus heavy on weeping willow locally in Washington County and in Baltimore. Pterocomma sp. infested black willow at College Park, Prince Georges County. (U. Md., Ent. Dept.).

A LEAFHOPPER (Homalodisca liturata) - CALIFORNIA - Very heavy on sweetgum (Liquidamber sp.) trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

A PSYLLID (Pachypsylla venusta) - ALABAMA - Galls quite common on hackberry trees in northern area. Extremely heavy on 30-foot tree in Morgan County with 1-6 marble-size galls on each small twig. (Rutledge et al.).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Larvae feeding on chrysanthemum flowers locally in New Castle County. (Kelsey).

A CHRYSAUGID MOTH (Galasa nigrinodis) - NORTH CAROLINA - Heavy on several boxwood plants locally in Forsyth County. (Wray).

A PYRAUSTID MOTH (Tholera reversalis) - CALIFORNIA - Medium on butterfly-bush (Buddleia sp.) in Beaumont, Riverside County. (Cal. Coop. Rpt.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Heavy and damaging commercially planted flowering plants in Continental area, Pima County. (Ariz. Coop. Sur.).

APHIDS - CALIFORNIA - Macrosiphum rosae (rose aphid) medium on nursery roses in Fresno, Fresno County; this species usually not present at this time of year in State. (Cal. Coop. Rpt.). ARIZONA - Eriosoma lanigerum (woolly apple aphid) heavy on roses and other ornamentals in Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Unspecified species light to moderate on iris plants in home gardens at Albuquerque, Bernalillo County. (N.M. Coop. Rpt.). OKLAHOMA - Unspecified species heavy on chrysanthemums in Greer County. (Okla. Coop. Sur.). ALABAMA - Aphis spiraeicola (spirea aphid) buildup rather large on Thunberg and other ornamental spireas in Lee County. Living young and young from black eggs being produced during Indian summer weather. (McQueen).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on euonymus locally in Carroll and Prince Georges Counties. (U. Md., Ent. Dept.).

TEA SCALE (Fiorinia theae) - FLORIDA - All stages taken in nursery in Tallahassee, Leon County; severe on leaves of Camellia sp. (Miller, Nov. 5).

A SCIARID MIDGE (Sciara sp.) - MARYLAND - Larvae injurious to gladiolus corms locally in Harford County. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Medium on aucuban and primrose plants in Coalinga, Fresno County. (Cal. Coop. Rpt.).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - OKLAHOMA - Larvae and adults of several species heavy in Payne County. Dominant species Culex tarsalis, Anopheles quadrimaculatus (common malaria mosquito) and A. punctipennis. Psorophora spp. larvae common in temporary pools. C. tarsalis larvae collected in Woodward County. (Okla. Coop. Sur.). FLORIDA - Culex salinarius and Aedes vexans light; taken biting man at dusk in suburban area of Gainesville, Alachua County. (Mead, Nov. 4). DELAWARE - Adults of Aedes sollicitans (salt-marsh mosquito) fairly common and annoying in eastern areas of Kent and Sussex Counties. (Lake).

HORN FLY (Haematobia irritans) - OKLAHOMA - Counts in Payne and Noble Counties averaged 65 on yearling steers, 50 on cows and 200 on bulls. Moderate (200-500 per head) on cattle in Bryan County and light on cows in Major County. (Okla. Coop. Sur.).

WASPS - OKLAHOMA - Several species reported entering homes in moderate numbers in Mayes County. (Okla. Coop. Sur.). WYOMING - Vespula sp., probably V. pensylvanica, adults from large subterranean nest behind home causing concern to homeowner in Laramie, Albany County. (Pfadt). UTAH - Vespa spp. numerous in home in Logan, Cache County. (Knowlton).

BLACK WIDOW SPIDER (Latrodectus mactans) - OKLAHOMA - Reported in several homes in Payne County. (Okla. Coop. Sur.).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Continues to cause apprehension among Payne County residents. (Okla. Coop. Sur.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Infested food products in several homes in Payne County. (Okla. Coop. Sur.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - NORTH CAROLINA - Very numerous in large box of oatmeal in Wake County home. (Wray, Nov. 1).

A DERMESTID BEETLE (Dermestes sp.) - OKLAHOMA - Contaminated food products in several homes in Payne County. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - NORTH CAROLINA - Continues active in Wake County homes and other buildings. (Mount). MARYLAND - Adults continue annoying in buildings over State. (U. Md., Ent. Dept.). UTAH - Annoyance continues in buildings in northern and central areas. (Knowlton).

BROWN-BANDED COCKROACH (Supella supellectilium) - DELAWARE - Adults and nymphs abundant in home in New Castle County. (Burbutis). MARYLAND - Infested several homes in Baltimore. (U. Md., Ent. Dept.). UTAH - Infested additional apartment house at Salt Lake City, Salt Lake County. (Knowlton).

TERMITES - ARIZONA - Heterotermes aureus (a subterranean termite) infested public building in Yuma County. (Ariz. Coop. Sur.). OKLAHOMA - Unspecified species swarming in northwest Oklahoma County; unusual for time of year. Infested several homes in Bryan County. (Okla. Coop. Sur.).

ANTS - NORTH CAROLINA - Monomorium pharaonis (Pharaoh ant) moderate in Wake County office building November 7. (Wray). Workers of Acanthomyops interjectus (larger yellow ant) nuisance around home in Wake County; det. by D. A. Mount. (Jones).

#### STORED-PRODUCT INSECTS

Stored-Product Insects in Florida - Rhyzopertha dominica (lesser grain borer) and Tribolium castaneum (red flour beetle) light to moderate in ground feed at feed supply house in Fort Myers, Lee County (Oct. 27); Callosobruchus maculatus (cowpea weevil) moderate on cowpeas in bin in seed company in Fort Myers (Adkins, Nov. 9). Lasioderma serricorne (cigarette beetle) scattered in home in Plant City, Hillsborough County (Custead, Nov. 3); moderate in 2 supply houses in Fort Myers in ground feed (Oct. 27) and in Bermuda grass seed (Nov. 9) (Adkins).

DRUGSTORE BEETLE (Stegobium paniceum) - FLORIDA - Taken from art object with wooden frame in warehouse in Tampa, Hillsborough County, by pest control operator November 3. (Fla. Coop. Sur.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Adults and larvae discovered in 2 homeowner-basement storages in Monroe County. Infested tubers grown in local gardens. (Wells, Newman).

BENEFICIAL INSECTS

A PREDACEOUS MIRID (Campyloneura virgula) - CALIFORNIA - Specimens taken from dooryard pear and apple trees in Shively, Humboldt County, August 4 by T. Haig. This is the first North American record of this species. (Cal. Coop. Rpt.). This European species is predaceous on mites and is known to feed occasionally on pear and apple in England. Det. by R. C. Froeschner. (ARS).

DAMSEL BUGS (Nabis spp.) - ILLINOIS - Averaged 10 and 40 per 100 sweeps in 2 alfalfa fields in southern area November 10. (Ill. Ins. Rpt.). OKLAHOMA - Averaged 2 per 10 sweeps in alfalfa in Payne, Noble and Major Counties. (Okla. Coop. Sur.).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Averaged 2 adults per 10 sweeps in alfalfa in Payne, Noble, Kingfisher and Major Counties. (Okla. Coop. Sur.). ILLINOIS - C. oculata (golden-eye lacewing) adults averaged 40 per 100 sweeps in 2 fields of alfalfa in southern area; larvae averaged 30 and 40 in same fields. (Ill. Ins. Rpt.).

LADY BEETLES - ILLINOIS - Hippodamia convergens (convergent lady beetle) adults averaged 30 and 80 in 2 fields of alfalfa in southern area. Larvae averaged 40 and 100 in same fields. (Ill. Ins. Rpt.). ALABAMA - Coleomegilla maculata fuscilabris noted in 2 extremely large areas of hibernation in woods trash and in and around large red oaks in mountainous area of Morgan County. Areas about 200 square feet and contained thousands of specimens with up to 50 per square foot in parts of woods trash. (McQueen).

FLOWER FLIES - UTAH - Larvae numerous among heavy infestation of aphids on paper bark birch at Logan, Cache County. (Knowlton). ALABAMA - Larvae attacking Aphis spiraeicola (spirea aphid) on ornamental spireas in Lee County. (McQueen).

MISCELLANEOUS INSECTS

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Adults taken in blacklight trap in Livingston County on November 11. (Newman).

FALL CANKERWORM (Alsophila pometaria) - MICHIGAN - Adult males taken in blacklight trap in Livingston County. (Newman).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - NORTH CAROLINA - Adult and larva taken in Bertie County. (Mount).

A DARKLING BEETLE (Eleodes omissa) - CALIFORNIA - Adults medium in soil in Hanford, Kings County. (Cal. Coop. Rpt.).

APHIDS - WISCONSIN - Migrations noticeable on November 7, 8 and 13. Most prevalent species: Rhopalosiphum fitchii (apple grain aphid). Other common species: Acyrtosiphon pisum (pea aphid), Anuraphis persicaeniger (black peach aphid) and Pemphigus lactucae. (Wis. Ins. Sur.).

CORRECTIONS

CEIR 14(42):1150 - A CHRYSAUGID MOTH (Galasa nigrinodes) should read (Galasa nigrinodis)....

CEIR 14(43):1159 and 1167 - AMBROSIA BEETLES - INDIANA - Monarthrum fasciatum is not a new State record. This is the first record for Dubois County; collections were made in 1924 at Vincennes, Knox County, and in 1960 at West Lafayette, Tippecanoe County. (PPC).

CEIR 14(44):1195 - ADDITIONAL NOTES - MINNESOTA - Delete entire note. See notes on BRONZE BIRCH BORER and FOREST TENT CATERPILLAR page 1240 in this issue.



STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

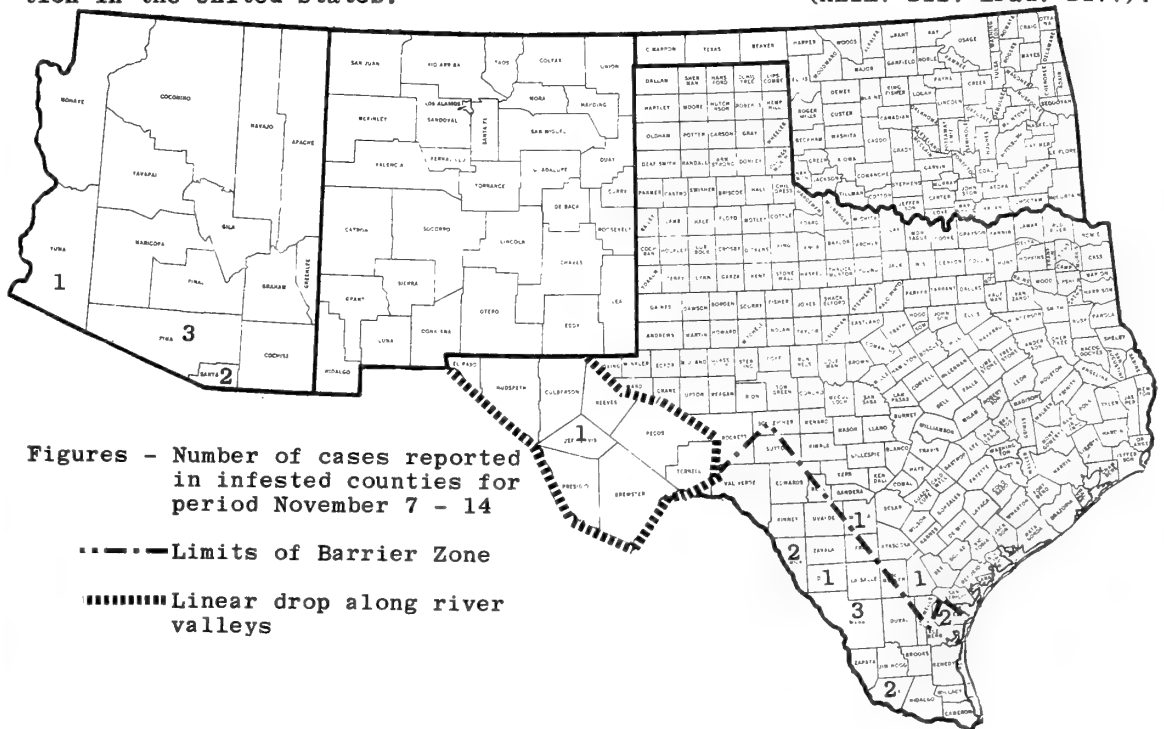
During the period November 7-14, TEXAS reported 13 screw-worm cases: 3 in Webb County, 2 each in Starr, Maverick and Nueces Counties, and 1 each in Dimmit, Jeff Davis, Medina and Live Oak Counties. ARIZONA reported 6 cases: 3 in Pima County, 2 in Santa Cruz County and 1 in Yuma County. The Republic of Mexico reported 125 cases: Sonora 58, Chihuahua 34, Veracruz 1, Durango 6, San Luis Potosi 2, Coahuila 9, Tamaulipas 6 and Nuevo Leon 9. Sterile screw-worm flies released: Texas 19,499,950, New Mexico 2,760,000, Arizona 6,540,000 and Mexico 50,791,600.

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1. Comparison of specimens reported during corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.						
1962	690	49,109	57	2,916	1,210.5	1,684.1
1963	219	6,105	273	6,774	3.6	90.1
1964	13	211	219	5,780	5.9	3.6

Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
Year	Current	Cumulative	Current	Cumulative	Current	Cumulative
1963	197	5,587	34	1,313	579.4	425.5
1964	130	3,850	55	1,883	236.4	204.5

Table 2A. Mexican portion of Barrier Zone only.						
Year	Current	Cumulative	Current	Cumulative	Current	Cumulative
1963	128	1,844	32	193	400	955.4
1964	116	3,622	20	792	580	457.3

\* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of self-sustaining screw-worm population in the United States. (Anim. Dis. Erad. Div.).



ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Nebraska DURING 1963  
(State or District) (Year)

ATTACKING Corn (Commodity or Crop)

ATTACKING Sorghum (Commodity or Crop)

- A. Pest or pest complex: Corn rootworms, European corn borer, corn earworm, armyworm, fall armyworm, cutworms, grasshoppers, corn leaf aphid, mites, seed-corn beetle seed-corn beetle, grasshoppers, root aphids, corn earworm, corn rootworms
- B. Number of acres <sup>a</sup> produced (From CRS) 5,401,000 No. 2,106,000
- C. Average yield per acre <sup>a</sup> (From CRS) 56.0 bu. Units/ 54.5 bu.
- D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) 1.09 \$/ 0.89
- E. Acres <sup>a</sup> needing control No. 5,401,000
- F. Acres <sup>a</sup> treated No. 2,927,000
- G. Reduction due to not treating where needed:
- H. Loss in yield, percent % 25.0
- I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ 14.0 bu.
- J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 15.26
- K. Loss in quality, \$ per acre <sup>a</sup> \$/ -----
- L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 33,796,000 bu.
- M. Control cost, \$ per acre <sup>a</sup> \$/ 5.71
- N. Control cost for all acres <sup>a</sup>, F x M \$ 17,055,770.00
- O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 36,837,640.00
- P. Quality loss for all acres <sup>a</sup>, (E-F) x K \$ -----
- Q. Combined control cost and losses, N + O + P \$ 53,893,410.00
- R. Percent loss due to each insect in the complex:

Comment: Figures were also submitted for 1961 and 1962. Losses were \$35,603,068.00 for 1961 and \$56,666,820.50 for 1962.

Comment: Figures were also submitted for 1961 and 1962. Losses were \$739,370.00 for 1961 and \$1,307,475.00 for 1962.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Paul V. Bergman Submitted by Paul W. Bergman  
Date Sept. 25, 1964 Date Sept. 25, 1964



ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Nebraska DURING 1963

(State or District) (Year)

ATTACKING Wheat  
(Commodity or Crop)

A. Pest or pest complex: Cutworms, Hessian fly, greenbug, grasshoppers, wireworms,

brown wheat mite, white grubs, wheat stem maggot, English grain aphid, chinch bug,

wheat curl mite acres<sup>a</sup> produced (From CRS) No. 2,953,000

C. Average yield per acre<sup>a</sup> (From CRS) Units/ 21.5 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 1.85

E. Acres<sup>a</sup> needing control No. 531,540

F. Acres<sup>a</sup> treated No. 147,650

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 5.0

I. Loss in yield, units per acre<sup>a</sup>, C x H Units/ 1.1 bu.

J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ 2.04

K. Loss in quality, \$ per acre<sup>a</sup> \$/ -----

L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 422,279 bu.

M. Control cost, \$ per acre<sup>a</sup>, \$/ 2.45

N. Control cost for all acres<sup>a</sup>, F x M \$ 361,742.50

O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 783,135.60

P. Quality loss for all acres<sup>a</sup>, (E-F) x K \$ -----

Q. Combined control cost and losses, N + O + P \$ 1,144,875.10

R. Percent loss due to each insect in the complex:

Comment: Figures were also submitted for 1961 and 1962. Losses were

\$1,777,440.00 for 1961 and \$1,134,360.00 for 1962.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Paul W. Bergman

Date Sept. 25, 1964

ATTACKING Oats  
(Commodity or Crop)

A. Pest or pest complex: Cutworms, grasshoppers, greenbug, wireworms, English

grain aphid, white grubs, chinch bug, leafhoppers

B. Number of acres<sup>a</sup> produced (From CRS) No. 942,000

C. Average yield per acre<sup>a</sup> (From CRS) Units/ 28.5 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 0.65

E. Acres<sup>a</sup> needing control No. 141,300

F. Acres<sup>a</sup> treated No. 9,420

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 5.0

I. Loss in yield, units per acre<sup>a</sup>, C x H Units/ 1.43 bu.

J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ 0.93

K. Loss in quality, \$ per acre<sup>a</sup> \$/ -----

L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 188,588 bu.

M. Control cost, \$ per acre<sup>a</sup>, \$/ 2.45

N. Control cost for all acres<sup>a</sup>, F x M \$ 23,079.00

O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 122,648.40

P. Quality loss for all acres<sup>a</sup>, (E-F) x K \$ -----

Q. Combined control cost and losses, N + O + P \$ 145,727.40

R. Percent loss due to each insect in the complex:

Comment: Figures were also submitted for 1961 and 1962. Losses were

\$228,764.80 for 1961 and \$231,874.80 for 1962.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Paul W. Bergman

Date Sept. 25, 1964

IN Nebraska DURING 1963

(State or District) (Year)

ATTACKING Alfalfa seed  
(Commodity or Crop)

ATTACKING Hay  
(Commodity or Crop)

A. Pest or pest complex: Plant bugs, leafhoppers, grasshoppers, aphids, cutworms, weevils, webworms

A. Pest or pest complex: alfalfa caterpillar, corn rootworms, grasshoppers, garden webworm, cutworms, spotted alfalfa aphid, plant bugs, pea aphid, clover aphid, leafhoppers, clover weevils, webworms

B. Number of acres <sup>a</sup> produced (From CRS) 85,000 No.  
 C. Average yield per acre <sup>a</sup> (From CRS) 85 lbs. Units/  
 D. Price<sup>b</sup> per unit ( lb. )<sup>c</sup> (From CRS) .245 \$/  
 E. Acres <sup>a</sup> needing control 76,500 No.  
 F. Acres <sup>a</sup> treated 51,000 No.

B. Number of acres <sup>a</sup> produced (From CRS) 4,925,000 No.  
 C. Average yield per acre <sup>a</sup> (From CRS) 1.28 tons Units/  
 D. Price<sup>b</sup> per unit ( ton )<sup>c</sup> (From CRS) 18.00 \$/  
 E. Acres <sup>a</sup> needing control 344,750 No.  
 F. Acres <sup>a</sup> treated 197,000 No.

G. Reduction due to not treating where needed:

G. Reduction due to not treating where needed:

H. Loss in yield, percent 20.0 %  
 I. Loss in yield, units per acre <sup>a</sup>, C x H 17.0 lbs. Units/  
 J. Loss in yield, \$ per acre <sup>a</sup>, D x I 4.17 \$/  
 K. Loss in quality, \$ per acre <sup>a</sup> ----- \$/  
 L. Yield loss for all acres <sup>a</sup>, (E-F) x I 433,500 lbs. Units  
 M. Control cost, \$ per acre <sup>a</sup>, 2.65 \$/  
 N. Control cost for all acres <sup>a</sup>, F x M 135,150.00 \$  
 O. Yield loss for all acres <sup>a</sup>, (E-F) x J 106,335.00 \$  
 P. Quality loss for all acres <sup>a</sup>, (E-F) x K ----- \$  
 Q. Combined control cost and losses, N + O + P 241,485.00 \$

H. Loss in yield, percent 5.0 %  
 I. Loss in yield, units per acre <sup>a</sup>, C x H .07 ton Units/  
 J. Loss in yield, \$ per acre <sup>a</sup>, D x I 1.26 \$/  
 K. Loss in quality, \$ per acre <sup>a</sup> ----- \$/  
 L. Yield loss for all acres <sup>a</sup>, (E-F) x I 10,342.5 tons Units  
 M. Control cost, \$ per acre <sup>a</sup>, 2.65 \$/  
 N. Control cost for all acres <sup>a</sup>, F x M 522,050.00 \$  
 O. Yield loss for all acres <sup>a</sup>, (E-F) x J 186,165.00 \$  
 P. Quality loss for all acres <sup>a</sup>, (E-F) x K ----- \$  
 Q. Combined control cost and losses, N + O + P 708,215.00 \$

R. Percent loss due to each insect in the complex:

R. Percent loss due to each insect in the complex:

Comment: Figures were also submitted for 1961 and 1962. Losses were \$185,031.00 for 1961 and \$201,663.00 for 1962.

Comment: Figures were also submitted for 1961 and 1962. Losses were \$692,960.00 for 1961 and \$443,154.70 for 1962.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Paul W. Bergman  
Date Sept. 25, 1964

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Date Sept. 25, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Nebraska DURING 1963  
(State or District) (Year)

ATTACKING Soybeans  
(Commodity or Crop)

ATTACKING Field beans  
(Commodity or Crop)

A. Pest or pest complex: Bean leaf beetle, white grubs, Mexican bean beetle, green cloverworm, grasshoppers, corn rootworms, cutworms, webworms, wireworms

B. Number of acres <sup>a</sup> produced (From CRS) No. 326,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 28.5 bu.

D. Price<sup>b</sup> per unit ( bu. ) <sup>c</sup> (From CRS) \$/ 2.50

E. Acres <sup>a</sup> needing control No. 13,040

F. Acres <sup>a</sup> treated No. 3,260

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 2.0

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ .57 bu.

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 1.43

K. Loss in quality, \$ per acre <sup>a</sup> \$/ -----

L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 5,574.6 bu.

M. Control cost, \$ per acre <sup>a</sup>, \$/ 3.10

N. Control cost for all acres <sup>a</sup>, F x M \$ 10,106.00

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 13,985.40

P. Quality loss for all acres <sup>a</sup>, (E-F) x K \$ -----

Q. Combined control cost and losses, N + O + P \$ 24,091.40

R. Percent loss due to each insect in the complex:

A. Pest or pest complex: Western bean cutworm, Mexican bean beetle, grasshoppers, bean leaf beetle, leafhoppers, aphids

B. Number of acres <sup>a</sup> produced (From CRS) No. 80,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 19.0 cwt.

D. Price<sup>b</sup> per unit ( cwt. ) <sup>c</sup> (From CRS) \$/ 6.00

E. Acres <sup>a</sup> needing control No. 56,000

F. Acres <sup>a</sup> treated No. 32,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 15.0

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ 2.85 cwt.

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 17.10

K. Loss in quality, \$ per acre <sup>a</sup> \$/ -----

L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 68,400 cwt.

M. Control cost, \$ per acre <sup>a</sup>, \$/ 3.40

N. Control cost for all acres <sup>a</sup>, F x M \$ 108,800.00

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 410,400.00

P. Quality loss for all acres <sup>a</sup>, (E-F) x K \$ -----

Q. Combined control cost and losses, N + O + P \$ 519,200.00

R. Percent loss due to each insect in the complex:

Comment: Figures were also submitted for 1961 and 1962. Losses were \$18,512.80 for 1961 and \$20,760.00 for 1962.

Comment: Figures were also submitted for 1961 and 1962. Losses were \$332,038.00 for 1961 and \$320,355.00 for 1962.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Paul W. Bergman

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Date Sept. 25, 1964

Date Sept. 25, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Nebraska DURING 1963  
(State or District) (Year)

ATTACKING Potatoes  
(Commodity or Crop)

A. Pest or pest complex: Potato psyllid, flea beetles, wireworms, grubs, grasshoppers, Colorado potato beetle, leafhoppers, plant bugs, blister beetles

B. Number of acres <sup>a</sup> produced (From CRS)	No.	12,700
C. Average yield per acre <sup>a</sup> (From CRS)	Units/	192 crt.
D. Price <sup>b</sup> per unit (cwt.) <sup>c</sup> (From CRS)	\$/	1.42
E. Acres <sup>a</sup> needing control	No.	12,446
F. Acres <sup>a</sup> treated	No.	12,065

G. Reduction due to not treating where needed:

H. Loss in yield, percent	%	15.0
I. Loss in yield, units per acre <sup>a</sup> , C x H	Units/	28.80 crt.
J. Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/	40.90
K. Loss in quality, \$ per acre <sup>a</sup>	\$/	-----
L. Yield loss for all acres <sup>a</sup> , (E-F) x I	Units	10,972.8 crt.
M. Control cost, \$ per acre <sup>a</sup>	\$/	6.20
N. Control cost for all acres <sup>a</sup> , F x M	\$	74,803.00
O. Yield loss for all acres <sup>a</sup> , (E-F) x J	\$	15,582.90
P. Quality loss for all acres <sup>a</sup> , (E-F) x K	\$	-----
Q. Combined control cost and losses, N + O + P	\$	90,385.90
R. Percent loss due to each insect in the complex:		

Comment: Figures were also submitted for 1961 and 1962. Losses were \$43,976.00 for 1961 and \$61,093.35 for 1962.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Paul W. Bergman  
Date Sept. 25, 1964

ATTACKING Sugar beets  
(Commodity or Crop)

A. Pest or pest complex: Webworms, leafhoppers, grasshoppers, wireworms, flea beetles, spider mites

B. Number of acres <sup>a</sup> produced (From CRS)	No.	82,800
C. Average yield per acre <sup>a</sup> (From CRS)	Units/	19.2 tons
D. Price <sup>b</sup> per unit (ton) <sup>c</sup> (From CRS)	\$/	13.10
E. Acres <sup>a</sup> needing control	No.	57,960
F. Acres <sup>a</sup> treated	No.	33,120

G. Reduction due to not treating where needed:

H. Loss in yield, percent	%	15.0
I. Loss in yield, units per acre <sup>a</sup> , C x H	Units/	2.88 ton
J. Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/	37.73
K. Loss in quality, \$ per acre <sup>a</sup>	\$/	-----
L. Yield loss for all acres <sup>a</sup> , (E-F) x I	Units	71,539.2 tons
M. Control cost, \$ per acre <sup>a</sup>	\$/	3.25
N. Control cost for all acres <sup>a</sup> , F x M	\$	107,640.00
O. Yield loss for all acres <sup>a</sup> , (E-F) x J	\$	937,213.20
P. Quality loss for all acres <sup>a</sup> , (E-F) x K	\$	-----
Q. Combined control cost and losses, N + O + P	\$	1,144,853.20
R. Percent loss due to each insect in the complex:		

Comment: Figures were also submitted for 1961 and 1962. Losses were \$743,999.00 for 1961 and \$544,340.10 for 1962.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Paul W. Bergman  
Date Sept. 25, 1964

U. S. Dept. of War  
Adjutant General's Office  
Washington, D. C.  
No. 1000

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