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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

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GRASSHOPPER outlook worse in few areas of Utah than in 1963, threatening populations present on rangeland in areas of Oklahoma and additional infestations being found in Wyoming. Red-legged grasshopper still of concern in Wisconsin and Minnesota. (pp. 709-710). EUROPEAN CORN BORER threat in Illinois greatly reduced by weather; egg laying well underway in South Dakota and continues in Minnesota and Wisconsin; larval damage appearing in several Corn Belt States; heavy moth flight expected in Alabama. (pp. 710-711). SOUTHWESTERN CORN BORER populations and damage heavy in all garden sweet corn in Fayette and Marion Counties, Alabama. (p. 711). FALL ARMYWORM causing heavy damage to several crops in Mobile County, Alabama; ARMYWORM flights occurring in several areas of Wisconsin where serious potential exists. (p. 712). CORN ROOTWORMS (*Diabrotica* spp.) appear to be most important crop pests in Iowa and root damage to corn evident in Lincoln County, South Dakota; WESTERN CORN ROOTWORM (*D. virgifera*) adults emerging in northeast Kansas. (pp. 712-713). ALFALFA WEEVIL larval populations heavy and causing severe damage to alfalfa in areas of Wyoming and Nevada. (p. 715). LYGUS BUGS heavy on alfalfa in Yuma and Graham Counties, Arizona, with controls necessary for alfalfa seed crop in Yuma County; ranged light to heavy in same crop in Quay County, New Mexico. (p. 716-717).

CITRUS RED MITE and TEXAS CITRUS MITE increasing rapidly on Florida citrus; GLOVER SCALE above normal and increasing, and BLACK SCALE above normal with further increase expected; MEALYBUGS continue at record high level and abnormally high WHITEFLY populations will persist into July on citrus in the State. (p. 721).

POTATO LEAFHOPPER troublesome on beans and potatoes in several States. (p. 722). STRIPED CUCUMBER BEETLE adult populations high on commercial squash in Dane and Walworth Counties, Wisconsin; general dispersal of SIX-SPOTTED LEAFHOPPER underway in Wisconsin, with high incidence of yellows symptoms noted in early planting of lettuce in Dane County. (p. 725).

BOLL WEEVIL and BOLLWORMS (*Heliothis* spp., et al.) generally low in most cotton areas. BOLLWORM (*H. zea*) required some controls in areas of Arizona. (pp. 726-727). SPIDER MITES increasing on cotton in some areas. COTTON FLEAHOPPER continues injurious to cotton in central Texas with buildup occurring. (p. 728).

GYPSY MOTH defoliating large acreages of woodland in Connecticut and New York. Complex of DEFOLIATING CATERPILLARS a problem in forested areas in southwestern New York, where situation is causing much concern among maple sap producers. (pp. 732-733). JAPANESE BEETLE adults feeding on ornamentals and appearing in several areas. (pp. 734, 739).

FACE FLY abundant on cattle in southwest Virginia and increasing in Maryland; populations lower than expected in Indiana and continue low in northeast Ohio. (p. 735). MOSQUITOES numerous and annoying in several areas as result of rains; increase expected in some areas. (p. 737). BROWN DOG TICK found for second time since 1945 in Portland Oregon. (p. 738).

DETECTION

ALFALFA WEEVIL (*Hypera postica*) reported for first time from Louisiana. (p. 715). New county records were EUROPEAN CORN BORER (*Ostrinia nubilalis*) in Franklin County, Georgia, and SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) in Marion County, Alabama (p. 711); CEREAL LEAF BEETLE (*Oulema melanopa*) in Isabella, Newaygo, Mecosta and Oceana Counties, Michigan, and Jay, Adams, Newton and Tipton Counties, Indiana (p. 713); ALFALFA WEEVIL in Haakon, Jones, Millette, Todd and Washabaugh Counties, South Dakota (p. 715); SPOTTED ALFALFA APHID (*Therioaphis*

maculata) in Haakon, Washabaugh and Bennett Counties, South Dakota (p. 716); a PINE WEEVIL (Pissodes affinis) in Jackson County, Indiana (p. 731); HOLLYHOCK WEEVIL (Apion longirostre) in Placer County, California (p. 734); FACE FLY (Musca autumnalis) in King George County, Virginia, and in Chattooga County, Georgia (p. 735).

#### CORRECTIONS

See page 740.

#### SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 736).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 744).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Corn, Wheat and Oats in Illinois, 1963. (pp. 745-746).

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

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#### WEATHER OF THE WEEK ENDING JUNE 29.

Relatively inactive summer weather prevailed as springtime rains came to an abrupt halt over interior regions. Temperatures were near seasonal levels and rainfall was variable or missing over fairly large areas.

Temperature averages ranged to 7 ° above normal in California and from Montana eastward to New York. Maxima in the Central Valley of California exceeded 100° on 5 days. On the 25th, Bakersfield sweltered at 111° and a report of 120° came from Furnace Creek, near Death Valley. Near 100° readings occurred on 5 days in the northern Plains. Below normal averages were observed from Missouri into Arizona and over the Columbia Basin of the Pacific Northwest. Sunny, open weather dominated under a large high pressure system that covered much of the Nation after a stormy beginning in the North Central. Thundershowers from the Great Lakes over the upper Great Plains drenched many areas. Clinton, Iowa, measured 1 inch from a 10-minute downpour. However, little or no precipitation fell in the southern two-thirds of Illinois or Indiana.

Little or no rain fell westward from central areas of Kansas and Texas and into the Pacific Northwest. Heavy showers early in the week in northeastern Wyoming caused local flooding. Mostly light precipitation of little benefit fell in much of the Northeast and drought conditions are becoming critical in many local areas. However, frequent showers brought relief from a heat wave and dry spell over the Southeast and Gulf coastal areas. Many locales from the Carolinas to southern Texas had showers each day. Thomasville, Georgia, totaled nearly 6 inches for the week. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - OHIO - Melanoplus differentialis (differential grasshopper) nymphs averaged 6 per 25 sweeps on alfalfa in Lawrence County, south central area. (Lyon). ILLINOIS - Heavy rains helped keep Melanoplus spp. populations low, but hatch continues and first to third instars varied 2-28 per sweep in grassy roadsides in northeast district. (Ill. Ins. Rpt.). WISCONSIN - Counts 1 per 10 sweeps in oats and less than 1-18 per yard in alfalfa in central area; few adults of Eritettix simplex, Arphia conspersa and some new adults of M. sanguinipes (migratory grasshopper) noted. Nymphs of latter species primarily in third stage; M. femurrubrum (red-legged grasshopper) mostly first and second instars; and M. bivittatus (two-striped grasshopper) third and fourth instars. Ageneotettix deorum in third instar. M. femurrubrum dominant in nearly all locales. Eggs still hatching in some southern counties. (Wis. Ins. Sur.). IOWA - Grasshoppers, mostly M. differentialis, light in northern half of State; 2-4 per square yard in roadsides and field edges. Ranged 5-10 per square yard in southern area. Rains killed many young "hoppers"; however, grasshoppers thriving in many dry areas in every county. (Iowa Ins. Inf., June 22). MINNESOTA - Eggs of M. femurrubrum continue to hatch in southern half of State. Removal of hay crops and roadside mowing has increased hatch of this species. Some movement of first to third instars into small grain and alfalfa noted in southwest. (Minn. Ins. Rpt.). NORTH DAKOTA - A nymphal survey on rangeland in McKenzie, Billings and Golden Valley Counties showed up to 9-12 per square yard (average 3-4); 90 percent in second and third instars; dominant species Ageneotettix deorum, M. sanguinipes, Aulocara elliotti and Amphitornus coloradus. (Brandvik). Survey in Wells, Pierce, McHenry, Ward, Mountrail, McLean and Sheridan Counties showed marginal counts from less than 1 to 15 per square yard (average 1-8); field counts ranged from less than 1 to 13 per square yard (average of less than 1-7); most in second through fourth instars; dominant species M. bivittatus and M. sanguinipes, with few M. packardii (Packard grasshopper) and M. femurrubrum present. (Scholl).

SOUTH DAKOTA - Grasshopper hatch continues; heaviest infestations in Corson County, where counts of 50 nymphs per square yard reported. Very little, if any, damage to crops or any spraying reported. First to third instars of A. deorum and Melanoplus occidentalis ranged 4-15 per square yard in western Custer County. (Burge, Zimmerman; June 19). Infesting approximately 35,000 acres in Shannon County, with "hoppers" 8-20 per square yard; first to fifth instars of A. deorum, M. sanguinipes, A. elliotti and A. coloradus present. Control measures planned. Cropland areas in central area generally with low nymphal populations; occasional high counts along weedy roadsides and field margins and in alfalfa and soil bank fields. (Burge, Zimmerman, Novotny). NEBRASKA - Melanoplus spp. nymphs 15 per square yard in Lancaster County red clover. (Roselle). MISSOURI - Melanoplus spp. averaged 2-10 per square yard in northeast and north central areas; mostly early instars. Lightly damaged soybeans. (Houser, Thomas, Wood). KANSAS - Counts of grasshoppers, primarily Melanoplus spp. and Hesperotettix sp., generally less than 1 per square yard on alfalfa in south central and southwest areas. Counts on roadsides and field margins ranged from less than 1 to 2 per square yard in same areas. (Peters). OKLAHOMA - Threatening populations of nymphs (several species) on rangeland in Ellis and Roger Mills Counties, (west central). Lighter populations noted in Beckham, Blaine and Custer Counties. Moderate infestations reported from Comanche, Cleveland, Bryan, Okmulgee, Tulsa, Muskogee, Craig and Washington Counties on rangeland and crop margins. (Okla. Coop. Sur.; PPC). TEXAS - Several species damaging pastures and other crops in Briscoe, Colorado, Burleson, Mason, Matagorda, Milam, Wharton and Ft. Bend Counties. (Texas Coop. Rpt.). COLORADO - Extremely low populations of nymphs, less than 1 per square yard, on rangeland in Jefferson, Douglas, Elbert, Arapahoe, Washington, Yuma, Kit Carson, Cheyenne and Lincoln Counties. Economic populations, 8-15 per square yard, of Aulocara elliotti, Melanoplus sanguinipes and M. packardii on rangeland in Lyons area of Boulder and Larimer Counties; 2,500 acres in Boulder County and 2,000 acres in Larimer County. This is same area that had 37,000 acres infested in 1963. Seventy-five percent of population in first instar. (Gaddis). WYOMING - Additional grasshopper infestations being found in southeastern and

north central areas; over 200,000 acres reported to June 26. Control operations expected to begin on June 30 in Platte-Goshen County area. (Thornley). UTAH - Grasshopper outlook worse in few areas than in 1963. Hatch about 2 weeks later, with many nymphs still in first instar. No hatching found in higher mountains. One outbreak in Box Elder County covers 100,000 acres from Promontory Point north into Hansel Valley and nymphal counts 75-200 per square yard. More grasshoppers in Sanpete County cultivated fields than in 1963 outbreak. (Burnett, Knowlton, et al.; June 23). Acreage with threatening populations by county as follows: Box Elder - 150,000 range and 7,500 cropland; Iron - 20,000 range and 5,000 cropland; Juab - 40,000 range and 75,000 cropland; Millard - 70,000 range and 30,000 cropland; San Juan - 1,000 range and 1,000 cropland; Sanpete - 75,000 range and 25,000 cropland; Sevier - 12,000 range and 3,000 cropland. Nymphs extremely numerous on range and home lots in North Ogden area of Weber County. (Knowlton, June 26). NEVADA - Populations of Aulocara eliotti and Oedaleonotus enigma on rangeland in Orovalde and Paradise Valley areas, Humboldt County, reduced to 2-3 per square yard. Melanoplus sanguinipes, second instar to adult, averaged 25-30 per square yard on 160 acres in Orovalde and 200 acres in Paradise Valley. Camnula pellucida (clear-winged grasshopper), mostly fourth and first instars, varied 5-40 per square yard on 600+ acres of native meadowland in lower Paradise Valley. (Galloway). Nymphs, predominantly O. enigma and M. sanguinipes, averaged 8-10 per square yard in Panther Valley and Sun Valley, varied 0-15 per square yard in Lemon Valley and averaged 15-20 per square yard on north slope of Peavine Mountain, Washoe County. Infestations currently present on rangeland, but as this vegetation dries up, movements to cultivated areas can be expected. (Cooney). CALIFORNIA - O. enigma and Trimerotropis rebellii medium on native grasses in Coalinga area, Fresno County; M. devastator (devastating grasshopper) heavy in Lower Lake area, Lake County. (Cal. Coop. Rpt.). OREGON - Second and third instars of Melanoplus spp. locally abundant in fence rows and ditch banks in irrigated section of eastern Malheur County. Population densities of 40-60 per square yard observed. This population contrasts with observations indicating a generally low population on rangelands in eastern area. (Goeden). Surveys in Gilliam, Morrow and Umatilla Counties during week of June 15 revealed grasshopper hatch very irregular, with high count of 10 per square yard in Gilliam County; species A. eliotti, O. enigma and band-wing species ranging from first instars to adult. (Jackson).

MORMON CRICKET (Anabrus simplex) - UTAH - Scattered numbers found in San Juan County, Diamond Mountain area of Daggett County and south of Kanosh in Millard County. Largely fourth and fifth instars, with some adults. No control anticipated. (Burnett, Knowlton; June 23). OREGON - Surveys in Gilliam, Morrow and Umatilla Counties week of June 15 revealed very light populations, with only an occasional young adult present. (Jackson).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ALABAMA - Present in early corn in Fayette, Marion, Cullman and Cherokee Counties. Larvae 1-7 per stalk where many stalks and ears heavily damaged. Pupation occurring and heavy moth flight expected soon. (McQueen). GEORGIA - Infesting 20 percent of corn observed in one field in Franklin County. (Johnson). First ARS record for county. MARYLAND - Larvae generally light in field and sweet corn in whorl stage in most sections. Few early planted fields show infestation of 50-80 percent. (U. Md., Ent. Dept.). DELAWARE - Pupation of spring generation noted in New Castle County on June 24 in potatoes. (Burbutis, Crossan). NEW YORK - Hatching in Monroe County. First eggs found June 16 in Erie County but very scarce; few "pin holes" also evident but none found in tassels. Some treatments applied in Niagara County; corn tasselling. (N.Y. Wkly. Rpt., June 22). OHIO - Heavy infestations observed in field corn planted early in Brown County, southwest; primarily second instars. Many larvae moved down into whorls. (Lyon). INDIANA - Whorl feeding noted on 15 percent of field corn in Porter County, northwest. (Matthew). In west central section, whorl feeding evident on 40-50 percent of plants; in central section, whorl feeding ranged 24-64 percent (average 40 percent); in east central section, whorl feeding averaged 60 percent on field corn. (Bram, Saugstad). Up to 80 percent infestation noted on early planted sweet corn in Posey County, southwest. (Everly). ILLINOIS - Heavy rains, hail, cool nights and strong winds greatly

reduced threat. However, there will be some fields in most heavily infested area that will justify treatment. Situation by districts is as follows:

District	Egg masses per 100 plants		Percent Eggs Hatched	Percent Plants Infested	Larvae per Infested Plant	Corn Height Extended (average)
	Range	Average				
Northwest	0-90	31.0	65	26	1.95	55.1"
Northeast	0-30	17	59	11	0.6	49.9
West	20-140	62	73	27	2.1	62
Central	0-120	41.7	78	16	2.1	63.2

Larval development as follows: Northwest - 60 percent first instar, 36 percent second and 3 percent third; northeast - 50 percent first instar, 50 percent second; west - 49 percent first instar, 49 percent second and 2 percent third; central - 29 percent first instar, 53 percent second and 18 percent third instar. (Ill. Ins. Rpt.). WISCONSIN - As high as 50 percent of corn plants showed leaf feeding injury in field at Brodhead; fresh egg masses averaged 16 percent in this field. Combination of egg masses and leaf feeding in advanced corn fields in Rock and Dane Counties; incidence 0-8 percent. An occasional second-stage larva present. (Wis. Ins. Sur.). MINNESOTA - Light egg laying continues in southern area. In southwest district, egg mass counts averaged 2.5 per 100 plants. Light egg hatch found in only one Rock County field, averaging 20 infested plants per 100. In west central district, egg mass counts averaged 1 per 100 plants. Corn varied from 4 to 40 inches. Generally, more egg masses found on taller corn. (Minn. Ins. Rpt.). SOUTH DAKOTA - Egg laying well underway in southern area. Adults collected in blacklight trap for first time this season on June 25. Egg mass counts relatively low; high count 16 masses per 100 plants. One field of early planted corn in Minnehaha County (area of a high moth population) had whorl damage in approximately 5 percent of plants. (Hintz). NEBRASKA - Polk and York County areas contained 24 percent infestation of egg masses; 16 percent of plants showing feeding signs. Egg masses in Lancaster County on 6 percent of plants; 24 percent having feeding signs. (Roselle). Less than 1 percent of plants contained egg masses in Cedar, Dakota, Dixon and Knox Counties. (Bergman). IOWA - Egg masses averaged 17.5 per 100 corn plants in 32 random sampled fields at Ankeny, Polk County. Check of tallest corn urged. (Iowa Ins. Inf., June 22). MISSOURI - Counts in northern areas range from 87 percent leaf feeding in whorls of corn (borers entered 20 percent of stalks) to 3 percent leaf feeding and 1 percent borers within stalks. Egg laying completed in northern half of State. First-generation adults emerging in southeastern area. (Harrendorf, Jones). KANSAS - Second to fourth instars present only in few of earliest fields in Republic and Jewell Counties (north central) and only about 25-30 percent infestation in those fields. Leaf feeding, midrib feeding and entries into stalks observed. (Burkhardt).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ALABAMA - Extremely heavy numbers and damage to all garden sweet corn observed in Fayette and Marion Counties; larvae nearly full grown and many pupae present; one adult noted. One 30-acre field of older corn (7 feet tall and just tasselling) heavily infested in Marion County. Numerous larvae of this species or *Diatraea crambidoides* present in early corn in Cullman and Cherokee Counties. Some girdling of stalks of field corn by first-generation larvae noted in Marion County. (McQueen). First ARS record for Marion County. MISSISSIPPI - Due to late corn, first generation quite severe in some fields over State. Second-generation adults will begin egg laying week beginning June 22 and continue for about 3 weeks. (Young, Bennett; June 22). ARKANSAS - Second-generation emerging in southern area. (Ark. Ins. Sur.).

CORN EARWORM (Heliopsis zea) - DELAWARE - Larvae present in corn in most areas of State. (Burbutis, Crossan). MARYLAND - Causing noticeable but light damage to corn in whorl stage in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). GEORGIA - Whorls of corn 30 percent infested in Franklin County cornfield. (Johnson). ALABAMA - Light on corn throughout State, infesting ears and whorls. Infestations in Marengo County heavy, with many fields of late corn having more than one larva per stalk. (Vickery, Miller, et al.). MISSOURI - Feeding very light in whorls of corn in northeast and north central areas; 0-3 per 100 plants. Early instars 0-2 per sweep on alfalfa in Cooper County, central area. (Houser, Thomas, Wood). NEW MEXICO - Light to moderately heavy, spotted populations causing considerable damage to foliage of grain sorghum in fields near Lovington, Lea County. (N.M. Coop. Rpt.).

STALK BORER (Papaipema nebris) - OHIO - Larval infestations observed on field corn in Henry County, northwest, and in Wayne County, northeast. (Blair, Barry). ILLINOIS - Light in marginal rows of corn in northern and western areas. (Ill. Ins. Rpt.). IOWA - Infesting 5 percent of plants in field of oats in Henry County. (Iowa Ins. Inf., June 22). SOUTH DAKOTA - Collected in 2 different locations in Minnehaha County. (Hintz). MINNESOTA - Reported in marginal rows of corn in Blue Earth County. (Minn. Ins. Rpt.).

BLACK CUTWORM (Agrotis ipsilon) - IOWA - Causing 20-25 percent loss in replanted field in Washington County where chlorinated hydrocarbon disked in. (Iowa Ins. Inf., June 22). WISCONSIN - Larval activity continues. This insect and webworms seriously injured some corn in Lafayette County and corn 12 inches high being cut off in Green Lake County. Some severe infestations reported from Waukesha County. (Wis. Ins. Sur.). NEBRASKA - Larvae caused minor damage to field of castor-beans in Knox County. (Bergman).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Damage increasing in untreated sweet corn (91 percent of examined plants infested) at Gainesville, Alachua County. (Habek). GEORGIA - Light infestations on coastal Bermuda grass in Tift County. (Byers). Moderate infestations on young corn in Lee County. (Andrews). ALABAMA - Extremely heavy populations and damage to coastal Bermuda grass, millet, sorghum and lawns being reported in Mobile County; larvae averaged 11 per square foot in one 50-acre field and total destruction of all grass growth resulted. One field of grass and watermelons in Houston County under attack. (Vickery, Seibels, Kimbrough). ARKANSAS - Found for first time this season in Desha County. (Ark. Ins. Sur.).

ARMYWORM (Pseudaletia unipuncta) - VIRGINIA - Infestating corn locally in Pittsylvania and Franklin Counties. (Shelton). MICHIGAN - Problems caused by larval feeding diminished markedly in western counties as high percentage of population pupated; adult emergence started June 23 in cage containing specimens collected as larvae on June 3. (Janes, Wells, Newman, Snow). WISCONSIN - Flights occurring in several areas of State. High counts appearing in more scattered locations and about a week earlier than during 1962 (an outbreak year). A serious potential exists. (Wis. Ins. Sur.). SOUTH DAKOTA - Collected in Aurora and Charles Mix Counties on winter wheat; averaged 2-3 per 10 sweeps with no visible damage. (Hintz).

CORN ROOTWORMS (Diabrotica spp.) - KANSAS - D. virgifera (western corn rootworm) adults emerging in Riley County, northeast. (Brooks). In Republic and Jewell Counties, north central area, all stages of larval development and few pupae of this species noted. No adults observed in area. Populations generally low, varying 0-32 per plant. Damage light to June 26. (Burkhardt). SOUTH DAKOTA - Hatching of Diabrotica spp. underway; first larvae of season collected in Hutchinson County research field plot. Additional surveys planned for remainder of growing season. (Nearman, June 19). Larvae developed to late second or early third stage, with eggs still hatching. Populations generally averaged 1 larva per plant in every third field surveyed; populations as high as 12 larvae per plant with root damage evident in Lincoln County. (Kantack, Nearman, Hintz). MINNESOTA - Hatching of Diabrotica spp. reported in southwest. (Minn. Ins. Rpt.).

WISCONSIN - Cornfield in Walworth County had heavy infestation of D. longicornis (northern corn rootworm) even after treatment. Resistance to certain insecticides suspected. (Wis. Ins. Sur.). IOWA - Diabrotica spp. appear to be most important crop pests in State. First and second instars found at Ida Grove training session in Ida County and in second-year corn in Sac County on June 16. Many first-stage larvae of D. virgifera and one second and one third-stage larva of D. undecimpunctata howardi (southern corn rootworm) recovered north of Alta, Buena Vista County, June 18. High count of 31 Diabrotica spp. larvae taken in 7-inch cube soil sample (including corn plant) in Iowa County June 18. Hatched rootworm larvae found June 16 in Iowa County. Diabrotica spp. average 10 per plant in fields treated at planting time with chloridanted hydrocarbon and phosphate insecticides; larvae 0.25 to 0.5 inch long. Heavy rains occurred. None to 1 larva found where other phosphate insecticides applied at planting time. (Iowa Ins. Inf., June 22). MISSOURI - Larvae of Diabrotica spp. found mainly on volunteer corn in northwestern area. Counts light and infestation apparently about 2 weeks later than in 1963. (Houser, Thomas, Wood). INDIANA - D. longicornis larval development one-half to two-thirds complete in northwest; scattered damage reported. (Matthew).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Counties and townships found infested for first time as follows: Montcalm County - all townships except Pine and Reynolds; Isabella County - all townships; Newaygo County - Bridgeton, Sheridan, Dayton, Sherman, Garfield, Ashland, Grant and Enslie Townships; Mecosta County - Deerfield, Austin, Wheatland and Mill-Brood Townships; Oceana County - Greenwood Township. Large percentage of population in pupal stage in primary infestation area of Berrien County. Eggs extremely rare and larvae generally scarce. General adult emergence underway in both wheat and oat fields. Peak emergence expected around July 1. (Lovitt, Ruppel). INDIANA - New county records include Jay, Adams, Newton and Tipton Counties, all adjacent to previously infested counties. (Favinger). In La Porte and St. Joseph Counties, northeast, trace deposits of eggs still being found on oats. Pupation nearly complete. "Summer adults" beginning to emerge, but peak emergence expected after July 1, later than previously predicted. (Wilson).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Present on corn in areas of New Castle County; first adults seen on June 19 in eastern Kent County. (F. Murphey). VIRGINIA - Adults moving in numbers out into corn fields in Smyth County. (Lutz). INDIANA - Ranged 0-5 per sweep on smartweed and 0-1 per 10 sweeps on soybeans in Martin County, southwest. Feeding observed on soybeans, wild grape and smartweed. (Larsen).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Conspicuous numbers on young corn in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).

WIREWORMS - MICHIGAN - Undetermined species still reported damaging some corn fields in Ottawa and Sanilac Counties. (Machiele, Sowerby).

CORN LEAF APHID (Rhopalosiphum maidis) - GEORGIA - Heavy infestation on experimental plots of corn in Tift County. (McMillan). TEXAS - Light, local infestations present on grain sorghum in Mason County. (Meisch). NEW MEXICO - Generally light to moderate on grain sorghum in Eddy, Chaves, Roosevelt, Curry and Quay Counties. Infestations mainly in whorls and on young leaves. Heavier infestations found in several Lea County grain sorghum fields where damage was apparent. (N.M. Coop. Rpt.). COLORADO - Trace numbers feeding on barley in Weld County. Grain nearing maturity. No damage expected. (Jenkins). NEVADA - Heavy infestation on oats in Fallon area, Churchill County. (Martinelli).

CORN ROOT APHID (Anuraphis maidiradicis) - IOWA - Appearing in many counties. (Iowa Ins. Inf., June 22). MINNESOTA - Found in nearly all corn fields in southwest. Moisture conditions adequate, therefore very little stunting noticed. (Minn. Ins. Rpt.).

GRAIN APHIDS - ILLINOIS - Macrosiphum avenae (English grain aphid) varied 10-250 (averaged 108) per 100 sweeps on oats in northern half of State; Schizaphis graminum (greenbug) varied 0-10 per 100 sweeps in same area. (Ill. Ins. Rpt.). WISCONSIN - Populations in oat fields in southeast remain very low. Ratio of M. avenae to S. graminum continues at 6-8:1. Populations of combined species rarely exceeded 8 per 10 sweeps. Barley yellow dwarf disease scarce although few fields in southwestern Waukesha County had noticeable symptoms in marginal areas of fields. (Wis. Ins. Sur.). MINNESOTA - Populations of M. avenae and S. graminum remain very low throughout State. (Minn. Ins. Rpt.). NORTH DAKOTA - Trace numbers of M. avenae observed on small grains in northwest and trace numbers of S. graminum on wheat in same area. Latter species up to 3 per sweep from oats near Wyndmere. (Frye). COLORADO - Rhopalosiphum fitchii (apple grain aphid) abundant, 600-1,000 per 100 sweeps, on barley in Mesa County; controls applied. (Bulla).

CHINCH BUG (Blissus leucopterus) - ILLINOIS - Newly hatched nymphs per foot of row in wheat varied 0-80 (averaged 30) in east district, 0-20 (averaged 8) in central district and 0-14 (averaged 5.3) in northwest. (Ill. Ins. Rpt.). MISSOURI - Beginning to migrate from small grains to corn in Putnam (north) and Daviess (northwest) Counties. (Houser, Thomas, Wood). OKLAHOMA - Moderate to heavy in grain sorghum and corn in Craig, Rogers, Mayes, Okmulgee, Payne and Cotton Counties. (Okla. Coop. Sur.).

FALSE CHINCH BUGS (Nysius spp.) - TEXAS - Widespread infestation exists over much of State, with exception of high plains and trans-Pecos areas. Colorado, Midland, Guadalupe and Mason Counties report heavy infestations on wide variety of crops, particularly grain sorghum. (Texas Coop. Rpt.).

STINK BUGS - TEXAS - Adults observed in grain sorghum heads in Mason County; 1-3 per head. (Meisch). NEW MEXICO - Chlorochroa ligata (conchuela) and Thyanta pallidovirens spinosa abundant in many wheat fields checked in Roosevelt, Curry, and Quay Counties. C. ligata averaged 5-65 adults per 100 sweeps. Light infestations of adults and nymphs found in Quay County oat fields. (N.M. Coop. Rpt.). ARKANSAS - Oebalus pugnax pugnax (rice stink bug) survey negative in 8 Lonoke County rice fields. (Ark. Ins. Sur.).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - MISSOURI - Larvae still feeding within corn leaves in northern areas; infestation light. (Houser, Thomas, Wood).

HESSIAN FLY (Phytophaga destructor) - VIRGINIA - Infesting about 25 percent of wheat plants in field in Lucketts area, Loudoun County. (Tarpley, Brown; June 16).

A CRANE FLY - IOWA - Larvae tunneling in corn in Fayette County. (Iowa Ins. Inf., June 22).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Adults observed in wheat at Bottineau, Bottineau County. (Frye).

THRIPS - COLORADO - Light numbers of undetermined species present on small grains in northeast; injury not so serious as in 1963. (Jenkins). ARIZONA - Some Bermuda grass fields treated for Chirothrips sp. in Roll area of Yuma County during week. (Ariz. Coop. Sur.). CALIFORNIA - Frankliniella occidentalis (western flower thrips) adults medium on canarygrass plantings in Lemoore, Kings County. (Cal. Coop. Rpt.). MARYLAND - Undetermined species heavy on 50-acre field of alfalfa at Queenstown, Queen Annes County. Moderate to heavy on young corn and soybeans in several sections. (U. Md., Ent. Dept.).

WHEAT CURL MITE (Aceria tulipae) - COLORADO - Continues to occur on wheat in trace numbers in northeastern counties; wheat streak mosaic involved. (Jenkins, Urano).

GARDEN SYMPHYLAN (Scutigera immaculata) - IOWA - Numerous in field of corn in Clay County. (Iowa Ins. Inf., June 22).



GRASS PLANT BUGS - UTAH - Leptopterna ferrugatus caused severe discoloration of wheat, barley and planted and wild grasses in number of farm and range areas this spring. Presently damaging soil bank fields at Fillmore, Holden and west of Kanosh, and on planted grasses in area west of Kanosh, Millard County; 100 adults per 20 sweeps taken in many fields. Stripped nymphs extremely abundant earlier, with grasses largely bleached out. (Knowlton, Rust). A black species has been most damaging to planted grass fields in Kane County, from Johnson Canyon to Alton. (Knowlton, Hatch). Black grass bugs and L. ferrugatus damaging 200 acres of wheat plus barley in White Valley area of Box Elder County. (Knowlton). CALIFORNIA - Irbisia solani (a black grass bug) nymphs and adults heavy on wheatgrass and rye in Winton area, Plumas County. (Cal. Coop. Rpt.).

FRIT FLY (Oscinella frit) - NEW MEXICO - Present on greens of university golf course at University Park. (N.M. Coop. Rpt.).

A CHINCH BUG (Blissus leucopterus ssp.) - TEXAS - Locally heavy in St. Augustine grass lawns in Dallas County. (Davis).

ALFALFA WEEVIL (Hypera postica) - LOUISIANA - First specimen to be found in State was collected April 30, 1964, by Wayne Machado on crimson clover near St. Francisville in West Feliciana Parish. Total of 11 weevils collected in 1,200 sweeps by Dr. S. D. Hensley and Mr. Machado. Det. by Mrs. B. T. Chapin; confirmed by R. E. Warner. (Chapin). SOUTH CAROLINA - Has completely broken through chemical control program on 2 alfalfa demonstrations in Saluda County. Unless weevil brought under control, plans for putting alfalfa back into forage program may be abandoned. (Nettles et al., June 22). VIRGINIA - Alfalfa uninfested to very lightly infested in southwest; larvae ranged 0-60 and adults 0-12 per 100 sweeps. Alfalfa in most sections approaching second cutting and insect damage generally negligible. (Tarpley). MARYLAND - Larvae and adults continue to damage unprotected alfalfa in central and eastern sections. Highest larval count 15 per sweep in Frederick and 5 per sweep at Walkersville, Frederick County. (U. Md., Ent. Dept.). DELAWARE - Pupae fairly common and adults averaged around 7-10 per 100 sweeps on alfalfa in some areas of New Castle and Kent Counties. (Burbutis, Crossan). OHIO - Heavy larval populations observed in untreated, second cutting field of alfalfa in Lawrence County, south central area; averaged 150 per 25 sweeps. Very few adults and pupae present. Many alfalfa plants 10-40 percent skeletonized. (Lyon). INDIANA - Surveys negative on alfalfa in Fayette, Franklin, Decatur, Bartholomew, Johnson, Morgan, Monroe, Greene, Sullivan, Vigo and Vermillion Counties. (Bram, Saugstad). SOUTH DAKOTA - Collected for first time in Haakon, Jones, Mellette, Todd and Washabaugh Counties, where counts ranged 1-26 first to third instars per 100 sweeps. (Hintz, June 19). COLORADO - Heavy populations, in association with Acyrtosiphon pisum (pea aphid), holding back alfalfa growth after first cutting in many fields in Greeley area, Weld County. (Uran). WYOMING - Larvae averaged 1,500-3,000 per 100 sweeps of alfalfa in Fremont, Hot Springs, Washakie and Bug Horn Counties; averaged 400-600 per 100 sweeps in Park County alfalfa. Severe larval damage noted in second growth in same areas. (Marks). UTAH - Causing some damage in Cache and Wasatch Counties. Cool spring weather and storms slowed weevil development conspicuously; also made harvesting ahead of injury difficult. Larvae 12-30 and adults 1-6 per sweep in North Logan fields, Cache County; fields being cut. (Knowlton, June 24). NEVADA - Larvae varied 40-125 per sweep in untreated fields in Douglas County; 5-30 per sweep in Fernley, Lyon County; and 40-150 per sweep in southern Washoe County. Damage heavy in many fields. (Cooney). OREGON - Populations variable in Crook County alfalfa, but some fields averaged 12-20 larvae per sweep. (Dickason, Every).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - IDAHO - Adults still emerging; 5-10 per 90° sweep June 8; 10-20 June 26. White blooms per square yard 50-200 June 8, 160-600 June 26. Strong field evidence of high resistance to previous chlorinated hydrocarbon control program. (Yunus, Johansen).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Larvae very abundant in 10-acre field of clover near Parma, Canyon County. Larval damage to roots very severe. Adults also present. (Bechtolt). OHIO - Infesting soybeans in Mercer County, west central section. (Blair, DeBrosse).

STRIPED FLEA BEETLE (Phyllotreta striolata) - SOUTH DAKOTA - Feeding damage evident in many central area alfalfa fields; ranged 50-300 per 100 sweeps. (Hintz, June 19).

A CHAFER (Hoplia oregona) - CALIFORNIA - Adults heavy in alfalfa fields in Soledad area, Monterey County. (Cal. Coop. Rpt.).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - SOUTH DAKOTA - Adults ranged 70-150 per 100 sweeps throughout central third of State. (Hintz, June 19). NORTH DAKOTA - Adults still present in alfalfa over most of State; ranged from a trace to 10 per sweep. (Frye). MINNESOTA - This species and a few E. pennsylvanica (black blister beetle) noted in nearly all alfalfa in southwest; counts of over 50 per 100 sweeps found in area. (Minn. Ins. Rpt.).

A BLISTER BEETLE (Epicauta sp.) - NEBRASKA - Adults 1-6 per 10 sweeps on alfalfa in northeast. (Bergman).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Light in Tillman and Greer Counties; 25-150 per 10 sweeps. Light also in Garvin County, with heavier counts in Choctaw County. (Okla. Coop. Sur.). ARKANSAS - Very heavy June 19 locally in Conway County; very few present in same field of alfalfa June 25. Very large numbers of beneficial insects, especially Hippodamia convergens (convergent lady beetle) adults and larvae, present both dates. (Ark. Ins. Sur.). KANSAS - Low populations observed in alfalfa in Kingman, Pratt, Clark and Meade Counties, southern area. Counts 0-30 per 100 sweeps. (Peters). NEBRASKA - Less than 1-30 per 10 sweeps in Cedar, Dakota, Dixon and Knox Counties. (Bergman). SOUTH DAKOTA - Collected for first time in Haakon, Washabaugh and Bennett Counties; ranged 1-40 per 100 sweeps. (Hintz, June 19). WISCONSIN - Little change noted in Brodhead area. (Wis. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - OREGON - Counts in some Crook County alfalfa average up to 50 per sweep. (Dickason, Every). NEVADA - Averaged 40 per sweep in alfalfa seed fields in Reese River, Lander County. (Hilbig). Varied 30-200 per sweep in alfalfa hay fields in Douglas County; Fernley, Lyon County; and southern Washoe County. (Cooney). UTAH - Low to moderate in Cache County alfalfa. (Knowlton). WYOMING - Remains about the same in Big Horn Basin alfalfa; adults and nymphs averaged 3,600 per 100 sweeps. (Marks). SOUTH DAKOTA - Very low in many alfalfa fields surveyed; highest count 70 per 100 sweeps in Stanley County. (Hintz, June 19). NEBRASKA - Ranged 15-350 per 10 sweeps on alfalfa in northeast. (Bergman). MISSOURI - Very light in northern area; 100-200 per 100 sweeps. (Houser, Thomas, Wood). WISCONSIN - Populations reduced markedly; ranged 1-6 per sweep in regrowth alfalfa in parts of Dane, Rock, Green, Walworth, Waukesha, Jefferson, Sauk, Iowa, Columbia and Bayfield Counties. (Wis. Ins. Sur.). INDIANA - Adults and nymphs generally low on alfalfa in west central, central and east central sections; numbers reached maximum of 14 per sweep in Bartholomew and Greene Counties, but generally averaged 3 per sweep. (Bram, Saugstad). MARYLAND - Light to moderate, 0-50 per sweep, on alfalfa in Frederick County. (U. Md., Ent. Dept.).

CLOVER APHID (Anuraphis bakeri) - NEVADA - Averaged 15 per sweep in red clover seed fields in Reese River, Lander County. (Hilbig).

LYGUS BUGS (Lygus spp.) - WYOMING - Adults and nymphs averaged 100-325 per 100 sweeps in alfalfa in Fremont, Hot Springs, Washakie, Big Horn and Park Counties. (Marks). UTAH - Adults 2 and nymphs 4 per sweep on alfalfa at North Logan; 60 percent L. hesperus. (Knowlton). NEVADA - Averaged 4 per sweep in red clover and 15 per sweep in alfalfa seed fields in Reese River, Lander County. (Hilbig). Varied 10-50 per sweep in alfalfa hay fields in Douglas County; Fernley, Lyon

County; and southern Washoe County. (Cooney). ARIZONA - Heavy on alfalfa in Yuma and Graham Counties; treatments necessary for alfalfa seed crop in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light to moderately heavy infestations found in alfalfa in Tucumcari area, Quay County; 1-3 per sweep in most fields checked. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - NEBRASKA - Nymphs and adults averaged 6 per 10 sweeps in alfalfa and sweetclover in northeast. (Bergman). MISSOURI - Averaged 200-400 per 100 sweeps in alfalfa, 35 per 100 plants in corn and 1 per linear foot on soybeans in northern half of State. (Houser, Thomas, Wood). OKLAHOMA - Light on alfalfa in Greer and Tillman Counties, southwest. (Okla. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Average per 100 sweeps 40 in Yuma County and 25 in Graham County. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - INDIANA - Adults averaged 2 per 10 sweeps on alfalfa in west central and central sections; considerably greater populations (2 per sweep with maximum of 5 per sweep) in east central section. (Bram, Saugstad). IDAHO - Nymphal populations continue to remain abundant and causing stunting of host plants throughout all of northern area. (Manis).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Counts as high as 20 nymphs per sweep found on alfalfa in southern area. Practically all regrowth alfalfa had adult counts of from 1 per 10 sweeps to 1 per sweep in marginal areas of field. Counts of 3 per sweep reported from Bayfield County and reportedly more noticeable than usual in Ashland County. Several fields of new seeding showing injury in Waukesha County. (Wis. Ins. Sur.). MARYLAND - Increasing on alfalfa to 20 per sweep in several fields in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Adults and nymphs averaged 4 per 10 sweeps (maximum 7 per 10 sweeps in Vermillion and Sullivan Counties) in west central, central and east central sections. (Bram, Saugstad).

FORAGE LOOPER (*Caenurgina erechtea*) - KANSAS - Few larvae observed in alfalfa in south central and southwest areas; no damage noted. (Peters).

WEBWORMS (*Loxostege* spp.) - KANSAS - Few larvae noted on alfalfa in south central and southwest area; no damage noted. (Peters). ARKANSAS - *L. similalis* (garden webworm) light on alfalfa checked in several areas of State. Specimens collected from soybeans in Little River County determined as this species; 100 acres heavily infested. (Ark. Ins. Sur.; Brown).

A SPIDER MITE (*Tetranychus* sp.) - MARYLAND - Heavy on red clover at 2 localities in Queen Annes County. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - GEORGIA - Light to moderate on peanuts in Evans, Tift and Mitchell Counties. (McGill, French). ALABAMA - Heavy infestations observed on soybeans in Monroe and Baldwin Counties. Few observed on corn in Fayette County. (Wilson, Lemons, Pitts).

GREEN CLOVERWORM (*Plathypena scabra*) - DELAWARE - Larvae 3-4 per 10 sweeps on some soybeans and alfalfa in Kent County and generally present on these crops in most of State. (Burbutis, Crossan).

GRANULATE CUTWORM (*Feltia subterranea*) - GEORGIA - Generally present but little damage to foliage of peanuts. (McGill, French).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Light on soybeans in Worcester County, but expected to increase. (U. Md., Ent. Dept.). VIRGINIA - Samples of soybeans from several eastern counties indicate severe damage by this species, thrips and *Cerotoma trifurcata* (bean leaf beetle), especially where no rainfall. (Clark). SOUTH CAROLINA - Some leaf damage to soybeans noted in Clarendon and Marlboro Counties week ending June 12, but not sufficient to justify controls. (Nettles et al.).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Light to moderate numbers of adults occurring on soybeans in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - DELAWARE - Adults averaged 3 per 10 sweeps on field of soybeans in New Castle County. (Burbutis, Crossan). MARYLAND - Heavy, over 10 per sweep, on alfalfa at several localities in Frederick County. Generally present on soybeans in Queen Annes County. (U. Md., Ent. Dept.).

NUTTALL BLISTER BEETLE (*Lytta nuttalli*) - MINNESOTA - Reported from east Otter Tail County causing damage to soybeans. (Minn. Ins. Rpt.).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - MINNESOTA - Adults and nymphs averaged 350 per 100 sweeps in small grains in southwest; counts in some small grain and flax fields averaged over 1,000 per 100 sweeps. Aster yellows showing up in flax in southwest; less than 1 percent of plants show symptoms so far. (Minn. Ins. Rpt.). NORTH DAKOTA - Trace numbers taken from small grain in northwest; adults 3 per sweep on flax in southeast. (Frye).

TURNIP APHID (*Hyadaphis pseudobrassicae*) - CALIFORNIA - Heavy on bird rape, *Brassicae campestris*, in Bishop, Inyo County. (Cal. Coop. Rpt.).

AN APHID (*Anuraphis helichrysi*) - CALIFORNIA - Medium populations on safflower in Firebaugh-Coalinga areas, Fresno County. (Cal. Coop. Rpt.).

AN APHID - GEORGIA - Moderate infestation on peanuts in Decatur County. (McGill, French).

SEED-CORN MAGGOT (*Hylemya platura*) - IOWA - Destroyed one-third stand of soybeans in field in Jackson County. (Iowa Ins. Inf., June 22).

#### FRUIT INSECTS

EUROPEAN RED MITE (*Panonychus ulmi*) - MISSOURI - Building up in southeast; many eggs and young present in most orchards. Red Delicious apples need particular watching. (Wkly. Rpt. Fr. Grs., June 24). INDIANA - Populations vary extensively from orchard to orchard in Vincennes area, Knox County. (June 23). Very active; general buildup may be expected on apples. (Cleveland). OHIO - Motile mite populations on check trees in Wayne County, northeast, range up to 16 per leaf; egg counts at high of 40 per leaf. (Forsythe). MARYLAND - Not increased on apples over previous weeks in Hancock area, Washington County. (U. Md., Ent. Dept.). NEW YORK - Maximum population levels occur when approximately 18,000 heat units accumulated; 12,072 units accumulated in Geneva area, Ontario County, to June 21. Peak activity expected in 14-20 days. Brought under control in Orleans County but hot weather could increase populations. (N.Y. Wkly. Rpt., June 22). CONNECTICUT - Lower levels than in previous week; may increase where controls not used. (Savos). VERMONT - Troublesome in some orchards. (MacCollom).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - MISSOURI - At least 1 heavy infestation reported in central area despite rains. This species will be major problem statewide until autumn. (Wkly. Rpt. Fr. Grs., June 24). INDIANA - Populations vary extensively from orchard to orchard in Vincennes area, Knox County. Centers of trees should be examined for presence of damaging populations. (June 23). Increasing on apples and peaches. (Cleveland). CONNECTICUT - At lower levels than in previous week; may build up where not controlled. (Savos).

ORCHARD MITES - CONNECTICUT - Populations at low levels but expected to increase with hot, dry weather. (Savos). MARYLAND - Populations of *Tetranychus* sp. increased somewhat over previous weeks in Hancock area, Washington County. (U. Md., Ent. Dept.). MASSACHUSETTS - Increasing quite rapidly due to higher temperatures. Close inspections urged. (Wave).

PEAR RUST MITE (*Epitrimerus pyri*) - NEW YORK - Caused some russetting of fruit; mites concentrated on calyx end of fruit at Geneva, Ontario County. Serious infestation reported in western Orleans County orchard. Generally hard to find in Niagara County pear orchards but increase expected. (N.Y. Wkly. Rpt., June 22).

APPLE RUST MITE (*Aculus schlechtendali*) - NEW YORK - Present on leaves of several varieties in Clinton County; rusty brown discoloration noted on undersides of leaves along veinlets where extensive feeding apparently occurred. (N.Y. Wkly. Rpt., June 22).

CODLING MOTH (*Carpocapsa pomonella*) - MISSOURI - Second brood expected over most of State about July 1. Earlier in southeast and later in northwest. Over most of State, broods overlap so little real break will be noted. Adequate protection urged before July 4. (Wkly. Rpt. Fr. Grs., June 24). INDIANA - Last adult emergence in overwintering larval cages at Vincennes, Knox County, occurred June 12; first second-generation adults emerged from infested apples in insectary June 22. Field emergence of second-generation adults in area expected at any time; none taken in bait traps as of June 23. (Cleveland). MICHIGAN - Emergence in Van Buren and Kent Counties in cages practically ceased. Low numbers continue to emerge in Oakland County cage. Larval entries becoming more numerous on unsprayed apples in southern counties. (Wooley, Carpenter, Siefert, Gilmore, Sowerby). NEW YORK - Entries continue very light even in poorly sprayed orchards in Ulster County. First larval entries in fruit noted in Clinton County. Emergence very heavy June 19 and 20 in Monroe County; heaviest to date. Entries readily found in unsprayed orchards in Niagara County. (N.Y. Wkly. Rpt., June 22). VERMONT - Emergence continues. (MacCollom). MARYLAND - Entries light in apples in Hancock area, Washington County. (U. Md., Ent. Dept.).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - COLORADO - Reached flight peak on June 17 in Palisade area, Mesa County, peach orchards. Total of 242 on 24 properties taken; 129 taken on 1 property from 5 traps. (Colo. Dept. Agr.; Anderson, Bulla). MISSOURI - No new activity reported in most areas; brood about over. (Wkly. Rpt. Fr. Grs., June 24). INDIANA - Second-generation adults continue to appear in bait traps in Vincennes area, Knox County. (Cleveland, June 23). ALABAMA - Widespread, light to medium in peach twigs in Lee and Fayette Counties. (McQueen).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - OREGON - Small adult numbers appearing in bait pots in Polk and Marion County peach orchards. (Larson).

FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) - WISCONSIN - Second-brood adults flying in Gays Mills area. (Wis. Ins. Sur.).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - MICHIGAN - Adult emergence from generally light first brood underway in southwestern area. (Carpenter, Wooley). INDIANA - Number of second-generation adults in bait traps increased slightly in Vincennes area, Knox County. (Cleveland, June 23). MISSOURI - Conspicuously absent this year. (Wkly. Rpt. Fr. Grs., June 24).

A LEAF BLOTCH MINER (*Lithocolletis crataegella*) - NEW YORK - Pupae noted within mines on leaves of young orchard in Clinton County. (N.Y. Wkly. Rpt., June 22).

UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) - MISSOURI - New brood about to start in central area although to date only one orchard reported infested. (Wkly. Rpt. Fr. Grs., June 24).

PEACH TREE BORER (*Sanninoidea exitiosa*) - INDIANA - First adult male taken in insectary at Vincennes, Knox County, June 12; this is probably 7-10 days ahead of any field emergence. (Cleveland). MASSACHUSETTS - Emerging now; controls recommended on peach orchards. (Wave).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - MICHIGAN - Adults continue to emerge from infested trees in fruit areas; data indicate peak emergence occurred

in mid-June in several locations. Few pupae taken from cankers in Steel Red apples in Oakland County. (Wooley, Carpenter, Siefert).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Larval spray posted for June 27-30 in Mesa County peach orchards. (Bulla).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - General emergence underway in eastern and southwestern counties since June 22. Recent rains and advanced season expressed as accumulated growing degree days above base 40° has led to extremely early general emergence this year. (Wooley, Siefert, Carpenter). NEW YORK - No emergence as of June 20 in Monroe County. Emergence heavy in Niagara County June 20-21. (N.Y. Wkly. Rpt.). MASSACHUSETTS - First emergence noted in traps June 24; 1 adult observed on apple June 25. (Wave). CONNECTICUT - None observed in emergence cages but should appear soon. (Savos). RHODE ISLAND - No evidence of eggs nor adults found. (Mathewson).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - MICHIGAN - Increased adult numbers noted on neglected cherry trees in Berrien County following rains. (Carpenter).

CHERRY MAGGOT (Rhagoletis cingulata) - NEW YORK - Emergence in Monroe County slowed down considerably. Peak probably around June 8. (N.Y. Wkly. Rpt.).

FRUIT FLIES - OHIO - Rhagoletis pomonella (apple maggot), Zonosemata electa (pepper maggot) and Rivellia sp. recovered from sticky board traps throughout State. Rivellia sp. heavy in Lawrence County, south central. (Lyon).

APPLE APHID (Aphis pomi) - CONNECTICUT - Building up on sucker growth but terminal leaves beginning to harden; should not be much of problem from now on. Scattered infestations found especially on sucker growth. (Savos). RHODE ISLAND - Small colonies on unsprayed apples. (Mathewson). INDIANA - Increasing on apple in southwest section. (Cleveland).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Hatching rapidly in Niagara County. (N.Y. Wkly. Rpt., June 22). MASSACHUSETTS - Beginning buildup where controls omitted. (Wave).

SAN JOSE SCALE (Aspidiotus perniciosus) - UTAH - Damaging in several apple orchards in Ogden-North Ogden area, Weber County. (Knowlton). ALABAMA - Appearing on new growth and fruit of apple trees in Lee and Fayette Counties. (Bagby, Pitts, et al.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - MICHIGAN - Egg hatch underway on infested trees in Ingham County; sprays should be delayed until 70 percent of crawlers migrated from under old scales. (Dowdy).

HARLEQUIN BUG (Murgantia histrionica) - NEW MEXICO - Feeding on fruit of peach trees at Hobbs, Lea County; fruit worthless. (N.M. Coop. Rpt.).

PERIODICAL CICADAS (Magicacada spp.) - MISSOURI - Brood IV reported still active in northwest and west central areas. (Wkly. Rpt. Fr. Grs., June 24).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - Larvae leaving dropped plums at high rate during June 22-26. (Forsythe).

ROSE CHAFER (Macrodactylus subspinosus) - NEW YORK - Adults noted in young orchard on sandy soil in Clinton County. (N.Y. Wkly. Rpt., June 22).

A LEAF MINER - OHIO - Heavy infestation of unidentified species noted on apple leaves in Brown County orchard, southwest. Emergence appeared complete. (Wilson).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - First seasonal treatment of yard hosts in Livermore initiated. Over 2,800 hosts dusted. Not yet detected in Livermore Valley; inspections within border of quarantine zone surrounding Kerman, Fresno County, also negative. (Cal. Coop. Rpt.).

GRAPE BERRY MOTH (Paralobesia viteana) - MISSOURI - Few adults reported in Rosati area. (Wkly. Rpt. Fr. Grs., June 24). MICHIGAN - Pupation underway in southwestern counties; first pupa noted June 18. (Carpenter).

GRAPE SCALE (Aspidiotus uvae) - VIRGINIA - Severe on grapevines at home in Moneta, Franklin County. Det. by D. Vest. (Tucker, June 16).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Light on leaves of 50 inspected grape plants at Barberville, Volusia County. (Roberts, June 5).

FALL WEBWORM (Hyphantria cunea) - NEW JERSEY - Appearing on blueberries; controls recommended. (Ins.-Dis. Newsltr.).

LEAFHOPPERS - NEW JERSEY - Sharp-nosed species active on blueberries; controls urged. (Ins.-Dis. Newsltr.).

A FALSE CHINCH BUG (Nysius sp.) - NEW MEXICO - Damaged buds on young pecan trees in Artesia area, Eddy County. (N.M. Coop. Rpt.).

APHIDS - GEORGIA - Unspecified species heavy on pecans in Tift County. (French).

A FALSE POWDER-POST BEETLE (Melalgus confertus) - CALIFORNIA - Adults medium in twigs of olive tree nursery stock in Belmont, San Mateo County. (Cal. Coop. Rpt.).

Citrus Insect Situation in Florida - Mid-June - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 36 percent of groves (norm 49 percent); 19 percent economic (norm 28 percent). Statewide population will remain below average. Scattered groves, mostly those not given postbloom rust mite spray, may show rapid buildup. Highest districts north and west. CITRUS RED MITE (Panonychus citri) infested 67 percent of groves (norm 74 percent); 48 percent economic (norm 52 percent). Increasing rapidly in all districts and expected to exceed average level. About 30 percent of groves will have heavy infestations. Highest districts north, west, central and south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 60 percent of groves (norm 47 percent); 40 percent economic (norm 29 percent). Increasing rapidly in all districts and will continue above average. About 25 percent of groves will have heavy infestations. Highest districts east, central, north and south. PURPLE SCALE (Lepidosaphes beckii) infested 82 percent of groves (norm 79 percent); 11 percent economic (norm 17 percent). Below normal; little change expected. Highest district south. GLOVER SCALE (L. gloverii) infested 77 percent of groves (norm 28 percent); 23 percent economic (norm 2 percent). Above normal and increasing. Highest districts east and south. CHAFF SCALE (Parlatoria pergandii) infested 78 percent of groves (norm 44 percent); 20 percent economic (norm 2 percent). Above normal; little change expected. Highest district east. YELLOW SCALE (Aonidiella citrina) infested 51 percent of groves (norm 12 percent); 14 percent economic (norm 1 percent). Above normal; little change expected. Highest district central. BLACK SCALE (Saissetia oleae) infested 60 percent of groves (norm 43 percent); 38 percent economic (norm 28 percent). Above normal and further increase expected. Majority of scales in young stage except in east district. Highest districts south, east, west and central. MEALYBUGS infested 72 percent of groves (norm 33 percent); 38 percent economic (norm 11 percent). Continue at record high level. Although parasites and predators increasing, including Cryptolaemus sp. (a lady beetle), they do not appear adequate to reduce mealybug populations before July. Highest districts east, south and central. WHITEFLIES infested 76 percent of groves (norm 45 percent); 38 percent economic (norm 20 percent). Abnormally high populations will persist into July. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Locally heavy on trifoliolate orange seedlings; causing concern in citrus nurseries in Yuma County. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Heavy on citrus in areas of Yuma and Maricopa Counties; some controls necessary. (Ariz. Coop. Sur.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - General and moderate on 75 percent of 2,820 sweet orange nursery plants at Lady Lake, Lake County. (Bentley, June 16).

#### TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Larvae heavy on unsprayed potatoes in West Kingston, Washington County. (Mathewson). NEW YORK - Most eggs of first brood hatched in Suffolk County. Adults and eggs abundant on tomatoes in Albany County. (N.Y. Wkly. Rpt., June 22). MARYLAND - Larvae light on 10 acres of tomatoes at Snow Hill, Worcester County. (U. Md., Ent. Dept.). UTAH - Small numbers appearing in Box Elder County tomatoes. (Knowlton).

POTATO FLEA BEETLE (Epitrix cucumeris) - WISCONSIN - Damaged potatoes in Fond du Lac County; holes evident on leaves in commercial potato field in Waushara County. (Wis. Ins. Sur.). MICHIGAN - High numbers of adults reported statewide on unsprayed potatoes. (Janes, Sowerby, Thompson, Nyquist, Kaven). RHODE ISLAND - Abundant on unsprayed potatoes statewide. (Sorensen, Mathewson). MAINE - Unusually scarce on potato foliage at Presque Isle, Arcoostook County. Only trace numbers noted. Reports indicate similar situation in vicinity of Masardis. (Shands).

TUBER FLEA BEETLE (Epitrix tuberis) - COLORADO - Ranged 0-20 per 100 sweeps on early plantings of potatoes in Platteville and Gilcrest areas, Weld County. (Uranio).

TOMATO FRUITWORM (Heliothis zea) - ARKANSAS - Collection of 31 larvae in Desha County determined this species. Determinations to date total 217 H. zea and no H. virescens (tobacco budworm). (Ark. Ins. Sur.). OKLAHOMA - Damaging tomatoes in Payne and Garfield Counties. (Okla. Coop. Sur.). DELAWARE - Young larvae fairly common on potatoes locally in Kent County. (Burbutis, Crossan).

HORNWORMS (Protoparce spp.) - MARYLAND - Protoparce sp. eggs noted on peppers in Worcester County. (U. Md., Ent. Dept.). MICHIGAN - First adult P. quinque-maculata of season taken in blacklight trap in Manistee County. (Newman, Lingg).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Quite damaging to potatoes and other crops in Conecuh, Escambia and Monroe Counties. Larvae full grown and pupating. (Lemons).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - Larvae light on potatoes at Nassawang, Worcester County. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Nymphs ranged up to 3 per leaflet on lima beans in Rock County. (Wis. Ins. Sur.). MICHIGAN - Adults and nymphs heavy in Monroe and Allegan Counties. (Janes). NEW JERSEY - Numerous in some snap bean fields in Cape May County. (Ins.-Dis. Newsltr.). MARYLAND - Becoming troublesome on beans and potatoes in several areas. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - WYOMING - High numbers of all stages found on potatoes and tomatoes in Laramie County. (Robb). None found in potato and tomato areas of Fremont, Hot Springs, Washakie, Big Horn and Park Counties. (Marks). UTAH - Continues rare on matrimony-vine in northern areas checked.



(Bruce, Knowlton). COLORADO - Adults ranged 0-1 per 100 sweeps on late plantings of potatoes in Weld County. Trace numbers of eggs, 1 per 100 leaves; no nymphs recorded. (Jenkins). NEBRASKA - Ranged 2-146 per 100 sweeps on lycium culls and early potatoes in Scotts Bluff County. (Hagen).

GREEN PEACH APHID (Myzus persicae) - NEW YORK - Moderate in Suffolk County potato fields; heavy enough in some fields to warrant controls. (N.Y. Wkly. Rpt., June 22). NEW JERSEY - Noted on potatoes in Burlington County; controls recommended. (Ins.-Dis. Newsltr.).

POTATO APHID (Macrosiphum euphorbiae) - NEW YORK - Moderate on many potato fields in Suffolk County June 18; some control warranted. (N.Y. Wkly. Rpt.). DELAWARE - Present but still light on most potatoes. (Burbutis, Crossan). WISCONSIN - Colonies forming on tomatoes in East Troy area, Walworth County. (Wis. Ins. Sur.).

Aphids on Potatoes in Maine - Three percent of potato plants infested with 0.08 aphids per plant (whole-plant examination) at Presque Isle, Aroostook County. Population 6 times and percent of infested plants 5 times counts of last week. POTATO APHID (Macrosiphum euphorbiae) predominates, followed in decreasing order by BUCKTHORN APHID (Aphis nasturtii), GREEN PEACH APHID (Myzus persicae) and FOXGLOVE APHID (Acyrtosiphon solani). LADY BEETLE adults unusually abundant on potato plants and taking heavy toll of aphids. THIRTEEN-SPOTTED LADY BEETLE (Hippodamia tredecimpunctata tibialis) by far predominant species, followed by TRANSVERSE LADY BEETLE (Coccinella transversoguttata). (Shands et al.).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Heavy on large cabbage planting at Carmichael, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Present on broccoli locally in Sussex County. (Burbutis, Crossan). NEW YORK - Larvae noted in Canandaigua area, Ontario County. (N.Y. Wkly. Rpt., June 22). OHIO - Caused light to moderate damage in home gardens throughout southern section. Ranged 1-2 larvae per cabbagehead. (Lyon).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Moderate to heavy on cabbages and collards in Cobb, Gwinnett and Fulton Counties. (Woodliff, Vanderford). KANSAS - Damaged cabbage in some fields in Shawnee and Chase Counties. (Knutson).

DIAMONDBACK MOTH (Plutella maculipennis) - DELAWARE - Larvae rather abundant on broccoli and causing noticeable feeding injury in area of Sussex County. (Burbutis, Crossan).

CABBAGE MAGGOT (Hylemya brassicae) - NORTH CAROLINA - Severely damaged commercial cabbage in Watauga County. (Falter). NEW YORK - Caused damage even though recommended materials used in Albany County. Additional cabbage seedbeds infested in Canandaigua area, Ontario County. Continues most serious insect problem in Monroe County. (N.Y. Wkly. Rpt., June 22).

A FALSE CHINCH BUG (Nysius sp.) - KANSAS - Migrated from wheat and attacked small cabbage plants causing serious damage in Chase County. (Knutson).

A FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - Present on horseradish in eastern Kent County. (Burbutis, Crossan).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MASSACHUSETTS - Appearing on beans; numbers will increase during July. (Wave). MARYLAND - Destructive to garden snap beans at several places in Queen Annes and Prince Georges Counties. (U. Md., Ent. Dept.). GEORGIA - Light to moderate on beans in Cobb, Gwinnett and Fulton Counties. (Woodliff, Vanderford). COLORADO - Adults and egg masses average 1 per 25 plants on beans in Weld County. Some leaf damage appearing. (Jenkins).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults moderate on garden snap beans in Queen Annes County. (U. Md., Ent. Dept.).

COWPEA CURCULIO (Chalcomermus aeneus) - GEORGIA - Heavy on beans and southern peas in Schley County. (Fletcher). Moderate on southern peas in Wheeler County. (Jackson).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Counts on late peas ranged 3-9 per 10 sweeps in southern counties although further investigation revealed counts per square foot equal to 10 sweeps in most of these fields. (Wis. Ins. Sur.).

COTTON SQUARE BORER (Strymon melinus) - ALABAMA - Caused moderate damage to butterbeans and snap beans in Mobile County. (Seibels).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Larvae present on lima beans in most areas. (Burbutis, Crossan).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Appears rather heavy in some treated fields in Batavia, Genesee County. (N.Y. Wkly. Rpt., June 22). MINNESOTA - Continues troublesome in areas where soil not treated at planting. (Minn. Ins. Rpt.).

ONION THRIPS (Thrips tabaci) - MICHIGAN - Damaging on commercial crops near Hooper, Allegan County, and near Munith, Jackson County. (Guyer). COLORADO - Ranged 6-12 per onion plant in Weld County. (Watada).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - NORTH CAROLINA - Larvae feeding on onions in variety plots in Currituck County; det. by D. A. Mount. (Hardesty).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - OHIO - Adults and larvae heavy on asparagus in Columbiana County, northeast. (Custer).

BEEB WEBWORM (Loxostege sticticalis) - COLORADO - Larvae range light to moderate on sugar beets in Mesa County; controls applied in fields showing injury. (Bulla). Eggs hatching and infestation general in all sugar beet areas of Weld County. Moth flight rated light. (Urano). Trace numbers noted in sugar beet fields of Weld, Morgan, Yuma and Logan Counties. One larva per 10 plants. None found in many fields. (Jenkins, Urano, LaQuey). WYOMING - Occasional high numbers of larvae found in sugar beet fields of Washakie County. Larvae ranged 6-8 per plant in infested fields; controls underway. (Marks).

SPINACH LEAF MINER (Pegomya hyoscyami) - WYOMING - Larvae numerous in sugar beet leaves throughout Fremont, Hot Springs, Washakie, Big Horn and Park Counties. (Marks). COLORADO - Eggs numerous on sugar beets in northeastern counties. (Jenkins).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Caused loss of stand of sugar beets in Windsor area, Weld County. Recorded for the first time in Prospect Valley. (Urano, Colette, Jenkins).

LEAF MINERS - NEW YORK - Injured spinach and beet greens in Albany County. (N.Y. Wkly. Rpt., June 22). Every beet field checked in Ontario and Yates Counties infested; damage relatively light to heavy. Very low numbers noted in Genesee County beets; in some advanced fields larvae leaving leaves and entering soil. (N.Y. Wkly. Rpt., June 22).

BEEB LEAFHOPPER (Circulifer tenellus) - COLORADO - Showing general increase on sugar beets in Mesa County; highest counts, 3 per square foot. Controls underway on fields with high counts. (Bulla). CALIFORNIA - Unless wet weather occurs, total acreage of Russian-thistle to be treated this fall should be below normal. Curly top survey negative in Salinas Valley, Monterey County. Counts in Palo Verde and Coachella Valleys, Riverside County, on wild hosts low. (Cal. Coop. Rpt.).

CUTWORMS - NEVADA - Light to medium on sugar beets in Fallon, Churchill County, and Lovelock, Pershing County. (Sebbas, York).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - WISCONSIN - High populations of adults on commercial field of squash in southern Dane County and unusually common in flowers of commercial squash field in Walworth County. Controls underway in separate field in Walworth County area. (Wis. Ins. Sur.). MINNESOTA - Heavy on melons in South St. Paul, Dakota County; controls recommended. (Minn. Ins. Rpt.). NEW YORK - Few evident in Albany County. First adults noted June 16 in Orleans County. (N.Y. Wkly. Rpt., June 22).

SQUASH BEETLE (Epilachna borealis) - RHODE ISLAND - Collected on squash in Peace Dale, Washington County. (Mathewson).

SQUASH VINE BORER (Melittia cucurbitae) - MASSACHUSETTS - Not a problem on butter-nut squash. (Wave).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Generally light on melons in Jefferson County, south central; moderate to heavy in gardens in Bryan, Okmulgee and Rogers Counties. (Okla. Coop. Sur.).

MELON APHID (Aphis gossypii) - OKLAHOMA - Heavy on some watermelons in Jefferson County, south central. (Okla. Coop. Sur.).

GRASSHOPPERS - OKLAHOMA - Several species threatening to watermelons in some eastern areas of State. (Okla. Coop. Sur.).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - MINNESOTA - Various stages found in Pequot Lakes area, Crow Wing County. (Minn. Ins. Rpt.).

A TUSSOCK MOTH - NEVADA - Larvae migrated from defoliated bitterbrush and damaged leaves and fruit of strawberries in Washoe Valley and Steamboat area, Washoe County. (Bechtel).

RED-NECKED CANE BORER (Agrilus ruficollis) - RHODE ISLAND - Adults common on raspberry in Peace Dale, Washington County. (Mathewson, Sorensen).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Larvae blown in from nearby woods destroyed about 60 percent of leaves and fruit in strawberry planting in Albany County; controls required. (N.Y. Wkly. Rpt., June 22).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - IOWA - Averaged 10 per leaflet in strawberries at Kanawha, Hancock County. (Iowa Ins. Inf., June 22).

CYCLAMEN MITE (Steneotarsonemus pallidus) - MINNESOTA - Reported on everbearing strawberries at Backus, Cass County. (Minn. Ins. Rpt.). VERMONT - Noted on strawberries. (MacCollom).

SAWFLIES - MINNESOTA - Active on strawberry leaves in southeastern area. (Minn. Ins. Rpt.).

FALSE CHINCH BUG (Nysius ericae) - IOWA - Noted on strawberries in Jackson County. (Iowa Ins. Inf., June 22).

SYMPHYLANS - UTAH - Damaging maturing strawberries in patch at Wellsville, Cache County. (Knowlton).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - General dispersal underway; adults appearing in lettuce and carrot fields. Early planting of lettuce in Dane County showed high incidence of yellows symptoms. (Wis. Ins. Sur.). MICHIGAN - Adults numerous in many Lower Peninsula areas; symptoms of yellows on susceptible plants first observed on June 11 in Livingston County; diseased plants still scarce. (Dowdy).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW JERSEY - Light to moderate in lima bean fields throughout Cape May County. (Ins.-Dis. Newsltr.). MICHIGAN - Adults and nymphs present on unsprayed strawberries in Alpena County. Caused considerable damage to fruit by feeding injury. (Wooley, Nickels).

FLEA BEETLES - WISCONSIN - Various species causing injury to crops during past few weeks. Unidentified species caused considerable damage to commercial field of radishes in Dane County. (Wis. Ins. Sur.). NEW YORK - Appearing on potatoes in Stuben County. Scarce in Monroe County. Caused considerable damage to sparse tomato foliage in Orleans County. Plentiful on potatoes in Batavia area, Genesee County. (N.Y. Wkly. Rpt., June 22). MARYLAND - Phyllotreta spp. very heavy on cabbage and radishes in large garden at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma saucia) - IOWA - Infested garden in Chapin, Franklin County; 27 larvae 50 percent to full grown collected from 15 square feet of garden. (Iowa Ins. Inf., June 22).

THRIPS - NEW YORK - Present in all early planted onions in Batavia, Genesee County. (N.Y. Wkly. Rpt., June 22). MARYLAND - Undetermined species moderate to heavy on garden snap and lima beans at Carmichael, Queen Annes County. (U. Md., Ent. Dept.).

MITES - NEW JERSEY - Heavy infestations rather common on raspberries; controls recommended. Building up on some strawberry fields. Increasing on many crops including beans and tomatoes. (Ins.-Dis. Newsltr.).

#### TOBACCO INSECTS

CABBAGE LOOPER (Trichoplusia ni) - NORTH CAROLINA - Damaged 2 fields of tobacco in Robeson County. (Williford).

HORNWORMS (Protoparce spp.) - VIRGINIA - First-generation larvae generally light to medium on tobacco in Pittsylvania County. (Dominick).

TOBACCO BUDWORM (Heliothis virescens) - VIRGINIA - Larvae generally very light to date on tobacco in Pittsylvania County. (Dominick).

CUTWORMS - MASSACHUSETTS - Troublesome in some shade-grown tobacco fields. (Wave).

#### COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Activity still light in areas below caprock in northwest although activity increased during past two weeks. One weevil reported from volunteer cotton above caprock near McAdoo in Dickens County. Activity light in most other areas except in lower Rio Grande Valley where reports indicate weevils present in many fields and causing serious damage in some areas. (Texas Coop. Rpt.). Punctured squares averaged 0.2 percent in treated fields and 0.3 percent in untreated fields in McLennan and Falls Counties. A first-generation weevil found during week. (Cowan et al.). OKLAHOMA - A punctured square count of 3 percent noted in one field in Jefferson County. (Okla. Coop. Sur.). ARKANSAS - Continues very light in practically all areas of State. (Ark. Ins. Sur.). TENNESSEE - Only few punctured squares found in southern tier of counties in western area. Squares generally too small for accurate counts. Some controls started in early cotton. (Locke). MISSISSIPPI - First-generation adults found in 2 of 44 fields checked in delta area. Punctured squares found in 8 of 35 fields in which squares large enough to puncture. Average percent square infestation for infested fields 1.63. (Pfrimmer et al.). ALABAMA - Reports from 10 counties over State indicate somewhat light infestations. One field in Baldwin County had rather high count

of weevils, as many as 7 per 100 feet of row. (McQueen et al.). GEORGIA - Punctured squares in 23 counties checked by scouts were 1-10 percent in 68 percent of fields and 11-25 percent in 3 percent of fields. Two fields in Franklin County had infestations of 4 and 18 percent. (Johnson). SOUTH CAROLINA - Populations generally very low in treated fields in Florence area, but large populations developing in a few untreated fields examined. Adult counts ranged 200-800 per acre in untreated fields. Larval infestation ranged 0-21 percent in treated fields and 2-64 percent in untreated fields. (Taft et al., June 24).

BOLLWORMS (*Heliothis* spp., et al.) - OKLAHOMA - Three larvae per 100 squares noted in 1 field of early cotton in Jefferson County, south central; light, 1 per 200 terminals, noted in Altus area. (Okla. Coop. Sur.). TEXAS - Cotton insect situation in Rio Grande Valley accentuated by general infestation of bollworms. Activity remains generally light to moderate in most other areas of State. (Texas Coop. Rpt.). ARKANSAS - Egg and larval counts slightly lower than at same time in 1963. Percent damaged squares considerably lower than at this time in 1963 indicating better natural control. (Ark. Ins. Sur.). TENNESSEE - Trace numbers found in some very early cotton in southern part of cotton-growing area. (Locke). MISSISSIPPI - Eggs being laid on older cotton; eggs found over entire plant in some instances. (Young, Bennett; June 22). In delta area, eggs found in 31 of 54 fields checked at average rate of 1.47 per 100 terminals in infested fields. Larvae averaged 0.38 per 100 terminals in infested fields. Injured squares averaged 1.19 percent in 16 infested fields of 31 checked. (Pfrimmer et al.). ALABAMA - Widespread and depositing considerable eggs but larval infestations generally low with counts high only in isolated fields. (McQueen et al.). GEORGIA - In northwest, north and northeast areas, eggs ranged 0-40 (averaged 12) and larvae 0-2 (averaged less than 1) per 100 terminals. (Johnson). Fourth and fifth instars 15-20 per 100 terminals in Early County. (Snow). Scout reports from 23 counties (2,016 fields) show eggs 1-10 per 100 terminals in 79 percent of fields, 11-25 in 12 percent of fields and 26-50 in 2 percent of fields. Larvae per 100 terminals 1-3 in 46 percent of fields, 4-10 in 12 percent of fields and 11-25 in 1 percent of fields. (Jordan).

TOBACCO BUDWORM (*Heliothis virescens*) - TEXAS - Percentage of budworms appears to be increasing in Olmito-Russelltown-Los Fresnos areas of Rio Grande Valley. (Deer).

BOLLWORM (*Heliothis zea*) - ARIZONA - Larvae appearing in nearly all areas of cotton in Yuma, Maricopa, Pinal, Pima and Graham Counties. Some controls necessary in Graham, Pima and Pinal Counties. (Ariz. Coop. Sur.).

PINK BOLLWORM (*Pectinophora gossypiella*) - ARIZONA - Emergence of moths from experimental cages in Graham County continues light although decrease noted from previous week. (Ariz. Coop. Sur.).

BEEF ARMYWORM (*Spodoptera exigua*) - CALIFORNIA - Low populations in some Kern and Tulare County cotton fields; very little damage occurred. No controls anticipated. (Leigh, June 19). ARIZONA - Scattered infestations occurring in Pima, Pinal and Maricopa Counties; counts light in all areas. (Ariz. Coop. Sur.). GEORGIA - Light infestations on cotton in Decatur County. (Tyler, Hodges).

COTTON SQUARE BORER (*Strymon melinus*) - NEW MEXICO - Occasional larva found in cotton fields near Artesia, Eddy County. (N.M. Coop. Rpt.). TEXAS - Beginning to hatch and bore into small squares in Karnes, Denton, McLennan and Falls Counties. (Texas Coop. Rpt.). MISSISSIPPI - Few found in delta area. (Pfrimmer et al.).

STALK BORER (*Papaipema nebris*) - TENNESSEE - Continues to be found along outside rows of some cotton fields and causing severe damage to individual cotton stalks. Borers have been found in Hardin, McNairy, Chester, Hardeman and Fayette Counties. (Locke).

GARDEN WEBWORM (Loxostege similalis) - MISSISSIPPI - Terminal damage found in some cotton fields in delta area. (Pfrimmer et al.).

SPIDER MITES - CALIFORNIA - Infestations common in Kings County, particularly in central and northern areas; Tetranychus atlanticus (strawberry spider mite) apparently dominant. (McCutcheon, June 5). Increasing throughout Fresno County; T. telarius (two-spotted spider mite) common. Controlled where systemic pesticides applied at planting. (Stromberg, June 10). T. telarius continues to increase and many fields treated in Fresno County. (Stromberg, June 17). Spider mites abundant in Shafter County fields; T. atlanticus dominant; severe defoliation evident in many fields. (Leigh, June 19). ARIZONA - Damaging infestations of Tetranychus spp. found on host plants in nearly all areas of State. Scattered infestations of cotton and alfalfa required controls. (Ariz. Coop. Sur.). TEXAS - Unspecified species damaged few dry fields in Nueces County. (Deer). ARKANSAS - Few isolated, spotted infestations of undetermined species reported in Jefferson and Faulkner Counties. Hot, dry weather favorable for buildup. (Ark. Ins. Sur.). MISSOURI - Spot infestations of Tetranychus sp. in 35-40 percent of fields in delta area, southeast. (Harrendorf, Jones). TENNESSEE - Appearing in more fields in western area and infestations, where not controlled, increasing. Conditions ideal for further buildup. (Locke). Studies of spider mites that attack cotton in State showed that at least four species have caused severe damage in past years; T. cinnabarinus, T. tumidus (tumid spider mite), T. lobosus and T. atlanticus. (Thomas). MISSISSIPPI - Unspecified species present in several parts of delta area. (Pfrimmer et al.). ALABAMA - Various species appearing in widely separated areas of northern area and some controls to field borders and cotton applied. (McQueen et al.).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Light infestations appearing in Yuma County; 10 per 100 sweeps. (Ariz. Coop. Sur.). TEXAS - Continues at injurious levels in many central area fields and population buildup occurring. Light to moderate infestations reported from coastal bend area. Scattered and light generally in northwest; however, damage evident in some fields of early cotton below caprock. (Texas Coop. Rpt.). Average number per 100 terminals in McLennan and Falls Counties 16.3 in treated fields and 31.5 in untreated fields with overall average of 18.6. Overall average at same time in 1963 was 1.4. (Cowan et al.). OKLAHOMA - Ranged 6 per 100 terminals at Altus to 20 per 100 terminals in Chickasha area in experimental plots. (Okla. Coop. Sur.). TENNESSEE - Causing some injury to small squares in western area. Generally, damage is from complex of this species and Lygus lineolaris (tarnished plant bug). (Locke). MISSISSIPPI - Found in 11 of 44 fields checked in delta area; averaged 2.2 per 100 sweeps. (Pfrimmer et al.).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Continues high in Yuma, Maricopa, Pinal and Pima Counties on cotton; light in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Building up on cotton in Chaves, Dona Ana and Eddy Counties. (N.M. Coop. Rpt.).

BLACK FLEAHOPPERS - MISSISSIPPI - Found in 4 of 44 fields checked in delta area; averaged 1.0 per 100 sweeps. (Pfrimmer et al.).

TARNISHED PLANT BUG (Lygus lineolaris) - TENNESSEE - Light to moderate infestations found in some fields over western area, with some noticeable damage to young squares. Controls recommended if infestations increase. (Locke). MISSISSIPPI - Found in 20 of 44 fields checked in delta area; averaged 1.7 per 100 sweeps. (Pfrimmer et al.).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Light in most Kings County fields. (McCutcheon, June 5). Adults found in many Fresno County cotton fields; some serious infestations reported. (Stromberg, June 17). Moderately abundant in alfalfa hay fields in Shafter County and movement to nearby cotton anticipated when alfalfa is cut. Some movement from potato fields may also occur. (Leigh, June 19). ARIZONA - Increasing generally on cotton, but counts still light. (Ariz. Coop. Sur.).

PLANT BUGS - MISSOURI - Averaged 15-20 per 100 terminals in delta area of south-east. (Harrendorf, Jones).

FALSE CHINCH BUGS (Nysius spp.) - CALIFORNIA - N. raphanus continues to migrate somewhat to cotton in Fresno County. Fields should be checked carefully. (Stromberg, June 17). NEW MEXICO - Extremely heavy populations of Nysius sp. severely damaged outside rows of cotton in few fields in Carlsbad area, Eddy County. Fields treated with good results. (N.M. Coop. Rpt.).

COTTON APHID (Aphis gossypii) - CALIFORNIA - Evident in some Shafter County fields; numbers generally low. (Leigh, June 19). TEXAS - Light, local infestations reported from Cochran County. (Thompson). OKLAHOMA - Light in Major County cotton, with heavier counts present in Pawnee County. (Okla. Coop. Sur.). MISSOURI - Heavy populations in some fields and scattered spots with heavy populations in other fields in delta area of southeast. (Harrendorf, Jones).

DARKLING BEETLES - TEXAS - Continue to damage cotton fields in Garza County. (Rummel).

LEAF MINERS - MISSISSIPPI - Very heavy in field of cotton in delta area. (Pfrimmer et al.).

THRIPS - TEXAS - Populations generally reduced on high plains. Light to moderate infestations reported from Collinsworth, Borden, Dawson, Garza, Yoakum, Floyd, Lynn, Crosby, Dickens, Midland, Runnels, Hall, Wilbarger, Kent, Motley and Hardeman Counties. Moderate to heavy populations reported from Terry and Bailey Counties. Some late-planted fields in northeast being damaged. (Texas Coop. Rpt.). OKLAHOMA - Frankliniella spp. reduced from 50 per 100 plants last week to 25 per 100 plants in Chickasha area. Heavy numbers noted in Pawnee County area, north central. (Okla. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

JACK-PINE BUDWORM (*Choristoneura pinus*) - MINNESOTA - Larvae mostly in sixth stage and beginning to pupate in northern Pine County. Survey conducted at permanent check plots in area from Brainerd to Bemidji. Late-stage larvae and pupae observed; light defoliation noted. Very few high counts made. (Minn. Ins. Rpt.).

SPRUCE BUDWORM (*Choristoneura fumiferana*) - MINNESOTA - Pupation beginning in central Saint Louis County; late instars present. (Minn. Ins. Rpt.).

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - INDIANA - Infestations very light in southern half of State; probably due to severe winter. (Schuder). VIRGINIA - Infested few trees at 4 locations in Fluvanna County; generally moderate to heavy on 3 loblolly pine plantations in Culpeper County. Active in 4 loblolly pine plantations of 1-4 acres in Henry County; extensive in young pine (planted and natural) in Accomack and Northampton Counties. (Va. For. Pest Sur. Rpt., May Sum.).

EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) - INDIANA - Adult emergence complete; infestations very light throughout northern half of State. (Schuder).

A PINE TIP MOTH (*Rhyacionia* sp.) - GEORGIA - Infesting pine shoots in Athens area, Clarke County. (Yates).

SPRUCE NEEDLE MINER (*Taniva albolineana*) - RHODE ISLAND - Infested spruce at Middleton, Newport County, June 19. (Veilleux, Mathewson).

PINE TUSSOCK MOTH (*Dasychira plagiata*) - WISCONSIN - Larvae in fourth and fifth stages in east central district. No heavy infestations noted. (Minn. Ins. Rpt.).

ZIMMERMAN PINE MOTH (*Dioryctria zimmermani*) - NEW YORK - Larvae feeding on new shoots in Rockland County. Very abundant on large block of black pine on Long Island, possibly in combination with 1-2 other species. Many larvae very small; others somewhat larger; 4-6 dead needles evident apically. (N.Y. Wkly. Rpt., June 22). INDIANA - Larvae in fifth stage in La Porte County, northwest. Infestations common in ornamental and Christmas tree plantings. (Schuder).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - VIRGINIA - Active in several small spots of 4 trees to 0.25 acre in King William, Chesterfield and Goochland Counties. Infesting Virginia and shortleaf pine on 2 spots of 0.1 acre in size in Fluvanna County. Killed shortleaf and Virginia pine in 2-3 spots (1-20 trees per spot) each in Amelia, Cumberland and Buckingham Counties. Suspected as cause of death of individual shortleaf and Virginia pines in Henry County. Killed loblolly pine in few spots (1-5 trees per spot) in Accomack and Northampton Counties (Eastern Shore) and in Virginia Beach. Past kill (late summer 1963) evident in scattered spots on 40-year-old natural loblolly pine at Lillys Neck, Mathews County; few trees recently turning brown held overwintering larvae, pupae and adults on June 4; *D. terebrans* (black turpentine beetle) eggs in galleries same date. (Va. For. Pest Sur. Rpt., May Sum.).

TURPENTINE BEETLES (*Dendroctonus* spp.) - VIRGINIA - Larvae and adults caused mortality in loblolly pine (2 spots up to 5 trees in size) in King William County and 1 spot of 10 acres in Hanover County. Present in Virginia and shortleaf pine in 2 spots in Fluvanna County and in 4 trees in one spot in Louisa County. Attacked 3 blue spruce on a property in Roanoke County. Attacked single loblolly pine in Accomack County and 1-10 loblolly pines in single spot in Virginia Beach. (Va. For. Pest Sur. Rpt., May Sum.).

WHITE-PINE WEEVIL (*Pissodes strobi*) - NORTH DAKOTA - Noted on pine in Pembina County. (Slabaugh). MINNESOTA - Adults present; larvae feeding in last year's internodes. (Minn. Ins. Rpt.). VIRGINIA - Attacked scattered white pines in 2 Madison County locations. Current damage first noted May 15 in Augusta and Rockingham Counties. (Va. For. Pest Sur. Rpt., May Sum.).



A PINE WEEVIL (Pissodes affinis) - INDIANA - Specimens found in pine stump in Christmas tree plantation in Jackson County, southeast. This is new county record. (Schuder).

A PINE TWIG BEETLE (Pityophthorus confinus) - CALIFORNIA - Infesting over 100 Jeffrey pines in 40-acre stand in Mount Pinos area, Los Padres National Forest. Infestation just beginning at 8,500-foot elevation. (G. W. Plisco, USFS).

PINE BARK APHID (Pineus strobi) - INDIANA - Heavy on Scotch pine in La Porte County, northwest. (Schuder). NORTH DAKOTA - What is apparently this species, taken from ponderosa pine in Towner, McHenry County; all winged adults. (Frye).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - Heavy in Brainerd area, Crow Wing County. Nymphs becoming full grown. Pest present quite generally in east central and central districts. (Minn. Ins. Rpt.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MINNESOTA - Egg hatch continues in east central district. Many crawlers already attached and feeding. (Minn. Ins. Rpt.).

CONIFER SAWFLIES - MINNESOTA - Late instars of Neodiprion pratti banksianae still feeding in northeast and east central districts. Early stage, first-generation larvae of Diprion similis feeding on white and jack pines in central and east central districts; some adults still present. (Minn. Ins. Rpt.). VIRGINIA - Neodiprion pratti pratti scattered throughout Waverly district on shortleaf and loblolly pine; widespread throughout Richmond district, causing noticeable defoliation (20-50 percent) in some areas; activity increased over 1963 in most of Charlottesville district; defoliation light to moderate over most of Tappahannock district. Defoliation by N. pratti pratti more severe than in 1963 on Virginia and shortleaf pines throughout Farmville district, particularly in Cumberland and Mecklenburg Counties. (Va. For. Pest Sur. Rpt., May Sum.).

SAWFLIES - MINNESOTA - Pristiphora erichsonii common on larch in northeast and east central districts; oviposition underway, with twig curling becoming evident. Light defoliation of spruce by Pikonema alaskensis still occurring in these same districts. (Minn. Ins. Rpt.). NEW YORK - Young larvae of Pristiphora geniculata feeding on mountain-ash in Ithaca area for about 7-10 days. (N.Y. Wkly Rpt., June 22).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ALABAMA - Second-generation larvae and considerable egg laying noted on elms from Chilton County southward. Isolated, heavy leaf feeding noted in Tuscaloosa, Tallapoosa, Chilton, Lee and Macon Counties. (McQueen). RHODE ISLAND - Eggs and young larvae common on elm statewide. (Mathewson). IOWA - Larvae half grown at Council Bluffs, Pottawattamie County, June 15; defoliating Chinese and American elms. (Iowa Ins. Inf.). MISSOURI - Second-generation adults emerging in southwest area; pupation of first-generation larvae complete in central and northern areas. (Houser, Thomas, Wood). COLORADO - Adults and larvae numerous on elms in Grand Junction area, Mesa County; control underway. (Bulla). Numerous and feeding on English elms in Lamar area, Prowers County. (Fitzsimmons). NEVADA - Damage to untreated elms increasing in western areas. (Cooney).

LARGER ELM LEAF BEETLE (Monocesta coryli) - NORTH CAROLINA - Adults collected in Gaston, Davidson and Durham Counties. (Jones, Bernhardt, Wilson). GEORGIA - Heavy on 2 elms in Greene County (Ebel); feeding on foliage of elm in Coweta County (Hamilton).

LOCUST LEAF MINER (Xenochalepus dorsalis) - MARYLAND - Curling and browning foliage on many black locust trees throughout southern sections. (U. Md., Ent. Dept.).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - VIRGINIA - All stages severe in elm tree in Farmville, Prince Edward County; 95 percent of tree appears dead. Adults emerging. (Tarpley, Zirkle; June 19).

NATIVE ELM BARK BEETLE (*Hylurgopinus rufipes*) - IOWA - Active at Dyersville, Dubuque County, June 14. Adults probably making brood galleries for egg laying. (Iowa Ins. Inf.).

TWIG PRUNER (*Elaphidion villosum*) - RHODE ISLAND - Flagging evident on occasional trees statewide. Apparently less abundant than previous 2 summers. (Mathewson, Kerr).

BRONZE BIRCH BORER (*Agrilus anxius*) - WISCONSIN - Reported as problem in Washburn and Winnebago Counties. Many ornamental white birch noted as being killed or having dead branches in Dane County area. (Wis. Ins. Sur.).

GYPSY MOTH (*Porthetria dispar*) - MASSACHUSETTS - Defoliating oaks and other forest trees in upper Barnstable County. Some infestations combination of this species and *Alsophila pometaria* (fall cankerworm). (Tomlinson, June 14). RHODE ISLAND - Localized defoliation noted near southwest border of Cranston, Providence County. (Veilleux). Inspection along major roads in Washington, Providence and Kent Counties revealed no roadside defoliation. Above-cited infestation probably most important problem at present. (Mathewson). CONNECTICUT - Defoliated large acreages of woodland, primarily in East Haddam, Middlesex County, but extending into towns of Colchester, Salem, Montville, East Lyme and Lyme in New London County. Larvae in some areas ready to pupate; many migrating. Complaints numerous in aforesaid towns concerning larvae on buildings and homes; also reported in North Bradford and areas in Guilford and Madison. (Turner, Johnson; June 23). NEW YORK - Oaks stripped bare on western half of Minnewaska Mountain east of Kerhonkson, in Hudson Valley. Tree trunks and rocks covered with hundreds of larvae. No pupae found June 13 and 17; single pupa found June 18. (N.Y. Wkly. Rpt., June 22).

FALL WEBWORM (*Hyphantria cunea*) - NEW MEXICO - Appearing on poplar and other shade trees in Carlsbad area of Eddy County and in Dona Ana and Otero Counties. (N.M. Coop. Rpt.).

LOCUST TWIG BORER (*Ecdytolopha insiticiana*) - DELAWARE - Larvae very abundant on many locusts in western New Castle County; all stages present. (Burbutis, Crossan).

CANKERWORMS - NEW YORK - Completely defoliated some silver maples in East Aurora, Erie County. (N.Y. Wkly. Rpt., June 22).

CATALPA SPHINX (*Ceratonia catalpae*) - ALABAMA - Isolated infestation on catalpa observed in Lee County area June 10. Few currently infested trees observed in Tuscaloosa, Autauga, Fayette and Jackson Counties. (Peters et al.).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - MICHIGAN - First adults taken in blacklight traps on statewide basis during week of June 15. (Newman).

MOURNING-CLOAK BUTTERFLY (*Nymphalis antiopa*) - CALIFORNIA - Heavy and defoliating American elms in Happy Camp area, Siskiyou County. (A. Mollish, USFS) UTAH - Larval infestations small and spotty on elm in northern part of State. (Knowlton).

Defoliation of Hardwoods in Western New York - Correspondence, reports and surveys indicate serious caterpillar problem evident in forested areas in southwestern part of State. *Alsophila pometaria* (fall cankerworm), mostly responsible, with *Erannis tiliaris* (linden looper), *Operophtera bruceata* (Bruce spanworm) and *Paleacrita vernata* (spring cankerworm) common, making up total species involved. Reports indicate buildup has occurred for 2-3 years. Worst defoliation of maple, oak, hickory, basswood, ash, elm and ironwood reported from Cattaraugus and Chautauqua Counties, with extensive defoliation of sugar maple orchards in

Allegany County. Local areas in southern parts of Wyoming and Erie Counties completely defoliated. Understory denuded, in addition to complete stripping of mature trees; causing much concern among maple sap producers for maple reproduction. Feeding by caterpillars about over; therefore, too late for controls. Magnitude of moth flights which should occur in November should be reported. Such moth activity is an indicator of spring populations. With mild winter, such as experienced this year, outbreak can be expected to continue to increase; however, there is possibility that natural decline will occur to reduce damaging numbers expected in 1965. (N.Y. Wkly. Rpt., June 22).

ELM LEAF APHID (Myzocallis ulmifolii) - SOUTH DAKOTA - Present on American elms in windbreaks in Brookings and Moody Counties. Only damage occasional curling of individual leaves on some trees. (Hintz).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - INDIANA - Noted in Lorraine County, northeast; appears more abundant this year. (R. Neiswander).

A SOFT SCALE (Pulvinaria acericola) - INDIANA - Populations conspicuous on silver maple in Wayne County, northeast; large number of eggs noted under scales. (R. Neiswander).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Few adults observed in Kingston Washington County; not yet general. (Mathewson, Sorenson). NEW YORK - First generation emerged in Springville area, Erie County. Damage not extensive this season. (N.Y. Wkly. Rpt., June 22). NEW JERSEY - Adults active. (Ins.-Dis. Newsltr.).

ELM LEAF MINER (Fenusa ulmi) - NEW YORK - All English elms observed in Ithaca area completely brown. (N.Y. Wkly. Rpt., June 22).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - VERMONT - Common on young maples around homes. (MacCollom, June 22).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - VIRGINIA - Heavy on maple leaves in Arlington County. (Tarpley, Pettibone; June 19). IOWA - Galls appearing on maples. (Iowa Ins. Inf., June 22). MICHIGAN - Infested leaf samples numerous. (Wooley).

A POPLAR BUD GALL MITE (Aceria parapopuli) - CALIFORNIA - Heavy on poplar in Bishop area, Inyo County. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Most severe and damaging populations noted on arborvitae, cedar, juniper, cypress and other plants in Fayette County; numerous inquiries concerning control. Population explosion so heavy, many branches contain as many as 2 larvae per square inch of surface; one such population about destroyed chosen food supply and now feeding on nearby Dallis grass, briars and other nearby vegetation. Lesser infestations noted in most all northern counties. (Pitts, Young, et al.). MARYLAND - Infesting ornamental evergreens in Talbot and Queen Annes Counties. (U. Md., Ent. Dept.).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Isolated but extreme leaf feeding on mimosa observed in Bibb, Tuscaloosa and Autauga Counties; very early and light damage noted in Fayette, Marion, Cullman and other counties. (Pitts, Whisenant, et al.). GEORGIA - General on mimosa in Atlanta. (Johnson). MARYLAND - Larvae present on mimosa in Prince Georges County. (U. Md., Ent. Dept.). OHIO - Populations remain low; very little damage observed throughout State. (Lyon). ILLINOIS - Feeding evident on mimosa and honeylocust as far north as central part of State. (Ill. Ins. Sur. Bull.).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Heavy on Callistemon viminalis in Camarillo, Ventura County. (Cal. Coop. Rpt.).

ARBORVITAE LEAF MINER (Argyresthia thuiella) - VERMONT - Injury noticeable on cedars. (MacCollom, June 22).

A PYRALID MOTH (Hypsipyra grandella) - FLORIDA - Larvae light to moderate on stems of 250 Swietenia sp. plants at Dania, Broward County. (McLean, June 9).

A TUSsock MOTH - NEVADA - Larvae heavy on bitterbrush (Purshia tridentata) in southwest Washoe County south of Reno, especially in Steamboat-Galena Creek area and Washoe Valley. In Galena Creek area, serviceberry (Amelanchier pallida) infested and some damage occurred to ornamental Prunus sp. and rose. Damage to bitterbrush heavy and damage to serviceberry increasing. (Bechtel).

DOGWOOD TWIG BORER (Oberea tripunctata) - VIRGINIA - Larvae infesting dogwood twigs at a location in Fincastle, Botetourt County. (Tarpley, Boitnott; June 19). NORTH CAROLINA - Larvae infesting dogwood twigs in Ashe County. (Baker, Mount).

JAPANESE BEETLE (Popillia japonica) - NEW JERSEY - Few observed feeding on roses. (Ins.-Dis. Newsltr.). VIRGINIA - Adults active on ornamentals in Pittsylvania County. (Dominick). First adults noted June 23 in Fluvanna County; common on grapevines, wild plum and roses. (Watts). OHIO - Adults feeding on roses in Hamilton County, southwest (Cooley, June 22); also feeding in Lawrence County, south central (Lyon, June 24). MARYLAND - Numbers increasing on roses and other favored hosts in southern sections. (U. Md., Ent. Dept.).

ROSE CHAFER (Macrodactylus subspinosus) - VERMONT - Prevalent on wide variety of plants; very heavy on Chinese elm. (MacCollom). RHODE ISLAND - Continues to be reported as locally abundant. (Mathewson, King, Veilleux). NEW JERSEY - Heavy in several areas of State. (Ins.-Dis. Newsltr.). OHIO - Adults noted on barberry and elm in Geauga County, northeast; no economic damage present. (Custer). WISCONSIN - Adults continue a nuisance in sandier areas in central part of State, notably in Trempealeau, Sauk, Waushara, Waupaca, Portage, Monroe, Manitowoc, Green Lake, Eau Claire and Brown Counties. Many present in corn fields in Portage County. (Wis. Ins. Sur.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - CONNECTICUT - Adults very abundant in some localities. (Savos). CALIFORNIA - Medium in soil and on weigelia nursery stock in Belmont, San Mateo County. (Cal. Coop. Rpt.).

ROSE CURCULIO (Rhynchites bicolor) - WISCONSIN - Considerable adult feeding observed on wild roses in Rock County. (Wis. Ins. Sur.).

HOLLYHOCK WEEVIL (Apion longirostre) - CALIFORNIA - Adults light on hollyhock in Roseville, Placer County. This is a new county record. (Cal. Coop. Rpt.).

A TORTOISE BEETLE (Eurypepla jamaicensis) - FLORIDA - Moderate on leaves of 50 Cordia sebestena at Dania, Broward County. (McLean, June 12).

APHIDS - CONNECTICUT - Very abundant on wide variety of woody and herbaceous ornamentals. (Savos). NEW JERSEY - Quite heavy on many shrubs and shade trees. (Ins.-Dis. Newsltr.). NORTH CAROLINA - Prociphilus tessellatus infesting maple leaves at a location in Wilson County. (Jones). FLORIDA - Aphis nerii lightly scattered on stem of Hoya cinnamomifolia at Bradenton, Manatee County. (Bickner, June 18). This is a Florida Department of Plant Industry new host record. (Fla. Coop. Sur.). GEORGIA - Unspecified species heavy on red oak in Spalding County. (Tippins). NORTH DAKOTA - Several species continue to feed on elm, boxelder and various other trees and shrubs over State. (Frye). CALIFORNIA - Dactynotus ambrosiae heavy on bull thistle growing on roadsides in Redding, Shasta County. Lachnus salignus heavy on willow and Drepanaphis acerifolii adults heavy on maples in Fresno, Fresno County. (Cal. Coop. Rpt.).

A HAWTHORN MEALYBUG (Phenacoccus dearnessi) - WISCONSIN - Crawlers began moving out on hawthorn leaves June 23, although most still beneath mother scale at Madison, Dane County. Infestation in area in process of being destroyed by burning of trees. (Wis. Ins. Sur.). See CEIR 14(26):696 for first report in State. (PPC).

COCCIDS - CALIFORNIA - Pseudococcus obscurus medium on Scotch broom on grounds of local labor camp in Gonzales, Monterey County, and heavy on potted plants in Quincy, Plumas County; heavy on oxalis nursery plants in Colma, San Mateo County. (Cal. Coop. Rpt.). TEXAS - Heavy, widespread populations of Unaspis euonymi damaging euonymus in Mason County. Heavy, local population of what is probably Pseudaulacaspis pentagona present on Chinaberry trees in Brazos County. (Meisch). FLORIDA - Pseudococcus adonidum taken on leaves of Fatshedera sp. at Pembroke, Polk County, (Snell, June 4), and Aonidiella citrina general and moderate on leaves of kumquat at Sanford, Seminole County, (Youtsey, June 23). These both new Florida Department of Plant Industry host records. (Fla. Coop. Sur.). Phenacoccus gossypii general and moderate on stem and leaves of Acalypha sp. at Oneco, Manatee County. (Bickner, June 18). NORTH CAROLINA - Chrysomphalus tenebriocosus infested maple twigs at a location in Wilson County. (Brady, Mount). WISCONSIN - Lecanium fletcheri eggs on arborvitae hatched June 16 at a Jefferson County location and on yews following day. (Wis. Ins. Sur.). MINNESOTA - L. fletcheri eggs hatching. L. corni eggs hatching at Rochester, Olmsted County, and emerging from under mother scales. (Minn. Ins. Rpt.).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - NEW YORK - Common and active on number of home ornamentals, including forsythia. (N.Y. Wkly. Rpt., June 22).

LACE BUGS - NEW JERSEY - Heavy on azalea, rhododendron and andromeda in several areas of State. (Ins.-Dis. Newsltr.). ALABAMA - Stephanitis pyrioides becoming more widespread and damaging to azaleas in Lee County area. (Keeble).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Adults present in some dahlia plantings in Rock County and noticeably affected growth. (Wis. Ins. Sur.).

A PSYLLID (Ceropsylla sideroxyli) - FLORIDA - Heavy on leaves of Sideroxylon foetidissimum at Miami, Dade County. (Haley, Bacon; June 17).

A THRIPS - RHODE ISLAND - Causing bud-balling and discoloration of choice roses in Providence, Providence County. (Mathewson).

SPIDER MITES - ALABAMA - Becoming more widespread and damaging to azaleas in Lee County area. (Keeble). NEBRASKA - Damaging ornamentals and some shelterbelts in eastern area of State. (Bergman). COLORADO - Tetranychus telarius general throughout State in gardens and on ornamentals. (Ext. Serv., Hantsbarger). ARIZONA - Scattered infestations of Tetranychus spp. on ornamentals required controls. (Ariz. Coop. Sur.).

#### INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - GEORGIA - Averaged 19 per animal in White County and 26 per animal in Rabun County. (Roberts). Recorded for first time in Chattooga County. (Coleman). VIRGINIA - Abundant on cattle in southwest part of State; ranged 0-40 per head. (Tarpley). Survey of major cattle producers during May indicated pest quite prevalent in western King George County. This is a new county record. (Hall). MARYLAND - Increasing on several dairy herds in Frederick County; ranged up to 25 per head. (U. Md., Ent. Dept.). OHIO - Populations still low in northeast; many males noted resting on fence posts in Wayne County June 25. (Treece). Numbers increasing on beef cattle in Brown County, southwest; approximately 100 flies counted on 10 beef animals, June 24. (Wilson). INDIANA - Populations continue lower than expected. Averaged less than 2 per face on cattle in west central, central and east central sections. (Bram, Saugstad). ILLINOIS - Ranged 0-4 (averaged 1.1) per face on cattle in northern half of State. Generally too windy for good activity. (Ill. Ins. Rpt.). IOWA - Counts ranged 0-2 (averaged 0.5) per animal in 11 herds of pasture and dry-lot cattle checked; numbers variable on cattle within herds as well as between herds. (Iowa Ins. Inf., June 22). MISSOURI - Ranged 0-5 (averaged 1-2) per head in northern area. (Houser, Thomas, Wood).

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

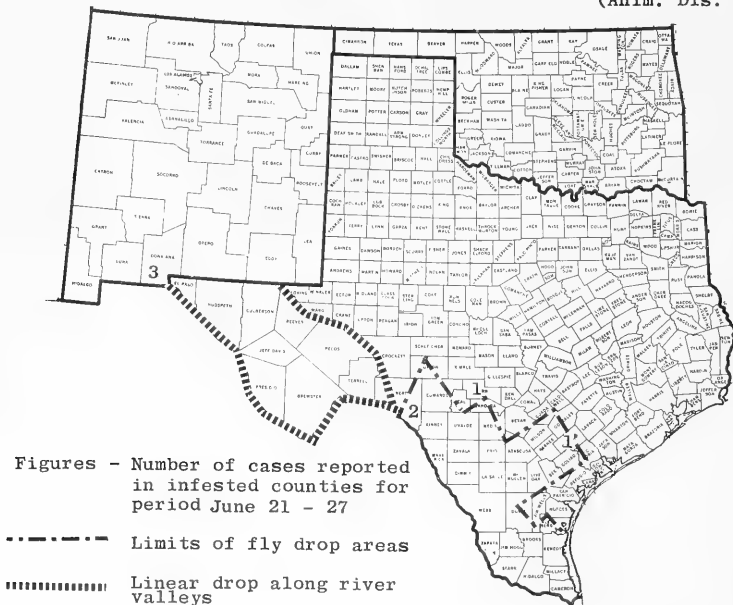
During the period June 21 - 27, four screw-worm cases were confirmed in TEXAS; Kerr County reported its first case of the year. Infestations were also reported from Val Verde (2) and De Witt (1) Counties. In NEW MEXICO, 3 cases were reported in Dona Ana County; 2 cases were reported in ARIZONA, one case each in Pinal and Pima Counties. The Republic of Mexico reported 51 screw-worm cases from the States of Sonora (27), Chihuahua (5), Coahuila (3), Nuevo Leon (4) and Tamaulipas (12). A total of 96,865,450 sterile flies was released: 26,227,450 in Texas, 5,392,000 in Arizona, 1,710,000 in New Mexico and 63,536,000 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	2,403	17,890	43	1,852	5,588.3:100	965.0:100
1963	139	1,761	144	3,901	96.5:100	45.1:100
1964	7	88	119	3,788	1.7:100	2.3:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period June 21 - 27

HOUSE FLY (Musca domestica) - WISCONSIN - Marked increase in populations in some areas noted. (Wis. Ins. Sur.). OKLAHOMA - Heavy numbers noted around cattle feed lots in southern part of State. (Okla. Coop. Sur.). UTAH - Active but not yet numerous on Cache County farms. (Knowlton).

HORN FLY (Haematobia irritans) - NORTH DAKOTA - Varied 30-40 per head on range cattle in McKenzie, Billings and Golden Valley Counties. (Frye). NEBRASKA - Ranged 200-400 per buffalo in Cherry County (Roselle); 50-400 per beef and dairy animal in northeast (Bergman). OKLAHOMA - Moderate to heavy in most areas. (Okla. Coop. Sur.). MISSOURI - Light to moderate in northern areas. (Houser, Thomas, Wood). IOWA - Ranged 0-90 (averaged 5) per animal on 11 herds of pasture and drylot cattle. Numbers variable on cattle within herds as well as between herds. One herd of mixed Angus and Hereford cattle showed nearly all flies on sides of Angus cattle and on Hereford bull. Hereford cows and calves free of flies at time of examination. (Iowa Ins. Inf., June 22). ILLINOIS - Varied 0-200 (averaged 35) per animal in northern half of State. (Ill. Ins. Rpt.). INDIANA - Ranged 50-75 per head on cattle in west central, central and east central sections, and 100-150 per head on cattle in La Porte County (northwest). (Bram, Saugstad). MARYLAND - Ranged 0-25 (averaged 5) per animal on dairy cattle in Frederick County. (U. Md., Ent. Dept.). GEORGIA - Counts per animal averaged 191 in Spalding, 160 in White and 130 in Rabun Counties. (Roberts).

STABLE FLY (Stomoxys calcitrans) - IOWA - Ranged 1-15 (averaged 4) per animal in 11 herds of pastured and drylot cattle. Counts variable within herds as well as between herds. (Iowa Ins. Inf., June 22). ILLINOIS - Varied 0-4 (averaged 0.7) per animal in northern half of State. (Ill. Ins. Rpt.). MARYLAND - Light numbers noted on dairy cattle in Frederick County. (U. Md., Ent. Dept.).

TABANIDS - OKLAHOMA - Tabanus spp. and Chrysops spp. present in large numbers on grassland areas of Noble, Pawnee and Osage Counties. (Okla. Coop. Sur.). UTAH - Unspecified species annoying livestock in Skull Valley, Tooele County. (Knowlton).

NORTHERN CATTLE GRUB (Hypoderma bovis) - MICHIGAN - About 99 percent of larvae have left backs of native cattle in Ingham, Shiawassee and Livingston Counties. (Dowdy).

A SARCOPHAGID FLY (Wohlfahrtia vigil) - WISCONSIN - Larvae of concern on mink in an area in Crawford County. (Wis. Ins. Sur.).

MOSQUITOES - IDAHO - Quite numerous in southwest area; due mostly to unusual rainy period during first 20 days of June which provided breeding holes and prevented normal spraying. (Waters, Gittins). UTAH - Troublesome in Logan and Blacksmith Fork Canyons, in Nibley-Paradise area and from Logan to Lewiston, all in Cache County. Outbreaks expected to be extensive after recent storms. (Knowlton). KANSAS - Psorophora ciliata abundant and biting in Riley County. (Knutson). IOWA - New hatch of Aedes vexans occurred as result of recent rains. Light trap catches of adults about zero, indicating first big brood of season is over. Heavy rain will provide ample water for another brood. (Iowa Ins. Inf., June 22). MINNESOTA - Total of 274 larval collections made during week ending June 20. Aedes vexans present in 55 percent and first-stage larvae of Aedes too small to identify present in 31 percent of collections. Light traps collected 3,609 female mosquitoes - 3,281 A. vexans and 37 A. cinereus. In 52 15-minute evening bite collections, 345 mosquitoes taken - 252 A. vexans and 64 A. sticticus. In 507 5-minute daytime bite collections, 4,378 mosquitoes taken - 2,558 A. vexans, 938 A. sticticus and 300 A. cinereus. Some Mansonia perturbans also taken. Rains on night of June 22 in Metropolitan Mosquito Control District ranged 0.8-3.0 inches. A brood of A. vexans now in water will emerge about July 2-3, depending on temperature; dispersal flights will probably occur after July 4. As rain has been quite general over much of State, pronounced increase in mosquito nuisance can be expected. (Minn. Ins. Rpt.). WISCONSIN - Little change in mosquito situation over previous reports. (Wis. Ins. Sur.). MARYLAND - Culex spp. common and annoying in and around several communities in northern Prince Georges County. (U. Md., Ent. Dept.).

FLEAS (Ctenocephalides spp.) - GEORGIA - General in area of Atlanta; annoying man and other animals. (Johnson).

A BETHYLID WASP (Scleroderma carolinense) - GEORGIA - Stinging homeowners in Baldwin County. (Sirmans).

BROWN DOG TICK (Rhipicephalus sanguineus) - OREGON - Infestation in Portland residence causing some concern to occupants. This is second known find of an apparently established infestation in State. (Goulding). Previously reported from Portland in 1945. (PPC).

CHIGGERS - KANSAS - Becoming a nuisance over State. (Kuntson).

#### HOUSEHOLD AND STRUCTURAL INSECTS

LARDER BEETLE (Dermestes lardarius) - VERMONT - Prevalent in many homes where Pollenia rudis (cluster fly) present last spring. (MacCollom, June 22). IOWA - Larvae reported as most important household pest in State. (Iowa Ins. Inf., June 22). SOUTH DAKOTA - Continues to be reported by homeowners, with requests for control. Apparently, larvae have been feeding on dead flies between walls and now invading living quarters. Reports generally from southeastern part of State, with occasional report from other areas. (Walstrom, Kantack).

BLACK CARPET BEETLE (Attagenus piceus) - CONNECTICUT - Problem in some homes in Rockville and Willimantic. (Savos).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - WISCONSIN - A nuisance in houses in Iowa and Waupaca Counties. (Wis. Ins. Sur.).

Cereal Insects in Iowa - SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), RED FLOUR BEETLE (Tribolium castaneum) and INDIAN-MEAL MOTH (Plodia interpunctella) commonly reported in packaged cereals in homes. (Iowa Ins. Inf., June 22).

BOXELDER BUG (Leptocoris trivittatus) - RHODE ISLAND - Reported as heavy on a property in Cumberland, Providence County. (Mathewson).

A FALSE CHINCH BUG (Nysius sp.) - NEW MEXICO - Heavy in and around homes at Carlsbad, Eddy County; causing considerable concern to homeowners by entering houses and being found on household furnishings. (N.M. Coop. Rpt.).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Evident about homes generally statewide. (Mathewson, King). UTAH - Appearing about homes in Salt Lake County. (Knowlton).

MOTH FLIES - NORTH CAROLINA - Adults annoying residents in vicinity of sewage treatment plant in Rowan County. (Holler).

PAVEMENT ANT (Tatramorium caespitum) - CONNECTICUT - Swarming in many parts of State. (Savos). NEW JERSEY - Winged forms common in all areas. (Ins.-Dis. Newsltr.).

POWDER-POST BEETLES - UTAH - Severely damaged hardwood floor in home at Paradise, Cache County. (Burtenshaw, Knowlton). Also reported damaging hardwood floors in several newer homes at Brigham City, Box Elder County. (Knowlton).

A SUBTERRANEAN TERMITE (Reticulitermes sp.) - COLORADO - Adults swarming about motel in Chaffee County. (Stephanson).



BENEFICIAL INSECTS

LADY BEETLES - CALIFORNIA - Some observed in Fresno County cotton fields. (Stromberg, June 17). WYOMING - Adults of several species averaged 35 per 100 sweeps of alfalfa in Fremont, Hot Springs, Washakie, Big Horn and Park Counties. (Marks). SOUTH DAKOTA - Populations varied greatly in different areas surveyed; ranged 15-125 per 100 sweeps in central area alfalfa. (Hintz, June 19). NORTH DAKOTA - Small numbers observed in all fields where aphids present. (Frye). INDIANA - Hippodamia convergens averaged less than 1 adult and H. parenthesis averaged 2 adults per 10 sweeps in west central, central and east central sections. (Bram, Saugstad).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 48 per 100 sweeps in alfalfa in Fremont, Hot Springs, Washakie, Big Horn and Park Counties. (Marks). SOUTH DAKOTA - Adults present in limited numbers in alfalfa surveyed. (Hintz, June 19).

BIG-EYED BUGS (Geocoris spp.) - CALIFORNIA - Becoming more abundant in cotton in Fresno County. (Stromberg, June 17).

A FLOWER BUG (Orius tristicolor) - CALIFORNIA - Noted as abundant in cotton in Fresno County. (Stromberg, June 17).

LACEWINGS - CALIFORNIA - Some noted in cotton in Fresno County. (Stromberg, June 17). NORTH DAKOTA - Small numbers observed in all fields where aphids present. (Frye). INDIANA - Chrysopa oculata averaged 1 adult per 10 sweeps on alfalfa in west central, central and east central sections. (Bram, Saugstad).

PREDACEOUS THRIPS - CALIFORNIA - Observed in cotton in Fresno County. (Stromberg, June 17).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - VERMONT - Emergence expected within next 7-14 days. (MacCollom). RHODE ISLAND - Two adults collected in Kingston, Washington, and 1 in Newport, Newport County; first of season. (Mathewson, Veilleux). OHIO - New adults reported in Hamilton County (southwest), Meigs County (southeast) and Lawrence County (south central). (Ellis, Cooley).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - OHIO - Adults heavy in black-light trap collections throughout State, especially in Brown County, southwest. (Lyon). MARYLAND - Adults appearing at lights week of June 23 at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

ROSE CHAFER (Macroductylus subspinosus) - MICHIGAN - Light to heavy on various host plants in many Lower Peninsula counties. (Wells, Loree, Sieting, MacQueen, Sowerby).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Flights reported from Syracuse, Onondaga County, June 9 and in Elmira, Chemung County, June 12. (N.Y. Wkly. Rpt.).

A WEEVIL (Compsus auricephalus) - ARKANSAS - Being found more often and in more areas of State. First noted when large numbers occurred on cotton and soybeans in small area of Pope County in past years. Large numbers still found in area; feeding very light and no economic damage observed even with large numbers present. Large numbers noted in barley cleanings in Lonoke County. (Ark. Ins. Sur.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Infesting approximately 3,000 acres in and around Lawrenceville, Gwinnett County. (Woodliff, Vanderford).

WHITE-LINED SPHINX (Celerio lineata) - UTAH - Large number of larvae moving from rangelands and damaging adjacent new home plantings in large area about North Ogden, Weber County. (Knowlton).

YELLOW-NECKED CATERPILLAR (Datana ministra) - OREGON - Adults first appeared in Jackson and Josephine Counties in light traps June 15. (Goeden).

LESSER MEALWORM (Alphitobius diaperinus) - NORTH CAROLINA - Adults and larvae infesting litter in poultry house in Pender County. Det. by D. A. Mount. (Jones).

RED-ADMIRAL (Vanessa atlanta) - WISCONSIN - Adults unusually abundant in Dane County. (Wis. Ins. Sur.).

CUTWORMS - MICHIGAN - Some larval damage reported in Sanilac, Ottawa, Cheboygan and Marquette Counties. Adult numbers taken in blacklight traps running lower than in 1963. (Sowerby, Machiele, Kirch, Nyquist, Snow, Newman).

PERIODICAL CICADAS (Magiccada spp.) - IOWA - Collected in southwest area; 4 specimens of Brood IV taken northeast of Griswold, Cass County. Noted in Carson-Macedonia area, Pottawattamie County. Brood IV apparently much quieter than Brood III; intermittent singing, if any, reported. (Iowa Ins. Inf., June 22).

LEAFHOPPERS - WISCONSIN - Present in such high numbers in lawns near Baraboo, Sauk County, that homeowners treating for control. (Wis. Ins. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - Populations of half-grown nymphs at least 2 or 3 times as large as average for past 5 years in Arena Valley area. (Waters). UTAH - Becoming more noticeable recently, including immatures. (Knowlton).

#### INTERCEPTIONS

DESERT SPIDER MITE (Tetranychus desertorum) - OHIO - Damaging creosote plants (Larrea tridentata) in greenhouse in Cleveland, Cuyahoga County. Plants and mites transported from out of State. Det. by D. M. Tuttle. (Lyon).

BROWN GARDEN SNAIL (Helix aspersa) - UTAH - Collected on cut flowers shipped in from out of State at Logan, Cache County. (Burnett, Knowlton).

#### CORRECTIONS

CEIR 14(26):702 - A CUBAN MAY BEETLE (Phyllophaga brunneri) should read (Phyllophaga bruneri).

CEIR 14(26):706 - STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST - Release figure for Mexico should read 64,161,600.







INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on April 30, 1964, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) 9 times (5 times in cargo, 3 times in baggage and 1 time in mail); at Brownsville, Texas (3); Miami, Florida (3); and Nogales, Arizona (1).

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 20 times (17 times in baggage, 3 times in stores); at Roma, Texas (7); El Paso, Texas (3); John F. Kennedy International Airport, New York (4); and once each at Eagle Pass, Brownsville, Corpus Christi and Laredo, Texas, and San Ysidro and Calexico, California.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 21 times (in baggage 14 times, stores 4 times and cargo 3 times); at Hawaii (11); San Juan, Puerto Rico (2); New York, New York (2); John F. Kennedy International Airport, New York (2); Miami, Florida (1); Tampa, Florida (1); New Orleans, Louisiana (1); and McGuire AFB, New Jersey (1).

MELON FLY (Dacus cucurbitae Coq.) 3 times (twice in baggage and once in stores); at Hawaii (2) and San Diego, California (1).

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) once in mail at Honolulu, Hawaii.

OLIVE FRUIT FLY (Dacus oleae (Gmel.)) 15 times in baggage; at John F. Kennedy International Airport, New York (8); New York, New York (5); Boston, Massachusetts (1); and Detroit, Michigan (1).

CELERY FLY (Euleia heraclei (L.)) once in celery stores at Corpus Christi, Texas.

A WEEVIL (Naupactus xanthographus (Germ.)) with honeydew melons at New York, New York.

AN ANDEAN POTATO WEEVIL (Premnotrypes sp.) once in baggage at Miami, Florida, and once in stores at Baltimore, Maryland.

COFFEE BERRY BORER (Stephanoderes hampei Ferr.) 2 times; in baggage (1) and mail (1); at Miami, Florida (1), and San Juan, Puerto Rico (1).

WHITE GARDEN SNAIL (Theba pisana (Müller)) 7 times in cargo; at New York, New York (3); Norfolk, Virginia (3); and New Orleans, Louisiana (1).

KHAPRA BEETLE (Trogoderma granarium Everts), or probably that species, 71 times (8 times in stores, 14 times in ships' holds, 1 time in freight car and 48 times contaminating cargoes of wool, Hessian cloth and bags, Annatto seed, cocoa beans, cinnamon bark, polished rice, beeswax, guar gum, gum arabic, coir yarn, cumin seed, dried Citrus aurantifolia packaged steel, coffee beans, senna pods, dry goat skins and chickpea) destined for various cities and States; at Philadelphia, Pennsylvania (18); New York, New York (17); Baltimore, Maryland (7); Seattle, Washington (5); Portland, Oregon (5); Charleston, South Carolina (4); Boston, Massachusetts (3); Norfolk, Virginia (3); San Francisco, California (2); and once each at Eagle Pass, Texas; Savannah, Georgia; San Pedro, California; John F. Kennedy International Airport, New York; Brownsville, Texas; Wilmington, North Carolina; and Houston, Texas.

GOLDEN NEMATODE (Heterodera rostochiensis Woll.) 11 times; at San Francisco, California (5); Miami, Florida (4); Jacksonville, Florida (1); and Port Everglades, Florida (1).

## ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Illinois DURING 1963  
(State or District) (Year)ATTACKING Corn  
(Commodity or Crop)ATTACKING Corn  
(Commodity or Crop)

A. Pest or pest complex: Grasshoppers

B. Number of acres <sup>a</sup> produced (From CRS) No. 8,849,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 85 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 1.09

E. Acres <sup>a</sup> needing control (1.7%) No. 158,397

F. Acres <sup>a</sup> treated No. 140,648

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 5

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ 4.25 bu.

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 4.63

K. Loss in quality, \$ per acre <sup>a</sup> L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 75,432 bu.

M. Control cost, \$ per acre <sup>a</sup>, \$/ 2.25

N. Control cost for all acres <sup>a</sup>, F x M \$ 316,458

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 82,178

P. Quality loss for all acres <sup>a</sup>, (E-F) x K \$ 398,636

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

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

Comment: This is \$187,479 less damage than was estimated 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 Clarence WhiteDate February 11, 1964

A. Pest or pest complex: Soil Insects

B. Number of acres <sup>a</sup> produced (From CRS) No. 8,849,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 85 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 1.09

E. Acres <sup>a</sup> needing control (57.5%) No. 5,092,600

F. Acres <sup>a</sup> treated No. 4,049,318

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 10

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ 8.5 bu.

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 9.27

K. Loss in quality, \$ per acre <sup>a</sup> L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 8,867,897 bu.

M. Control cost, \$ per acre <sup>a</sup>, \$/ 3.25

N. Control cost for all acres <sup>a</sup>, F x M \$ 13,160,284

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 9,671,224

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

Q. Combined control cost and losses, N + O + P \$ 22,831,508

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

Comment: Of the above yield loss, 55 percent was attributed to wireworms and 45 percent to rootworms. In addition to the above, 153,059 acres were replanted at a cost of \$1,530,059 & 171,045 acres were treated after emergence for cutworms at a cost of \$557,996. Total cost for soil insects \$24,917,794 or \$7,079,401 per acre, head of cattle or other producing units used by Crop Reporting Service.

- 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 Clarence WhiteDate February 11, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Wheat (Commodity or Crop)  
 (Commodity or Crop)

A. Pest or pest complex: Armyworms

B. Number of acres <sup>a</sup> produced (from CRS) No. 1,113,000  
 C. Average yield per acre <sup>a</sup> (From CRS) Units/ 57 bu.  
 D. Price<sup>b</sup> per unit ( bu. ) <sup>c</sup> (From CRS) \$/ 0.63  
 E. Acres <sup>a</sup> needing control ( 1.26% ) No. 17,803  
 F. Acres <sup>a</sup> treated No. 44,569

G. Reduction due to not treating where needed:

H. Loss in yield, percent %  
 I. Loss in yield, units per acre <sup>a</sup>, C x H Units/  
 J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/  
 K. Loss in quality, \$ per acre <sup>a</sup> \$/  
 L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units  
 M. Control cost, \$ per acre <sup>a</sup> \$/ 2.25  
 N. Control cost for all acres <sup>a</sup>, F x M \$ 100,280  
 O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$  
 P. Quality loss for all acres <sup>a</sup>, (E-F) x K \$  
 Q. Combined control cost and losses, N + O + P \$ 100,280  
 R. Percent loss due to each insect in the complex:

Comment: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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 Clarence White  
 Date February 11, 1964

A. Pest or pest complex: Armyworms

B. Number of acres <sup>a</sup> produced (from CRS) No. 1,765,000  
 C. Average yield per acre <sup>a</sup> (From CRS) Units/ 10 bu.  
 D. Price<sup>b</sup> per unit ( bu. ) <sup>c</sup> (From CRS) \$/ 1.80  
 E. Acres <sup>a</sup> needing control ( 4.54% ) No. 81,039  
 F. Acres <sup>a</sup> treated No. 114,675

G. Reduction due to not treating where needed:

H. Loss in yield, percent %  
 I. Loss in yield, units per acre <sup>a</sup>, C x H Units/  
 J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/  
 K. Loss in quality, \$ per acre <sup>a</sup> \$/  
 L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units  
 M. Control cost, \$ per acre <sup>a</sup> \$/ 2.25  
 N. Control cost for all acres <sup>a</sup>, F x M \$ 258,019  
 O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$  
 P. Quality loss for all acres <sup>a</sup>, (E-F) x K \$  
 Q. Combined control cost and losses, N + O + P \$ 258,019  
 R. Percent loss due to each insect in the complex:

Comment: There were 50,599 more acres estimated to need control measure in 1963 than in 1962. An estimated 95,237 more acres were estimated to be treated in 1963 than in 1962. Many acres were probably treated at a financial loss.  
 \_\_\_\_\_  
 \_\_\_\_\_

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 Clarence White  
 Date February 11, 1964





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Hyattsville, Maryland 20781

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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Larval infestations of EUROPEAN CORN BORER increasing in most sections of East and Midwest. Second-generation adults laying eggs in southern third of Missouri. (pp. 750,751). CORN EARWORM infesting whorls of corn in southern Virginia and detected in New York and Iowa; light to medium on soybeans in east central Arkansas. (p. 751). Damage to corn by MITES expected in Colorado. (p. 754). PEA APHID beginning to build up in alfalfa in south central Idaho, and SPOTTED ALFALFA APHID present in north central Kansas. (pp. 754, 755). First-growth alfalfa fields yellowing as result of heavy feeding by POTATO LEAFHOPPER in Wisconsin. (p. 755).

APPLE MAGGOT adults active in Connecticut, New York, Massachusetts, Michigan, Wisconsin and Minnesota. Protective sprays recommended. (p. 757). GLOVER SCALE population in Florida citrus at highest level recorded in any month in 13 years of record; further increase expected. June population of MEALYBUGS on Florida citrus also highest recorded in any month in 13 years of record. (p. 760).

Adults and eggs of COLORADO POTATO BEETLE extremely numerous in western and south central areas of Idaho in potato fields; widespread controls appear necessary. (p. 761). TOMATO FRUITWORM severe in Lancaster County, Virginia, tomatoes; up to 50 percent of crown clusters in early planting destroyed. (p. 762). SUGAR-BEET ROOT MAGGOT severe in Jerome, Cassia and Minidoka Counties, Idaho, on sugar beets; damage from maggot attack serious and much above that reported in past few years. BEET LEAFHOPPER abundant in sugar beet fields in Washington; 40 percent of plants show curly top symptoms locally along Touchet River at Touchet, Walla Walla County. Most growers applied second spray for beet leafhopper in Mesa County, Colorado. (p. 764). Populations of GREEN PEACH APHID developing rapidly in Walla Walla area of Washington; virus yellows showing on beets in most fields. (p. 765).

TWO-SPOTTED SPIDER MITE building up to damaging levels on cotton in Fresno County, California. Several species of spider mites heavy in Brazos and Robertson Counties, Texas, and continue troublesome in sections of Arkansas and South Carolina. (p. 766). First-generation BOLL WEEVIL adults reported in southern Alabama. (p. 766). BOLLWORM increasing in east and central areas of Texas and some controls necessary in Arizona. (p. 767). LYGUS BUGS increasing in Fresno and Kern Counties, California, and in all areas of Arizona. Some controls applied in Pinal and Maricopa Counties in latter State. (p. 767).

BAGWORM continues extremely heavy on arborvitae and other coniferous shrubs in Montgomery County, Alabama; heavy on cedar in Atlanta area of Georgia; damage ranges from none to severe in southern half of Illinois; and damaging locally in Maryland and Pennsylvania. (p. 772).

MOSQUITOES apparently dominant human and livestock pests in eastern part of North Dakota; seem more abundant in most areas of Idaho than past few years; populations of *Aedes sticticus* high along Columbia River in Columbia and Multnomah Counties, Oregon; tremendous populations now present in Minnesota as result of heavy rain and flooding; and various species troublesome in sections of Utah. (pp. 774, 775). Numerous species of BLACK FLIES abundant in many areas of northern, west central and south central sections of Idaho and causing considerable annoyance to residents in northwest Ohio. High populations of HORN FLY reported in several States. FACE FLY increasing in Iowa. (p. 776).

JAPANESE BEETLE emergence reported in Rhode Island, Massachusetts, Ohio, Indiana and Illinois. (pp. 773, 780).

## DETECTION

New State records reported were HOLLYHOCK WEEVIL (Apion longirostre) in Oregon (p. 773), a TABANID (Chrysozona rara) in Delaware (p. 776), and a DERMESTID BEETLE (Attagenus alfieri) and RICE WEEVIL (Sitophilus oryzae) in Nevada (p. 778). New county records of significance were CEREAL LEAF BEETLE (Oulema melanopa) in Madison and Boone Counties, Indiana (p. 752); a BERMUDA GRASS MITE (Aceria neocynodonis) in Richmond County, Georgia (p. 754); ALFALFA WEEVIL (Hypera postica) in Jefferson, Dubois and Warrick Counties, Indiana (p. 756); LOCUST LEAF MINER (Xenochalepus dorsalis) in Hardin County, Illinois (p. 771); FACE FLY (Musca autumnalis) in Polk County, Georgia (p. 776); IMPORTED FIRE ANT (Solenopsis saevissima richteri) in Wheeler County, Georgia (p. 780); and a SLUG (Arion ater) in Alameda County, California (p. 780).

## CORRECTIONS

See page 780.

## SPECIAL REPORTS

Wireworm Populations in Vicinity of Charleston, South Carolina, in Fall of 1963 and Extent of Their Injury to Potatoes in Spring of 1964. (p. 762).

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

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## WEATHER BUREAU'S 30-DAY OUTLOOK

JULY 1964

The Weather Bureau's 30-day outlook for July calls for temperatures to average below seasonal normals over the southeastern quarter of the Nation and in the northern Rocky Mountain States. Above normal averages are predicted for the northeastern quarter of the Nation and for the far Southwest. In unspecified areas, near normal temperatures are anticipated. Above normal rainfall is expected from the Southern Plains eastward to the South Atlantic Coast States, as well as in the upper Mississippi Valley and in the northern Rocky Mountain States. Subnormal rainfall is predicted for the northeastern quarter of the Nation and for the far Southwest. In the remainder of the Country near normal amounts are expected.

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

(Weather continued on page 768).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WASHINGTON - Nymphal survey in some counties revealed following information: Whitman County - high count of 10 first to third instars of Melanoplus sanguinipes (migratory grasshopper) per square yard observed south of Hooper; populations generally light over county. Adams, Franklin, Walla Walla and Columbia Counties - no economic populations noted; Melanoplus spp. mostly first and second instars; development quite late; light counts of Aulocara elliotti and Oedaleonotus enigma noticed in range areas, mostly adults. Garfield County - 2,000 acres of rangeland infested in Breakdown Canyon; Melanoplus sp. first to third instars ranged 15-20 per square yard. (Parkinson, Jackson; June 26). OREGON - Surveys during week of June 24 revealed Melanoplus spp. mostly in second and third and 1-5 per square yard at most stops in Union, Baker, Grant, Wheeler and Sherman Counties. No economic infestations noted in any area. A few band-wing species, fourth instar to adult, noted at most stops. (Jackson). UTAH - Large numbers of grasshoppers coming from range and meadow lands west of Ephraim in Sanpete County. (Funk, Burnett, Knowlton; July 3). Particularly a problem in Grantsville-St. John area of Tooele County and North Ogden. (Burnett, Knowlton; July 1). On Wasatch Front areas about Plymouth, Box Elder County, M. sanguinipes up to 50 percent winged and A. elliotti adults becoming numerous. Grasshoppers very largely nymphs in many areas. (Burnett, Knowlton; June 30). ARIZONA - Some 40,000 acres of rangelands economically infested in Gila and Graham County parts of the San Carlos Apache Indian Reservation; numbers ranged 8-100 or more per square yard. Some 12,000 acres economically infested on Fort Apache Indian Reservation and, on Apache and Sitgreaves National Forests, about 3,000 acres economically infested. (PPC, West. Reg., May Rpt.). NEW MEXICO - Heavy grasshopper infestations in cropland areas in McKinley County on Zuni Indian Reservation. (N.M. Coop. Rpt.). TEXAS - Complaints of damage by several species to growing crops and pastures being received from upper coastal, central, east and west central areas of State. (Texas Coop. Rpt.). MISSOURI - Populations of Melanoplus spp. highest at site of hatch; averaged 100-200 per 100 sweeps (ranged 0-400) in alfalfa. Mostly nymphs in northwest. Dispersion into crops slow. Light damage to marginal rows of soybeans. (Houser, Thomas, Wood). KANSAS - Counts of Melanoplus spp. in alfalfa in north central area ranged from less than 1 to 5-10 "hoppers" per square yard. Higher counts present in Phillips, Smith and Jewell Counties. Field margin counts in area ranged from less than one to 10-20 "hoppers" per square yard. Development third to fifth instar with few adults present. (Peters).

SOUTH DAKOTA - Grasshoppers increasing on roadsides and field margins. "Hopper" feeding damage observed on marginal rows of cornfield in Bon Homme County. Development ranged from first to third instar with an occasional fourth instar present. Populations averaged 3-5 per square yard (ranged 1-20). (Kantack, Hintz). NORTH DAKOTA - Nymphs ranged 1-40 (averaged 5-8) per square yard in margins in Billings, Golden Valley, Slope, Bowman and Adams Counties; field counts ranged less than 1 to 15 (averaged 1-4) per square yard in same areas. Development ranged from first instar through adult; 2 percent first, 6 percent second, 45 percent third, 30 percent fourth, 15 percent fifth and 2 percent adult; M. bivittatus (two-striped grasshopper) only species in adult stage. Dominant species included M. bivittatus, M. sanguinipes, M. packardii (Packard grasshopper) and M. femurrubrum (Red-legged grasshopper). On Snake Creek Wildlife Refuge, numbers ranged 2-15 (averaged 5) per square yard; M. bivittatus, M. sanguinipes and M. packardii dominant. (Brandvik). Survey in southern Kidder, Emmons and southern Burleigh Counties showed marginal counts of 1-30 (averaged 6-13) per square yard; field counts ranged less than 1 to 28 (averaged 6-9) per square yard. Development ranged from second through fifth instar; most in third and fourth instars. M. bivittatus, M. sanguinipes and M. packardii dominant species. (Scholl). MONTANA - Grasshopper hatch in southern Rosebud and Powder River Counties well underway on May 25. Economic numbers on Cheyenne Indian Reservation, Custer National Forest and on private range lands. (PPC, West. Reg., May Rpt.). MINNESOTA - Melanoplus differentialis (differential grasshopper) and M. femurrubrum egg hatch continues but nearing completion in southern half of State. First to fourth instars present, with majority in second and third instars. Populations

quite scattered and localized. High numbers found along roadsides in Renville, Meeker, Chippewa, Swift, Big Stone, Lac qui Parle and Kandiyohi Counties. In Lac qui Parle County, north of Dawson, roadside counts as high as 90-100 nymphs per square yard. Movement into corn and soybeans light so far, but it could be serious in a few weeks. *M. differentialis* dominant in most roadside infestations. High numbers of "hoppers" also found in alfalfa and red clover fields in Wright, Chippewa, Watonwan and Swift Counties. Counts in Wright County, northwest district, remain low. (Minn. Ins. Rpt.). WISCONSIN - Migration of unspecified species reported in areas of Adams and Waushara Counties; adults numerous in soil bank and waste land areas. *M. femurrubrum* at fourth instar in Rock and Green Counties although newly hatched nymphs also present in same field. Populations continue 15-30 per sweep in sandier fields. (Wis. Ins. Sur.). ILLINOIS - *Melanoplus* spp. varied 60-150 per 100 sweeps in alfalfa in east-southeast and southeast districts. One field had 6 per square yard in margin. (Ill. Ins. Rpt.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - All stages present in Hudson Valley. About 20 percent of tassels showed infestations with third and fourth instars in midseason varieties of sweet corn not treated. Most scarce in field. Borer infestation seemed light in certain Dutchess County plantings and moderate in Ulster County. Moth activity very light in Geneva area week of June 22-26. Very heavy on earliest corn in Westchester County. Hatching continuing in Monroe County. (N.Y. Wkly. Rpt., June 29). MASSACHUSETTS - Infestations appear light so far. (Wave). MARYLAND - In eastern and southern sections, several thousand acres of field and sweet corn planted before or near May 1 showing infestations of 10-80 percent (average about 15). Generally light in later planted corn. (U. Md., Ent. Dept.). GEORGIA - Light infestations in several fields of corn in southern area. (Johnson). INDIANA - Larvae infesting up to 30 percent of 70 to 80-inch field corn in Posey and Warrick Counties, southwest. Larvae infesting up to 25 percent of 60-inch field corn in Floyd and Clark Counties, southeast. (Saugstad). Fourth instars infesting 32 percent of 72-inch corn in north central section. (Bram). Larvae infesting 20 percent of field corn in La Porte County, northwest. Feeding evident in midribs, but no stalk entry evident on July 2. (Gould, Matthew). MICHIGAN - Larval leaf feeding evident in many counties; adults trapped as far north as Manistee County. (Kidd, Belter, Newman). ILLINOIS - Northwest district corn averaged 74 inches extended leaf height; averaged 54 egg masses per 100 plants; 94 percent of eggs hatched; average of 35 percent of plants infested with average of 3 borers per infested plant; 93 percent of borers in second instar, 3.6 percent in first and 3.6 percent in third. Northeast district - corn averaged 74 inches; averaged 55 egg masses per 100 plants; 96 percent of eggs hatched; 45 percent of plants infested with 2.75 borers per infested plant; 73 percent of borers in second instar, 18 percent in third and 9 percent in fourth instar. (Ill. Ins. Rpt.). MISSOURI - Whorl feeding by larvae 5-85 percent in Atchison, Holt and Nodaway Counties, northwest. Infestation varied greatly from field to field. No larvae found to have entered stalks. Second-generation adults laying eggs in southern third of State. (Houser, Thomas, Wood). IOWA - Egg masses increased in Boone County study area; 25 percent more egg masses laid by June 25 in these Boone County fields than were laid through entire first brood egg-laying period in 1963. Moderate to heavy leaf feeding noted in Monona County. Egg masses per 100 plants in Boone County on June 26 were 30.6; leaf feeding 20 percent. (Iowa Ins. Inf.; Brindley, Sparks; June 29). WISCONSIN - Very light feeding injury noted; second instars dominate although few third instars present. Feeding in tassels and an occasional entrance into stalks observed. (Wis. Ins. Sur.). MINNESOTA - Egg laying and egg hatch continue in southern counties. Number of egg masses per 100 plants by district averaged as follows: West central - 5.5; southwest - 1.8; south central - 8; central - 1.7. Number of borers per 100 plants by district as follows: Southwest - 2.6; south central - 9.1; central - 9; west central - 0. Egg mass counts and infested plants variable between fields. The taller the corn the more egg masses and borers. Both newly laid egg masses and first and second-stage larvae found on same plant. Timing of controls expected to be difficult. (Minn. Ins. Rpt.). NORTH DAKOTA - Egg laying started in Richland and Sargent Counties; 2-10 percent of plants with egg masses. (Frye).



SOUTH DAKOTA - Adult activity increased. Some whorl damage observed. (Hintz).  
NEBRASKA - Infesting 0-25 percent of corn fields in south and southeast areas.  
Egg masses, feeding signs and first-stage larvae present. (Bergman).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - First moths of spring generation taken in light trap at Portageville, southeast. (Harrendorf, Jones).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - MARYLAND - First larvae of season found in whorls of field corn at Public Landing, Worcester County. (U. Md., Ent. Dept.).

STALK BORER (Papaipema nebris) - WISCONSIN - Some damage to garden sweet corn reported from Trempealeau County. (Wis. Ins. Sur.). MINNESOTA - Reported in Watonwan and Brown Counties. One extremely heavy infestation reported in oats in Dodge County. (Minn. Ins. Rpt.). NORTH DAKOTA - Larvae taken from corn near Lidgerwood, Richland County; 1 per 10 plants in margin of field infested. (Frye). SOUTH DAKOTA - Damage becoming evident on several fields in Moody County, with one-fourth of plants being infested in first 2 or 3 marginal rows. (Hintz).

ARMYWORM (Pseudaletia unipuncta) - MASSACHUSETTS - Heavy moth numbers continue to be trapped in southeast. (Tomlinson, June 26). DELAWARE - Adult collections increasing in blacklight trap in Sussex County; averaged over 16 per night during week. (Burbutis, Crossan). MARYLAND - Heavy numbers of adults coming to blacklight traps in Harford, Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). OHIO - Despite large moth collections from light traps, pest has caused little economic damage to corn, oats, wheat and rye throughout State in contrast to one year ago. (Lyon). MICHIGAN - An extremely heavy flight of adults underway. Later broods not expected to cause major problems in State. (Collison, Madison, Snow, Gilmore, Bailey, Kingston, Faussett, Curry, Irons, Newman). WISCONSIN - Heavy moth flight continues. Newly hatched larvae becoming common in oat and grassy pea fields. (Wis. Ins. Sur.). MINNESOTA - Found in timothy seed field in Lake of the Woods County; averaged 3 per square foot. (Minn. Ins. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - VIRGINIA - Expected to appear in State in near future. (Tarpley). GEORGIA - Light infestations on peanuts throughout southern area. Light to moderate in whorls of late corn in same area. (Johnson). ALABAMA - A 6-acre field of Sudan grass in Fayette County being defoliated by heavy population; farthest north that heavy numbers reported in 1964. (McQueen). General infestations occurring on lawns over city of Montgomery, Montgomery County; controls being applied. (Owens). ARKANSAS - Larvae 1 per 10 plants on rice in Arkansas County. Also collected on rice in Desha County. (Ark. Ins. Sur.).

CORN EARWORM (Heliothis zea) - NEW YORK - Fourth and fifth instars found in Iochief sweet corn tassels at Hurley, Ulster County, on June 26. (N.Y. Wkly. Rpt.). MARYLAND - Light to moderate in whorls of field and sweet corn in several sections. (U. Md., Ent. Dept.). VIRGINIA - Infesting 40 percent of whorls of corn in large field near Penhook, Pittsylvania County. Many other fields in this area of Franklin and Pittsylvania Counties found infested. Infestations in other fields ranged from less than 1 percent of whorls infested up to 5 percent. Corn about waist high seemed preferred, especially those stalks in which tassel formed but not emerged. Practically no earworms found in smaller or larger corn plants. Most of larvae encountered almost full grown. This is second generation in State. (Tarpley, Tucker). Larvae lightly infesting whorls of corn in 2 fields near Narrows, Giles County; corn about waist to shoulder high and not yet tasseling. (Tarpley, Holpp). GEORGIA - Light infestations on peanuts in southern area. (Johnson). Infesting 95 percent of ears of corn in one field observed in Spalding County. (Dupree). ARKANSAS - Light to medium infestations observed on small soybean plants (4-8 inches in height) in Arkansas and Lonoke Counties, east central. Highest counts 1 per 2 feet of row. In most fields, this species amounted to 75-80 percent of total caterpillars present. No economic infestation of combined species found although some treatments applied. No larvae found in taller soybeans in central area, and none found in upper Arkansas River Valley.

No *H. virescens* (tobacco budworm) found in soybeans. (Ark. Ins. Sur.). Larvae 12-60 per 30 feet of row in 3 fields of soybeans in Lonoke County. (Little). IOWA - Half-grown larvae found feeding in whorls of field corn plants in Boone County. (Iowa Ins. Inf.; Brindley; June 29). ILLINOIS - Populations very high in early sweet corn in southern third of State. This early infestation indicates that next generation in sweet corn in August may be quite large. (Ill. Ins. Sur. Bull.). WISCONSIN - Moth flight commencing. (Wis. Ins. Sur.).

GARDEN WEBWORM (*Loxostege similalis*) - ARIZONA - Damaging ears of sweet corn in Glendale and Goodyear areas of Maricopa County. (Ariz. Coop. Sur.).

SOD WEBWORMS - TEXAS - Moderate to heavy, local populations, probably *Crambus mutabilis*, causing considerable damage to lawns in Clay County. (Turney). OREGON - *C. sperryellus* adult populations very high in Milton-Freewater area seed alfalfa fields, Umatilla County; averaged 30-70 per 100 sweeps. (Halfhill).

CEREAL LEAF BEETLE (*Oulema melanopa*) - INDIANA - In La Porte County, northeast, "summer" adults commenced emerging in large numbers on June 29. Emergence numbers increasing daily and peak probably will be reached within a week. (Wilson). Specimens have been collected in Madison and Boone Counties for first time. (Favinger). MICHIGAN - "Summer" adults now emerging in large numbers in untreated research plots in Berrien County. Peak emergence appears past in wheat fields and currently underway in oats. Adults only stage found in significant numbers in infested fields. New quarantine in effect in number of Lower Peninsula counties; generally includes southwest area, extending as far north and east as the following counties which are also included: Oceana, Newaygo, Mecosta, Isabella, Gratiot, Saginaw, Genesee, Livingston, Washtenaw and Monroe; only part of Washtenaw and Oakland Counties are included. (Ruppel, Ring). OHIO - Spread of pest beyond area presently under quarantine necessitated immediate extension so that all known infested areas could be regulated. Regulated area under emergency quarantine included all 15 counties in northwestern section of State. (Stackhouse, Porter).

CORN ROOTWORMS (*Diabrotica* spp.) - NEBRASKA - Larvae, first to fourth stages, present in some corn fields from Adams and Webster Counties east to Missouri River; ranged 0-5 per plant and damage very light. (Bergman). SOUTH DAKOTA - Larval populations increased considerably in various areas of southeast and south central sections; ranged 0-61 per plant (averaged 10-15) in research plots. Larvae not found in any field surveyed in Tripp County. Larvae averaged 3 per plant in Davison County field on June 25 and on July 2 same field had 15-30 per plant with damage and goosenecking becoming evident. (Hintz, Kantack, Nearman). MINNESOTA - Third instars reported in Rock County. (Minn. Ins. Rpt.). IOWA - Activity reported in number of counties; some corn reported severely damaged. (Iowa Ins. Inf., June 29).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - MISSOURI - Most larvae left corn roots and preparing to pupate. Damage to roots light. (Houser, Thomas, Wood). KANSAS - Adults just beginning to emerge in Republic County. Counts in untreated corn fields ranged from about 10 to about 45 larvae and pupae per plant. (Burkhardt, Peters).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - NEBRASKA - Adults scattered and light in legumes, beans and conservation reserve land in south and southeast area. Field of corn in Johnson County contained adults recently emerged from pupation and still in soil. (Bergman). INDIANA - Adults present and feeding on corn leaves in Porter County, northwest. (Gould, Matthew).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - INDIANA - Larvae, pupae and adults present in Pinney Purdue Farm, Porter County, northwest section; adult emergence about 2 weeks earlier than normal. (Gould, Matthew).

SAP BEETLES (Carpophilus spp.) - MARYLAND - First adults of season found in tassels of sweet corn in Harford County. (U. Md., Ent. Dept.). NEW YORK - C. lugubris (dusky sap beetle) abundant in field of tasseling sweet corn in Hudson Valley. (N.Y. Wkly. Rpt., June 29).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Adults light to moderate on field and sweet corn in all sections. (U. Md., Ent. Dept.). ILLINOIS - Varied 0-10 per 100 plants on corn in east-southeast district. (Ill. Ins. Rpt.).

A FLEA BEETLE - TEXAS - Moderate infestations of undetermined species reported damaging grain sorghum in Guadalupe County. (New).

HESSIAN FLY (Phytophaga destructor) - INDIANA - Pupae found infesting up to 60-80 percent of Monon wheat in Fulton County, north central. (Dobson). Surveys of wheat in Kosciusko County, north central, revealed up to 10 percent infestation of variety Monon, 2 percent infestation of variety Reed, and 5 percent infestation of variety La Porte. (Bram).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Infestations moderate in Burleson and Brazos Counties on grain sorghum. (Randolph).

WHEAT MIDGE (Sitodiplosis mosellana) - OHIO - Populations rapidly building up in oats and wheat in northwest section, especially in Van Wert County. Easily found in wheat in same county one year ago. (Frazier, Lyon).

WHEAT STEM MAGGOT (Meromyza americana) - MINNESOTA - Generally less than 1 percent infestation, but 10-15 percent (high of 30 percent) in test plots at Rosemount, Dakota County. (Minn. Ins. Rpt.).

A BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Appearing in barley in most eastern areas; also observed on corn in southeast. (Frye).

CHINCH BUG (Blissus leucopterus) - TEXAS - Moderate, local populations present on grain sorghum in Burleson County. (Randolph). ILLINOIS - Nymphs varied 1-3 per plant in marginal rows of corn and 0-5 per foot in wheat in southeastern Champaign County. None observed in east-southeast district. (Ill. Ins. Rpt.). INDIANA - An infestation required controls in Jasper County area, northwest section. This is first report of an economic infestation in 3 years. (Matthew).

A CHINCH BUG (Blissus leucopterus ssp.) - ARKANSAS - Infesting St. Augustine grass in Miller County. (Ark. Ins. Sur.).

A FALSE CHINCH BUG (Nysius sp.) - TEXAS - Continues to infest grain sorghum and other crops in Hill, Hamilton, Mason, Parmer, Colorado, Midland and Guadalupe Counties. (Texas Coop. Rpt.).

GRASS PLANT BUGS - UTAH - Thyrillus pacificus 90 percent (det. by Hanson) and Leptopterna ferrugatus are species responsible for damage to wheat, barley and bunchgrass (giant rye grass) in White's Valley area of Box Elder County. (Knowlton, Wood). See CEIR 14(27):715. IDAHO - Irbisia sp. abundant in alfalfa-grass plantings in Fairfield area of Camas County. (Henry).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Adults 2 and nymphs 0 per 100 sweeps in 10 fields of rice in Lonoke County; no barnyard grass present except on borders. (Little).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Counts in small grain remain high; average per 100 sweeps by district 71 in west central, 100 in northwest, 150 in southwest, 148 in south central and 104 in central. Aster yellows showing up in flax in southwest and west central districts. Generally, less than 1 percent of plants show aster yellows symptoms. One field in Lac qui Parle County has an infection of 40-50 percent, however. (Minn. Ins. Rpt.).

LEAFHOPPERS - RHODE ISLAND - Very numerous in hay in Kingston, Washington County; *Athysanus argentarius* and *Doratura stylata* predominate. (Mathewson).

MASSACHUSETTS - Became much more abundant in western area; *Aceratogallia sanguinolenta* (clover leafhopper) 822 per 100 sweeps. *Endria inimica* 500 per 100 sweeps. *Aphrödes costata* 627 per 100 sweeps, *Erratunus ocellaris* 310 per 100 sweeps, *Empoasca fabae* (potato leafhopper) only 55 per 100 sweeps. (Shaw).

SPITTLEBUGS - GEORGIA - First and second instars on coastal Bermuda grass in Cook County; species probably *Prosapia bicincta*. (Byers).

A WHITEFLY (*Aleurocybotus* n. sp.) - FLORIDA - Moderately infesting leaves of a native grass in South Miami, Dade County, on April 17, 1964. Collected by C. F. Dowling, Jr. and R. W. Swanson. Determined by L. M. Russell on June 5, 1964. (Fla. Coop. Sur.).

CORN ROOT APHID (*Anuraphis maidiradicis*) - MARYLAND - Caused heavy loss to field of moderate sized corn in Calvert County. (U. Md., Ent. Dept.). SOUTH DAKOTA - Commonly found on corn in southeast; several fields being damaged in Lincoln County. (Kantack, Hintz).

APHIDS - NORTH DAKOTA - *Macrosiphum avenae* (English grain aphid) and *Schizaphis graminum* (greenbug) ranged from a trace to 5 per 10 sweeps in small grains in eastern area. Trace numbers of *Rhopalosiphum padi-fitchii* also seen on oats near Hankinson, Richland County. (Frye). UTAH - Very few on wheat and barley in Providence-Avon-Hyrum area of Cache County. (Knowlton).

A BERMUDA GRASS MITE (*Aceria neocynodonis*) - GEORGIA - Infesting Bermuda grass in Augusta, Richmond County. (ARS, ENT; Tifton, Ga.). First ARS record for county. Collected for first time in State on October 31, 1962, in Tift County.

MITES - COLORADO - Showing up on corn in Bent, Otero, Crowley and Pueblo Counties, and with favorable conditions, damage expected. Control measures advised. (Schweissing, Wilshusen). TEXAS - Heavy localized infestations reported from grain sorghum in Burleson County. (Randolph). ILLINOIS - Causing light russeting of soybeans in southeast sistrict. (Ill. Ins. Rpt.). MARYLAND - First *Tetranychus* spp. of season found on border soybeans in Caroline and Talbot Counties. Expect buildup if dry weather persists. (U. Md., Ent. Dept.).

PEA APHID (*Acyrtosiphon pisum*) - IDAHO - Beginning to build up in alfalfa in south central area, particularly in fields where lady beetles noticeably absent. Seed fields in Hammett and Glensferry areas beginning to have economic levels. In Gooding, Twin Falls and Jerome Counties, flights of aphids becoming extremely common and heavy buildups anticipated. (Gittins). WYOMING - Adults and nymphs averaged 475 per 100 sweeps in Goshen County alfalfa. (Marks). COLORADO - Populations moderate on alfalfa in Larimer County; 1,000-6,000 per 100 sweeps. (Jenkins). Widespread in Arkansas Valley; 400-2,000 per 100 sweeps. Lady beetles and nabids numerous in all fields. (Schweissing). NEW MEXICO - Light to moderate infestations in Valencia and Bernalillo County alfalfa. (N.M. Coop. Rpt.). NEBRASKA - Very low, 5-30 per 10 sweeps, in legumes in south and southeast areas. (Bergman). NORTH DAKOTA - Continues low on alfalfa. (Frye). MINNESOTA - Counts per 100 sweeps of alfalfa 1,600 in southwest, 656 in south central, 2,430 in west central, 3,900 in central and 200 in northwest. (Minn. Ins. Rpt.). WISCONSIN - Continues low on alfalfa; generally 3-15 per sweep. (Wis. Ins. Sur.). ILLINOIS - Counts per 100 sweeps on alfalfa 0-40 in southeast and 100-150 in east-southeast. (Ill. Ins. Rpt.). INDIANA - Adults and nymphs ranged 0.4-5 per sweep (averaged 4) in southwest, ranged 1-70 per sweep (averaged 50) in south central section, and 2-100 in western section. (Saugstad). Averaged 5 per sweep in north central area. (Bram). MASSACHUSETTS - Increasing in western area, up to 725 per 100 sweeps. (Shaw). MARYLAND - Ranged 0-75 per sweep on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Found in alfalfa in Norton, Phillips, Smith, Jewell, Republic, Cloud and Washington Counties. Not found in Clay County. Ranged 0-70 per 100 sweeps. These aphids probably originated from overwintering eggs. (Peters). NEBRASKA - Ranged 1-6 per 10 sweeps in Adams, Clay, Gage and Webster Counties. (Bergman). WISCONSIN - Populations increased sharply; averaged 21 per sweep in observation field in Brodhead area (6 per 10 sweeps in same area of field on June 22) and 12 per sweep (4 per 10 sweeps on June 22) in another field. Few winged forms present, although less than 10 percent of population. Averaged 1 per sweep in field near Mazomanie, western Dane County, and winged form noted in field of alfalfa in area previously uninfested. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Development delayed by cool weather; only 1 adult per sweep on alfalfa for seed near Basin City, Franklin County. Mostly L. hesperus. (Johansen, June 26). WYOMING - Adults averaged 78 and nymphs 155 per 100 sweeps on alfalfa in Goshen County. (Marks). IDAHO - Generally abundant in alfalfa checked throughout southwestern and south central areas. Adults becoming particularly abundant in alfalfa seed fields in south central area where adjacent alfalfa recently cut for hay. Adult counts frequently 10-20 per sweep in some fields. (Gittins). ARIZONA - Heavy populations occurring in alfalfa in Graham, Yuma and Maricopa Counties. Seed fields have required treatments in nearly all areas. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - MASSACHUSETTS - Plant bugs, particularly this species, increased up to 237 per 100 sweeps in western area. (Shaw). MARYLAND - Adults and nymphs abundant in alfalfa and clover fields in bloom in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). ALABAMA - Light infestation on soybeans in Mobile County. (Burns, Fairley, Wallace, Seibels, Simms). NEBRASKA - Nymphs and adults 5-10 per 10 sweeps in legumes in south and southeast areas. (Bergman). ILLINOIS - Adults varied 0-120 and nymphs 0-40 per 100 sweeps in alfalfa in east-southeast and southeast districts. (Ill. Ins. Rpt.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - ILLINOIS - Counts per 100 sweeps on alfalfa - adults 4-60 and nymphs 260-320 in east-southeast; 40-120 and 40-120, respectively, in southeast. (Ill. Ins. Rpt.).

RAPID PLANT BUG (Adelphocoris rapidus) - NEBRASKA - Nymphs and adults averaged 35 per 10 sweeps in legumes in south and southeast areas. (Bergman). ILLINOIS - Adults varied 0-40 and nymphs 0-80 per 100 sweeps in alfalfa in east-southeast and southeast districts. (Ill. Ins. Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MASSACHUSETTS - Adults 150 per 100 sweeps in western area. (Shaw). MARYLAND - Adults common, ranged 0-5 per sweep on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Adults on alfalfa ranged from trace numbers in southwest section to maximum of 5 per 10 sweeps in southeast. Averaged 14 per 10 sweeps in north central area. (Bram, Saugstad). OHIO - Light in second-cutting alfalfa throughout northwest; adults 6-8 per 50 sweeps in most fields. (Lyon).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing in alfalfa fields in Yuma, Graham and Maricopa Counties; averaged 25 per 100 sweeps in Graham County and 35 in Maricopa County. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - NEBRASKA - Ranged 2-4 per 10 sweeps on alfalfa in Adams County. (Bergman). WISCONSIN - First-growth alfalfa fields yellowing as result of heavy feeding. Second-growth alfalfa on sandier soil in Rock and western Dane Counties yellowing near margins where nymphs averaged 9 per sweep. (Wis. Ins. Sur.). ILLINOIS - Adults varied 50-150 and nymphs 0-20 per 100 sweeps in alfalfa in east-southeast district. In southeast district, adults varied 40-50 and nymphs 0-120 per 100 sweeps in alfalfa. (Ill. Ins. Rpt.). INDIANA - Adults and nymphs per sweep on alfalfa ranged 1-5 in southwest, 1-4 in south central section and averaged less than 1 in southeast. (Saugstad). Averaged

7 per 10 sweeps in north central section. (Bram). OHIO - Noneconomic infestations found throughout northwest section on second-cutting alfalfa. (Lyon). MARYLAND - Numbers not increased over those of previous weeks in most sections. (U. Md., Ent. Dept.).

ALFALFA WEEVIL (*Hypera postica*) - VERMONT - Pupation underway in Bennington County; regrowth in some fields severely injured, with many early stage larvae still present. (MacCollom, June 29). MASSACHUSETTS - Averaged 50 per 100 sweeps in western area. Fields of uncut alfalfa in southern Berkshire County and not treated in fall of 1963 show severe injury. (Shaw). PENNSYLVANIA - Adults, eggs and all larval stages present on spring-planted alfalfa in Indiana County. Considerable damage resulted from egg punctures and feeding. Generally on decline in State by June 26. (Udine). MARYLAND - Adult and larval numbers declined considerably over previous weeks in Frederick County. (U. Md., Ent. Dept.). INDIANA - Trace numbers of adults found on alfalfa in Jefferson, Dubois and Warrick Counties, southeast and southwest sections. These are new county records and brings to 8 total number of counties infested in State. Surveys in Scott, Clark, Floyd, Crawford, Pike and Posey Counties negative. (Saugstad). ILLINOIS - Total of 29 counties now known infested in State. All larvae have pupated and new adults emerged but very difficult to find. There was no damage to alfalfa this year. (Ill. Ins. Sur. Bull.). NEW MEXICO - Appears to be much more common in alfalfa in Bernalillo County this summer; averaged 15-24 per 25 sweeps. (N.M. Coop. Rpt.). COLORADO - Larvae 20-40 per 100 sweeps on alfalfa in Larimer and Weld Counties; approximately 50 percent in cocoons. Some adult emergence noted. Larvae parasitized by *Bathyplectes curculionis*. (Jenkins). WYOMING - Large reduction in adults and larvae noted in Goshen County alfalfa; adults averaged 2 per 100 sweeps and larvae 64 per 100 sweeps in second-growth alfalfa. (Marks). Larvae averaged 7,490 per 100 sweeps in untreated check plots of alfalfa and no adults found at Shell, Big Horn County. (Fronk, Hale). UTAH - Injury to first-crop alfalfa less than during last 5 years in Uintah County. (Knowlton, Lindsay). Damage just developing June 30 in Panguitch-Hatch area of Garfield County. (Knowlton). IDAHO - Larval populations frequently abundant on alfalfa in parts of south central area; reportedly causing considerable damage to some plantings in Fairfield area, Camas County. (Gittins, Henry). OREGON - Of 40 alfalfa fields checked in Klamath County, only 3 had more than 4 larvae per 10 sweeps. Very little damage found and no controls being advised. (Klamath County Extension Service).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - ILLINOIS - Adults reported damaging soybeans in fields following clover in last 2-3 weeks. (Ill. Ins. Rpt.). OHIO - Specimens observed infesting soybeans near Oak Harbor, Ottawa County, northwest section. (Ruff).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - UTAH - Infestation general but damage usually moderate. (Knowlton).

A CLOVER SEED CHALCID (*Bruchophagus platyptera*) - PENNSYLVANIA - Infestation less than 1 percent in clover seed in Bedford County. (Udine, June 26).

ALFALFA CATERPILLAR (*Colias eurytheme*) - MARYLAND - Light to moderate on alfalfa in bloom in Frederick County. (U. Md., Ent. Dept.).

GREEN CLOVERWORM (*Plathypena scabra*) - MARYLAND - Larvae light to moderate on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). ILLINOIS - Varied 4-20 per 100 sweeps in alfalfa in east-southeast district and 20-60 in southeast district. (Ill. Ins. Rpt.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Lightly feeding on soybeans in Mobile County. (Burns, Fairley, Wallace, Seibels, Simms).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Adults generally present on soybeans in Queen Annes, Talbot and Worcester Counties. (U. Md., Ent. Dept.).

COLASPIS BEETLES (*Colaspis* spp.) - ALABAMA - Light feeding noted on soybeans in Mobile County. (Burns, Fairley, Wallace, Seibels, Simms). ILLINOIS - First adults of season observed; populations per 100 sweeps in alfalfa 0-6 in east-southeast and 20-40 in southeast. (Ill. Ins. Rpt.).

GRANULATE CUTWORM (*Feltia subterranea*) - GEORGIA - Light to moderate infestations on peanuts in southern area. (Johnson).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - ALABAMA - Lightly feeding on soybeans in Mobile County. (Burns, Fairley, Wallace, Seibels, Simms). ARKANSAS - Present on soybeans in Arkansas and Lonoke Counties, east central area. One field treated in Lonoke County; foliage loss showed that treatment justified in part of field. (Ark. Ins. Sur.).

THRIPS (undetermined) - NEW JERSEY - Causing serious damage in some Mercer County soybean fields. (Ins.-Dis. Newsltr.). MARYLAND - Continue to cause conspicuous spotting and streaking of young corn and soybeans in all sections. (U. Md., Ent. Dept.). VIRGINIA - Spotted severe infestations on soybeans on several farms in Lancaster County; some controls applied. (McSwain, June 26). NEBRASKA - Activity and feeding signs present in Merrick County cornfield. (Bergman).

#### FRUIT INSECTS

APPLE MAGGOT (*Rhagoletis pomonella*) - MINNESOTA - Adults reported from Minneapolis-St. Paul and Rochester areas; protective sprays essential now. (Minn. Ins. Rpt.). WISCONSIN - First adults appeared June 26 in Door County and week of June 22 in Dane County. (Wis. Ins. Sur.). MICHIGAN - Adult emergence and activity continues very heavy on Lower Peninsula in orchards not treated. Sticky board trap yielded 89 in one week in orchard in Oakland County. (Siefert). NEW JERSEY - Controls recommended in central and northern problem areas. (Ins.-Dis. Newsltr.) NEW YORK - Emergence very heavy in cages at Highland, Ulster County; sex ratio predominantly females. No indication of peak. First adults in Geneva cages, Ontario County, June 19 (1 day earlier than in 1963). First female noted in orchard in Clinton County June 25. Emergence continues slow in Monroe County. (N.Y. Wkly. Rpt., June 29). CONNECTICUT - Flies began emerging in Glastonbury June 25 and in Storrs June 27-28. Large numbers reported in some unsprayed orchards in State. Larvae most serious pest at present time and sprays should be applied by July 4-5. (Savos, July 1). Probably most important pest of home orchards; controls recommended. (Savos). MASSACHUSETTS - Emergence increased rapidly following recent showers; special attention needed on early ripening varieties. (Wave).

CHERRY FRUIT FLY (*Rhagoletis cingulata*) - NEW YORK - Emergence about over in Monroe County. (N.Y. Wkly. Rpt., June 29).

EUROPEAN RED MITE (*Panonychus ulmi*) - CONNECTICUT - Populations vary considerably over State. Some growers applying miticides between cover sprays; other growers having difficulty finding mites. As maximum activity or peak populations usually expected in July, all blocks should be carefully checked for signs of buildup. (Savos, July 1). NEW YORK - Found in all Columbia County orchards but not in extreme numbers. Noticeable in most orchards in Oswego County. Not serious presently in Wayne County. Increasing in Orleans County. (N.Y. Wkly. Rpt., June 29). OHIO - Populations on apple trees treated with prebloom oil range up to 9 motile mites per leaf in Wayne County, northeast. (Forsythe). MISSOURI - Easily found in southeastern area but not in destructive numbers. In some orchards, both this species and *Tetranychus telarius* present. In orchard in central area where bronzing of leaves occurred, most mites are *P. ulmi*. (Wkly. Rpt. Fr. Grs., July 1).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - MISSOURI - Buildup began in some sections; dominate species on peaches in southeast orchards. (Wkly. Rpt. Fr. Grs., July 1). NEW JERSEY - Moving into peach trees in some orchards; controls may be needed. (Ins.-Dis. Newsltr.). CONNECTICUT - Numbers variable over State;

some growers applying miticides between cover sprays for control, with other growers having difficulty finding mites in trees. All blocks should be closely checked, as maximum activity or peak populations expected during July. (Savos, July 1).

PEAR RUST MITE (Epitrimerus pyri) - NEW YORK - Increasing in Orleans County. (N.Y. Wkly. Rpt., June 29).

ORCHARD MITES - MICHIGAN - Range low to high in numbers on host plants. Generally low on well-sprayed trees. (Proctor, Conrad, Kidd, Howitt). NEW YORK - Generally very light in Westchester County. (N.Y. Wkly. Rpt., June 29). MASSACHUSETTS - Relatively low but bear watching. (Wave).

CODLING MOTH (Carpocapsa pomonella) - COLORADO - Second-brood adults taken July 1 in Mesa County apple orchard. (Bulla). UTAH - Light trap at Logan, Cache County, yielded 20 on June 26. Flight interrupted by long periods of cold and stormy weather. (Davis). MISSOURI - All areas report some new entries although activity low. New entries and emergence signs in southeastern area indicate that broods intermingled. (Wkly. Rpt. Fr. Grs., July 1). OHIO - Large numbers of full-grown larvae leaving apples at Wooster, northeast. (Forsythe). MICHIGAN - Few late adults of spring brood continue active; larval injury low in Berrien County. (Howitt, Sowerby, Conrad). NEW YORK - Flight of spring brood dropped to low level in Hudson Valley; expected to end soon. Considerable numbers continue emerging in cages at Geneva, Ontario County. Larval entries few and only in orchards with heavy populations in 1963 in Columbia County. Emergence extremely heavy in Monroe County. (N.Y. Wkly. Rpt., June 29).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - SOUTH CAROLINA - More damage to peaches reported this year than in any other year since 1948. Because of unsprayed orchards, buildup could be expected but injury to fruit was not anticipated. (Nettles et al., June 30). MISSOURI - Few recent entries noted in peach terminals in northwest area. On unsprayed peaches in southeast, broods appear continuous so new entries found almost anytime. (Wkly. Rpt. Fr. Grs., July 1). WASHINGTON - Adults noted on peach and in bait pot at Parker, Yakima County; 2 moths noted June 22 and 3 on June 23. (Butt).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - NEW YORK - Adults taken in bait traps in large numbers in Hudson Valley. (N.Y. Wkly. Rpt., June 29).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Pupa found June 23 in "problem" orchard in Clinton County; larvae also noted in various stages indicating possible extended second-brood emergence. Controls not very effective in orchard in Oswego County. First pupae found June 27 in Monroe County; now readily found. (N.Y. Wkly. Rpt., June 29).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - General emergence continues; heaviest to date in Oceana County June 19-26 when 146 adults emerged from 25 check trees. Earlier data for these trees were 53 adults during June 4-11 and 63 adults during June 11-19. (Conrad, Bierlein, Howitt). OHIO - Overwintering larvae still emerging as adults in Wayne County, northeast. (Forsythe). MISSOURI - Causing considerable damage in northwestern area; troublesome earlier in southeastern area. (Wkly. Rpt. Fr. Grs., July 1).

APPLE APHID (Aphis pomi) - MASSACHUSETTS - Increase continues on terminal and sucker growth. Controls urged. (Wave). CONNECTICUT - Populations increased, but most confined to sucker growth. (Savos, July 1). NEW YORK - Building up in all orchards in Columbia County. (N.Y. Wkly. Rpt., June 29). OHIO - Large colonies present on succulent leaves on some apple trees in Wayne County, northeast. (Forsythe).

ROSY APPLE APHID (Anuraphis rosea) - COLORADO - Well under control in Garfield County apple orchards. (Bulla).



BLACK CHERRY APHID (Myzus cerasi) - OREGON - Terminals of unsprayed prune branches in Willamette Valley black with aphids. (Larson). CALIFORNIA - Heavy on cherry trees in Castella, Shasta County, and light in Fresno, Fresno County. (Cal. Coop. Rpt.).

APHIDS - NEW YORK - Quite heavy in Westchester County; some controls used. (N.Y. Wkly. Rpt., June 29). MICHIGAN - Various species range low to high in numbers on host plants; generally low on well-sprayed trees. (Proctor, Conrad, Kidd, Howitt).

PEAR PSYLLA (Psylla pyricola) - DELAWARE - Very abundant on some pear trees causing noticeable injury in New Castle County. (Burbutis, Crossan).

A LEAFHOPPER (Empoasca filamenta) - CALIFORNIA - Nymphs and adults medium on prune in Hollister, San Benito County. (Cal. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Injury appearing in Westchester County. (N.Y. Wkly. Rpt., June 29).

PEAR-SLUG (Caliroa cerasi) - VIRGINIA - Larvae heavy on several cherry trees on farm in Floyd County. (Tarpley, Talley). OHIO - Some larval leaf feeding injury conspicuous on cherry and quince in Wayne County, northeast. (Forsythe).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW YORK - Damage showing in Westchester County; quite light even in unsprayed orchards. (N.Y. Wkly. Rpt., June 29).

SHOT-HOLE BORER (Scolytus rugulosus) - OREGON - Continues active and abundant on trunks and limbs of weakened fruit trees in Willamette Valley. (Rassmussen).

A FALSE POWDER-POST BEETLE (Melalgus confertus) - OREGON - Infested 12 percent of Bartlett pear trees in 2 young orchards near Roseburg, Douglas County. Burrowing in crotches of 2-3 branches per tree causing them to snap off. (Larson).

BLUEBERRY MAGGOT (Rhagoletis mendax)\* - NEW JERSEY - Collections through June 30 in 3 Burlington County blueberry fields numbered 501 compared with 188 in 1963. Collections in 3 Atlantic County blueberry fields to same date were 350 compared with 499 in 1963. Controls recommended. (Ins.-Dis. Newsltr.). MICHIGAN - Adults emerging in high numbers noted in Van Buren and Allegan Counties; up to 25 per day taken on baited sticky boards. (Howitt).

DOGWOOD BORER (Thamnospectia scitula) - MICHIGAN - Heavy emergence from infested blueberries underway in research plots at Grand Junction, Van Buren County. Emergence just starting at Grand Haven, Ottawa County. (Howitt).

A ROUNDHEADED WOOD BORER (Oberia myops) - CONNECTICUT - Problem on blueberries in Ansonia, New Haven County. (Savos).

A LEAF ROLLER MOTH (Sparganothis sp.) - NEW JERSEY - Flights just begun in early drawn cranberry bogs. (Ins.-Dis. Newsltr.).

CRANBERRY GIRDLER (Crambus topiarius) - MASSACHUSETTS - Moths extremely abundant throughout southeastern cranberry-growing area. (Tomlinson, June 26).

BLACK-HEADED FIREWORM (Rhopobota naevana) - NEW JERSEY - Some activity in early drawn cranberry bogs noted. (Ins.-Dis. Newsltr.).

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\* "Recent evidence indicates that the form of R. pomonella infesting blueberries and huckleberries should be referred to R. mendax Curran." R. H. Foote. See also L. D. Christenson and R. H. Foote, Biology of fruit flies. Ann. Rev. Ent. 5: 183 (1960).

JAPANESE BEETLE (Popillia japonica) - SOUTH CAROLINA - Showing marked preference for certain varieties of grape; Concord one of the least preferred in Oconee County. (Nettles et al., June 30).

GRAPE ERINEUM MITE (Eriophyes vitis) - CALIFORNIA - Medium on grapes locally in Fresno, Fresno County. (Cal. Coop. Rpt.).

WALNUT APHIDS - OREGON - High numbers of Panaphis juglandis noted on leaves of English walnuts in Marion and Jackson Counties. (Berry, Rassmussen). CALIFORNIA - Monellia caryae medium on walnuts in Mountain Ranch, Calaveras County. (Cal. Coop. Rpt.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Adults taken in trap in Placentia and Villa Park, Orange County. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - SOUTH CAROLINA - Noted on Berkeley County pecans; number of colonies increasing. (Nettles et al., June 30). WASHINGTON - First adults found June 20 near Puyallup, Pierce County. (Breakey).

SPIDER MITES - TEXAS - Damaging pecan leaves in Comal County. (Brumbelow).

TWO-MARKED TREEHOPPER (Enchenopa binotata) - DELAWARE - Adults very common on walnuts in several areas in New Castle County. (MacCreary, Kelsey).

THRIPS (Scirtothrips spp.) - ARIZONA - Continue high in Yuma and Maricopa Counties; controls continue necessary. (Ariz. Coop. Sur.).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Light to heavy on citrus trees locally in Orland, Glenn County. (Cal. Coop. Rpt.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Continues troublesome on trifoliolate orange seedlings in Yuma County; treatments necessary on oranges and tangerines. (Ariz. Coop. Sur.).

Citrus Insect Situation in Florida - End of June - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 44 percent of groves (norm 56 percent); 24 percent economic (norm 32 percent). Population will increase until mid-August but not expected to exceed normal summer peak. Buildup will be more evident on fruit than on leaves. Highest districts north and west. CITRUS RED MITE (Panonychus citri) infested 76 percent of groves (norm 79 percent); 56 percent economic (norm 54 percent). Nearing summer peak at normal level. Decrease expected at mid-July. Highest districts north, central and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 76 percent of groves (norm 56 percent); 54 percent economic (norm 35 percent). Population near record high level of 1962. Downward trend will start at mid-July and continue through August. Highest districts east, central, north and south. PURPLE SCALE (Lepidosaphes beckii) infested 84 percent of groves (norm 76 percent); 14 percent economic (norm 14 percent). Normal, little change expected. Highest districts south and east. GLOVER SCALE (L. gloverii) infested 76 percent of groves (norm 28 percent); 32 percent economic (norm 2 percent). Population highest recorded in any month in 13 years of record. Heavy infestation in 7 percent of groves; mostly spotty and scattered. Further increase is expected. Highest districts east, south and central. CHAFF SCALE (Parlatoria pergandii) infested 80 percent of groves (norm 44 percent); 19 percent economic (norm 2 percent). Above normal; decrease expected. Highest districts east and south. YELLOW SCALE (Aonidiella citrina) infested 56 percent of groves (norm 12 percent); 16 percent economic (norm 1 percent). Above normal; little change expected. Highest district central. BLACK SCALE (Saissetia oleae) infested 69 percent of groves (norm 55 percent); 42 percent economic (norm 36 percent). Population nearing summer peak; slightly above normal level. Decrease expected in August. Highest districts east, south, west and central. MEALYBUGS infested 82 percent of groves (norm 52 percent); 49 percent economic (norm 15 percent). June population was highest recorded in any month in 13 years of record. Decrease from current level is expected in early July. Highest districts east, south,

central and west. WHITEFLIES infested 71 percent of groves (norm 68 percent); 35 percent economic (norm 22 percent). Although decrease will occur in July, population will remain above average. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Inspection of 108,766 citrus trees, including 15,692 nursery trees, on 1,278 properties in States of Tamaulipas, Nuevo Leon, Sonora and Baja California negative. Biological Control Zone - In Municipios of Hidalgo, Padilla, Guemez and Llera in Tamaulipas, 17,611 citrus trees inspected on 36 properties. Total of 1,403 trees infested on 14 properties. Total of 57,500 specimens of a PARASITIC EULOPHID (Prospaltella opulenta) captured in Rio Verde, San Luis Potosi, and 1,015,700 specimens of a PARASITIC PLATYGASTERID (Amitus hesperidum) captured in Tezonapa, Veracruz. In Rio Verde and Ciudad Fernandez, San Luis Potosi, 57,500 P. opulenta released and in Chaltianguis, Veracruz, 1,015,700 A. hesperidum released. (PPC, Mex. Reg., May Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Total of 151,500 sterile and marked males released during May in Tijuana area, Baja California. In Municipio Tecate, Baja California, (not in release area) 120 traps on 60 properties inspected 477 times. One sterile male recovered; area 23 miles from nearest point of release. In Municipio Tijuana, 1,275 traps on 680 properties inspected 5,028 times; 1 native male and 1,564 marked, sterile males recovered. (PPC, Mex. Reg., May Rpt.).

PAPAYA FRUIT FLY (Toxotrypana curvicauda) - FLORIDA - Larvae infested fruit of mango at 2 locations in Miami, Dade County. (McFarlin, June 24; Searls, June 26).

#### TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Common in unsprayed fields; larvae predominating and pupation started. Some overwintered adults still present and ovipositing. (Kerr, Mathewson). NEW YORK - Continues troublesome in Suffolk County. Few noted on potatoes in Madison-Oneida County area and in Steuben County. (N.Y. Wkly. Rpt., June 29). MARYLAND - Light to moderate on tomatoes and eggplants in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). OHIO - Late instars and new adults light to moderate on potato plants in northwest section. Infested tomatoes in Erie County, north central. (Lyon, James). UTAH - Larvae infested potatoes in Hyrum, Cache County. (Knowlton). WYOMING - Adults averaged 22 and larvae 47 per 100 sweeps in untreated potato field in Goshen County. (Marks). IDAHO - Adults and eggs extremely numerous in western and south central potato fields. Although lady beetles and other predators feeding on eggs, widespread chemical control appears necessary. (Bishop, Gittins).

THREE-LINED POTATO BEETLE (Lema trilineata) - RHODE ISLAND - Collected in Coventry, Kent County. (Sorensen, Mathewson).

POTATO FLEA BEETLE (Epitrix cucumeris) - NORTH DAKOTA - Trace to 5 per sweep on potatoes in northeast. Largest numbers taken near shelterbelts. (Frye). RHODE ISLAND - Damage to tomatoes, probably caused by this species, noted in Smithfield and Scituate, Providence County; probably throughout State. (King, Mathewson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Light to moderate on commercial peppers in Worcester County. (U. Md., Ent. Dept.).

FLEA BEETLES - UTAH - Caused light damage to potatoes in Logan and Hyrum, Cache County. (Knowlton). NEW YORK - Active on potatoes in Madison-Oneida County area. (N.Y. Wkly. Rpt., June 29).

Wireworm Populations in Vicinity of Charleston, South Carolina, in Fall of 1963 and Extent of Their Injury to Potatoes in Spring of 1964: SOUTHERN POTATO WIREWORM (*Conoderus falli*) constituted 85 percent of larvae found in cultivated soil in 20 untreated fields on 8 farms during September and October 1963. The all-species population ranged 0-11 larvae per square foot in top 6 inches of soil; averaged 3.2. Examination at packing sheds during June 1964 of 200 tubers from each of the 8 farms revealed that 0.2 to 37.1 percent, by weight, showed wireworm injury (feeding of any degree) and 0 to 6.2 percent showed enough injury to be classed as "damaged" by Federal-State market inspectors. Proportion showing injury averaged 14 percent and that showing damage 3.3 percent. Shipping-point inspection certificates issued by Federal-State market inspectors to Charleston area potato growers during June 1964 showed that 0.6 percent of 162 lots of tubers inspected had wireworm damage in excess of 6 percent (current U.S. Grade 1 tolerance allowance for damage due to all defects). Damage of 3-6 percent occurred in 18.5 percent of lots and damage of 1.5 to 2.9 percent in 29.6 percent. Wireworm population and degree of damage to potatoes during 1963-1964 season were about same as occurred during preceding 6 years, but much lower than that prevailing during 1956 and 1957. Potato acreages and yields per acre much lower than normal in Charleston area during spring of 1964; low yields due chiefly to unfavorable weather. Most wireworm-injured potatoes accepted at market without serious price reductions. (A. Day, W. J. Reid, Jr.).

TOMATO FRUITWORM (*Heliothis zea*) - VIRGINIA - Severe, localized larval infestation on approximately 10 farms in Lancaster County; believed general throughout county. Up to 50 percent of crown cluster on tomatoes in early plantings destroyed. (McSwain). ARKANSAS - Collection of 41 larvae on tomatoes in Lincoln County determined this species. (Ark. Ins. Sur.).

TOMATO HORNWORM (*Protoparce quinquemaculata*) - MICHIGAN - Three adults taken in blacklight trap in Manistee County. (Newman, Lings). WISCONSIN - Adults appearing in blacklight traps in Dane County; first adult caught June 16 at Platteville. (Wis. Ins. Sur.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MARYLAND - Larvae caused light to moderate injury to 20 acres of potatoes in Worcester County. (U. Md., Ent. Dept.). ALABAMA - Few larvae noted in pimento pepper at market receiving stations in Marshall County. (Bagby).

POTATO PSYLLID (*Paratrioza cockerelli*) - WYOMING - Adults averaged 2 per 100 sweeps in potato fields in Goshen County; numerous eggs and nymphs found on tomato plants. (Marks). COLORADO - Adults continue in appreciable numbers on matrimony-vine in Arkansas Valley; 100-300 per 100 sweeps. Eggs range 0-3 and nymphs 0-5 per leaf. On potatoes, adults range 0-10 per 100 sweeps and on tomatoes 0-15 per 100 sweeps. (Schweissing). Noted on morning-glory patches adjacent to experimental potato plots in Larimer County. (Simpson).

APHIDS - NEW YORK - Becoming more general on potatoes in Suffolk County but not serious. Building up on some cabbage fields in Canadaigua, Ontario County. (N.Y. Wkly. Rpt., June 29). COLORADO - Both early and late plantings of potatoes show increasing distribution and numbers. Colonies of apterous forms found in La Salle, Gilcrest and Platteville areas, Weld County. In late potato district in Eaton and Lucerne areas, high apterous populations evident. Winged alates evident from Platteville to Pierce. (Berry). CALIFORNIA - Hyalopterus atriplicis nymphs and adults heavy on tomatoes and lambsquarters in Greenfield, Monterey County. (Cal. Coop. Rpt.).

Aphids on Potatoes in Maine - Populations still very small at Presque Island, Aroostook County. Slight drop in numbers per plant on untreated potatoes but some increase in number of plants infested. Lady beetles continue unusually abundant and effective against aphids. POTATO APHID (*Macrosiphum euphorbiae*) predominates followed by BUCKTHORN APHID (*Aphis nasturtii*), GREEN PEACH APHID (*Myzus persicae*) and FOXGLOVE APHID (*Acyrtosiphon solani*). (Shands et al.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - OHIO - Adults and eggs heavy in several greenhouses throughout State; tomatoes appear to be major host attacked. (Lyon).

SPIDER MITES - TEXAS - Damaging tomatoes and nightshades in Jack and Kaufman Counties. (Texas Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - NORTH DAKOTA - Adults flying in most eastern areas. Trace numbers of small larvae seen in Fargo, Cass County. (Frye). OHIO - Caused severe feeding damage to cabbage in several home gardens in north-west section. Larvae devouring leaves and boring into heads. (Lyon). NEW YORK - Adults active in many fields in Orleans County. (N.Y. Wkly. Rpt., June 29). MASSACHUSETTS - Hatching; controls recommended. (Wave).

DIAMONDBACK MOTH (Plutella maculipennis) - NORTH DAKOTA - Larvae and pupae noted on cabbage in Fargo area, Cass County. (Frye).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Problem in cabbage fields in southern Dona Ana County, especially where no definite control program used. (N.M. Coop. Rpt.). GEORGIA - New generation noted on cabbage in Spalding County (Dupree). MASSACHUSETTS - Now hatching; controls recommended. (Wave). WISCONSIN - Loopers, probably this species, continue in weedy pea fields; generally 2-4 per 10 sweeps. Larvae three-quarters to 1 inch long; mostly on blossoming peas. (Wis. Ins. Sur.).

ZEBRA CATERPILLAR (Ceramica picta) - NORTH DAKOTA - Larval damage to cabbage observed in Fargo area, Cass County. (Frye).

MEXICAN BEAN BEETLE (Epilachna varivestris) - GEORGIA - Moderate to heavy on beans in southern area. (Johnson). MARYLAND - Larvae causing severe injury to garden snap and lima beans in Caroline County. (U. Md., Ent. Dept.). DELAWARE - Present to fairly common on some lima beans in Sussex County. (Burbutis, Crossan). RHODE ISLAND - Few adults collected on beans in Cranston, Providence County. (Sorensen, Tobey). OHIO - Caused heavy damage to small bean plants in several gardens in northeast section. Adults laying eggs. (Custer). COLORADO - Eggs hatching on beans in Larimer County; heavy deposition in some fields. (Hanna).

BEAN LEAF BEETLE (Cerotoma trifurcata) - GEORGIA - Heavy on pole beans in Spalding County. (Dupree).

PALE-STRIPED FLEA BEETLE (Systema blanda) - COLORADO - This and other species numerous in some bean fields in Larimer County. (Hanna).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Continues low in peas; counts in late peas ranged 9-30 per 10 sweeps. Many aphids appear diseased or parasitized. Many pea fields in Rock and Columbia Counties contain winged forms. (Wis. Ins. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Larvae increasing on lima beans in most areas of Kent and Sussex Counties. (Burbutis, Crossan).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Becoming serious in some snap bean fields. (Ins.-Dis. Newsltr.).

GRAY GARDEN SLUG (Deroceras reticulatum) - WASHINGTON - Mostly immatures, severely damaged foliage and underground portions of stems of pole beans 3-4 inches high in one field at Vancouver, Clark County. Cool, wet weather probably contributed to problem. (Shanks, June 26).

ONION THRIPS (Thrips tabaci) - NEW YORK - Very heavy in some onion fields in Orange County. Unspecified thrips present in seed and set onions in Madison-Oneida County area. (N.Y. Wkly. Rpt., June 29).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Active in seed and set onions in Madison-Oneida County area. Caused thinning of some onion fields in Steuben County. (N.Y. Wkly. Rpt., June 29). WISCONSIN - Problems encountered in Shawano, Taylor and Eau Claire Counties. Infestation in last named county heaviest encountered in area. (Wis. Ins. Sur.). UTAH - Damaged number of home garden onions in Weber and Salt Lake Counties. (Knowlton).

ASPARAGUS BEETLES (Crioceris spp.) - RHODE ISLAND - C. duodecimpunctata and C. asparagi heavy in East Greenwich, Kent County. (Sorensen, Tobey).

SPINACH LEAF MINER (Pegomya hyoscyami) - IDAHO - Infestations in sugar beets in areas of Twin Falls, Jerome and Minidoka Counties greater than those reported in past few years. Damage to lower leaves extremely evident although losses in yields not anticipated. (Gittins, Gibson). WYOMING - Larvae numerous in sugar beet leaves throughout Goshen County. (Marks). NEW YORK - Active in beets in home gardens in Madison-Oneida County area. (N.Y. Wkly. Rpt., June 29).

BEEF LEAF MINER (Pegomya betae) - NEW YORK - Continues troublesome in Canadagua, Ontario County; all stages found. Some controls underway. (N.Y. Wkly. Rpt., June 29).

LEAF MINERS - NEW YORK - Noted on spinach and chard in Westchester County. Many infestations on beets noted. (N.Y. Wkly. Rpt., June 29).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Severe in Jerome, Cassia and Minidoka Counties, particularly in sandy soil in Rupert area. Damage from maggot attack serious and much above that reported in past few years. (Gittins, Gibson).

BEEF LEAFHOPPER (Circulifer tenellus) - WASHINGTON - Abundant in sugar beet fields; 40 percent of plants show curly top symptoms in restricted areas along Touchet River at Touchet, Walla Walla County. (Landis, June 26). UTAH - Populations variable; curly top 25-50 percent on tomatoes, average 35 percent, in Washington County. Counts low; rarely 5 percent of tomato plants diseased in northern tomato-canning districts. (Dorst, Knowlton). COLORADO - Adults now range up to 3 per square foot on beets in Mesa County; most growers applied second spray. (Bulla).

A SCARAB (Hoplia oregona deserticola) - WASHINGTON - Adults flying in beet fields at Walla Walla, Walla Walla County. Det. by M. H. Hatch. (Landis, June 26).

A LACE BUG (Piesma cinerum) - NEBRASKA - Adults widely scattered and feeding on pigweed and most sugar beet fields in State. (Staples).

BEEF WEBWORM (Loxostege sticticalis) - COLORADO - Adults evident in most fields throughout Arkansas Valley. Vary 15-20 per 100 sweeps where checks made. Larval damage rated slight. (Schweissing). WYOMING - Only occasional infestations required controls in sugar beet fields of Goshen County. (Marks). NORTH DAKOTA - Adult activity in vicinity of sugar beets continues, but little egg laying observed. (Frye).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - RHODE ISLAND - Reported in Coventry, Kent County; heavy in Smithfield and Scituate, Providence County. (Sorensen, King, Mathewson). NEW YORK - Appearing in Westchester County. Caused injury in Orleans County. (N.Y. Wkly. Rpt., June 29).

CUCUMBER BEETLES - NEW YORK - Appearing in some fields in Monroe County. (N.Y. Wkly. Rpt., June 29).

SQUASH VINE BORER (Melittia cucurbitae) - ALABAMA - Numerous larvae noted in summer squash in Lee County. (Barwood). WISCONSIN - Adults laying eggs in Waushara County. (Wis. Ins. Sur.).

PICKLEWORM (Diaphania nitidalis) - FLORIDA - Larvae severe in cucumber fruit at Holly Hill, Volusia County. (Pott, June 18).

WEEVILS (Brachyrhinus spp.) - UTAH - B. ovatus (strawberry root weevil) largely and B. rugosostriatus caused moderate to sometimes severe damage to Weber County strawberries. (Boyer, Knowlton).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - FLORIDA - Moderate on Indian-potato (Ipomea sp.) at Satsuma (June 25) and San Mateo (June 29), Putnam County. (Adkins).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - GEORGIA - Adults light for this time of year on sweetpotatoes in Spalding County. (Dupree).

TOBACCO WIREWORM (Conoderus vespertinus) - GEORGIA - Heavy flights around sweet-potato fields in Lee and Spalding Counties. (Johnson).

MITES - NEW JERSEY - Some heavy infestations on raspberries and pose threat to strawberries. (Ins.-Dis. Newsltr.).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Populations of this vector of yellows virus of beets developing rapidly in Walla Walla area; virus yellows showing in most fields. (Wallis, June 26). Alates numerous on black nightshade (more than in 1963), potatoes and sugar beets in Toppenish area, Yakima County; in Quincy area of Grant County, few alates found but apterae abundant on night-shade and building up on potatoes. (Powell, June 26). COLORADO - Noted on morning-glory patches adjacent to experimental potato plots in Larimer County. (Simpson). MARYLAND - Light to moderate on tomatoes and peppers in Worcester County. (U. Md. Ent., Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Nymphs on lima beans in Rock county average 1 per 2 leaves. Most pea fields have some adults which is indication of migration from alfalfa after cutting. (Wis. Ins. Sur.). NORTH DAKOTA - Trace numbers on potatoes near Grand Forks. (Frye).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Adults gnarling leaves and nymphs causing bleeding in crowns of sugar beets in several fields at Touchet, Walla Walla County. Adults particularly abundant after first cutting of alfalfa. (Landis, June 26). WYOMING - Adults averaged 36 per 100 sweeps in potato fields and 27 per 100 sweeps in sugar beet fields of Goshen County. (Marks).

THRIPS - NEW MEXICO - Generally heavy in untreated Spanish onion fields; wind prevents application of insecticides. (N.M. Coop. Rpt.). VIRGINIA - Light on tomatoes in Lancaster County. (McSwain, June 26).

SLUGS - WISCONSIN - Numerous in gardens in Lincoln County. (Wis. Ins. Sur.).

#### TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - MARYLAND - Light to moderate to date on tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.). SOUTH CAROLINA - Present on tobacco in Darlington County. (Nettles et al, June 30).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light on tobacco in southern area. (Johnson).

BUDWORMS - SOUTH CAROLINA - Present in tobacco in Darlington County. (Nettles et al., June 30).

GRANULATE CUTWORM (Feltia subterranea) - GEORGIA - Destroyed 2-3 bottom leaves of tobacco in field in Berrien County. (Johnson).

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Light to moderate on field tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.). GEORGIA - Light to moderate on tobacco in southern area. (Johnson).

GREEN PEACH APHID (*Myzus persicae*) - MARYLAND - No infestations observed to date on tobacco in State. (U. Md., Ent. Dept.).

#### COTTON INSECTS

SPIDER MITES - CALIFORNIA - Populations, particularly *Tetranychus telarius* (two-spotted spider mite), building up to damaging levels in many areas of Fresno County. (Stromberg, June 24). TEXAS - Heavy populations of several species reported from Brazos and Robertson Counties. Occasional light infestations reported from central and upper coastal areas. (Texas Coop. Rpt.). ARKANSAS - Continue a problem; spot treatments recommended. (Wkly. Cott. Ins. Rpt., June 26). MISSOURI - Spot infestations of *Tetranychus atlanticus* (strawberry spider mite) in 214 of 816 fields (26 percent) in southeast; 104 acres treated thus far. (Harrendorf, Jones). TENNESSEE - Present on edges of cotton fields and ditches in Lake County. (Martin, July 1). GEORGIA - Light to heavy infestations on cotton in 27 southern area fields checked, with most infestations being light. (Johnson). SOUTH CAROLINA - Continue troublesome in many areas. No general field-wide infestations reported, but many reports of infestations along field borders received. (Cott. Ltr., June 29).

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Activity still light in areas below Cap Rock in western area; however, increasing numbers of punctured squares being noted. Populations continue to be reported from most Rio Grande Valley fields. Most other areas report very light to light infestations. (Texas Coop. Rpt.). ARKANSAS - Infestations very light in Faulkner, Conway, Pope and Yell Counties along Arkansas River; few larvae nearing pupation in Yell County. (Ark. Ins. Sur.). Emergence continues light; weather conditions not conducive for buildup. (Wkly. Cott. Ins. Rpt., June 26). MISSISSIPPI - Adults found in 1 of 32 fields examined in delta counties. Punctured squares found in 1 of 32 fields; averaged 0.33 percent infestation. (Pfrimmer et al.). ALABAMA - Light, spotted emergence of first-generation adults occurred in extreme southern portion of State; expected July 5-15 in central area and about same time in several northern area fields. Sand Mountain and Tennessee Valley areas will experience an extremely light number of first-generation adults based on square infestation counts. (McQueen et al.). GEORGIA - Counts made in 27 southern area cotton fields. Percent punctured squares ranged 0-19 (averaged 14). Zero to 10 percent of squares punctured in Montgomery County. (French). Population count in Spalding County 0-99 per acre. (Beckham). Scout reports from 2,024 fields in 23 counties showed percent punctured squares 11-25 in 5 percent of fields, 1-10 in 87 percent and none in 6 percent. (Jordan). SOUTH CAROLINA - Average percent punctured squares 3.6 in treated fields and 11 in untreated fields. All hibernating weevils expected to be emerged by July 1. Emergence apparently later than normal. (Cott. Ltr., June 29).

BOLLWORMS (*Heliothis* spp.) - ARKANSAS - Infestations light along Arkansas River in Faulkner, Conway, Pope and Yell Counties, with egg counts down from previous week. Only an occasional larva large enough to determine. In Pope and Yell Counties, 5 *H. zea* and 3 *H. virescens* determined. Moths seen in small numbers in fields in daytime. Predators holding down infestations. (Ark. Ins. Sur.). Peak moth flight passed, but eggs and larvae found in cotton fields. Beneficials continue to give excellent control and egg and larval counts lower than at this time in 1963. (Wkly. Cott. Ins. Rpt., June 26). MISSOURI - Larvae infesting 7 of 816 fields (0.86 percent) in "bootheel" area of southeast; ranged 0-1 per 100 terminals. (Harrendorf, Jones). MISSISSIPPI - Eggs found in 11 of 32 fields checked in delta counties, with average of 0.48 per 100 terminals; larvae found in 6 of these fields with average of 0.42 per 100 terminals. Injured squares found in 20 of 32 fields checked; averaged 1.44 percent injury in infested fields. (Pfrimmer et al.). ALABAMA - Eggs and larvae about same as previous week;



considerable numbers reported from some isolated areas in southern and central sections of State. (McQueen et al.). GEORGIA - Counts made in 27 southern area cotton fields. Eggs ranged 0-7 (averaged 3) and larvae 0-5 (averaged 2) per 100 terminals. (Johnson). Eggs ranged 0-1 and larvae 0-1 per 100 terminals in Montgomery County. (French). Scout reports from 2,024 fields in 23 counties showed eggs per 100 terminals 11-25 in 13 percent of fields, 1-10 in 84 percent and none in 2 percent of fields. Larvae per 100 terminals were 11-25 in 1 percent of fields, 4-10 in 14 percent, 1-3 in 53 percent and none in 31 percent of fields. (Jordan). SOUTH CAROLINA - A problem in many areas throughout State. Eggs and larvae present rather generally. (Cott. Ltr., June 29).

BOLLWORM (*Heliothis zea*) - ARIZONA - Generally light to medium infestations appearing in nearly all areas of Yuma, Pinal, Maricopa, Pima and Graham Counties. Some controls necessary. (Ariz. Coop. Sur.). NEW MEXICO - Eggs found in several fields of cotton in Dona Ana County by end of week; occasional first-stage larva also noted in few fields. (N.M. Coop. Rpt.). TEXAS - Increasing in east and central areas of State. Populations still light and scattered over high plains and western area as a whole. Heaviest infestations appear to be around the Midland area. Beneficial insects observed in large numbers in most fields. Infestations remain general in most Rio Grande Valley fields. (Texas Coop. Rpt.). In McLennan and Falls Counties, eggs averaged 2.2 and larvae 3.9 per 100 terminals in 28 treated fields. In 10 untreated fields, average was 1.8 eggs and 2.4 larvae per 100 terminals. Square injury averaged 2.2 percent in 28 treated fields and 1.8 in 10 untreated fields. Boll injury averaged 0.1 percent in 19 treated fields and 0 in 2 untreated fields. During corresponding week of 1963, eggs averaged 19 and larvae 10.4 per 100 terminals. Square injury averaged 10.5 percent in treated and 11.5 percent in untreated fields. Boll injury averaged 10.4 percent in treated and 10.3 percent in untreated fields. (Cowan et al.).

TOBACCO BUDWORM (*Heliothis virescens*) - TEXAS - Scattered infestations reported from Rio Grande Valley; activity light in other areas. (Texas Coop. Rpt.).

CABBAGE LOOPER (*Trichoplusia ni*) - GEORGIA - Light to moderate "ragging" of leaves in 3 Tift County cotton fields. (French). SOUTH CAROLINA - Present on cotton in Clarendon, Florence and Richland Counties. (Cott. Ltr., June 29).

BEE T ARMYWORM (*Spodoptera exigua*) - ARIZONA - Light to moderate populations damaging some fields of cotton in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

COTTON LEAFWORM (*Alabama argillacea*) - TEXAS - Light infestations reported from Regugio and San Patricio Counties (Deer) and very light in Matagorda County (Vestal).

COTTON SQUARE BORER (*Strymon melinus*) - TEXAS - Reports received from east, upper coastal and central areas of State; infestations appear light to moderate. (Texas Coop. Rpt.). ARKANSAS - Larvae more numerous than bollworms (*Heliothis* spp.) along Arkansas River; however, counts of either in range of 0-8 per 100 terminals. (Ark. Ins. Sur.).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - First larval specimens of season collected in blooms on June 30 in field south of Carlsbad, Eddy County. (N.M. Coop. Rpt.).

LYGUS BUGS (*Lygus* spp.) - CALIFORNIA - Populations increasing in Fresno County; however, sweep counts indicate infestations are predominantly adults. Some counts as high as 16 per 50 sweeps. (Stromberg, June 24). Populations increasing in Kern County, but mostly made up of adults. Some treatments applied. (Burton, June 27). Populations increasing again in Five Points area; adults dominant. (Jackson, June 27). ARIZONA - Increasing in cotton in all areas of State. Damaged squares and bolls becoming numerous in many areas. Some controls applied in Pinal and Maricopa Counties. (Ariz. Coop. Sur.). NEW MEXICO - Mostly light infestations in Dona Ana, Chaves and Eddy Counties. (N.M. Coop. Rpt.).

COTTON FLEAHOPPER (*Psallus seriatus*) - ARIZONA - Light populations appearing in areas of Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Decrease in infestations over past week in central area; however, damaging populations still found in many fields. Heavy damage reported in area just south of Ft. Worth and Dallas, north central section. Populations generally light in high plains area with some "hot spots" reported below Cap Rock. (Texas Coop. Rpt.). ARKANSAS - Most abundant plant bug along Arkansas River. (Ark. Ins. Sur.).

A BLACK FLEAHOPPER (*Spanogonicus albofasciatus*) - ARIZONA - Moderate to heavy infestations continue to be troublesome in cotton fields in Yuma, Pinal and Pima Counties. (Ariz. Coop. Sur.). NEW MEXICO - Mostly light infestations in Dona Ana, Chaves and Eddy Counties. (N.M. Coop. Rpt.).

PLANT BUGS - MISSOURI - Complex of bugs found in 573 of 816 fields (70 percent) in southeast, with range of 0-25 bugs per 100 terminals. (Harrendorf, Jones).

COTTON APHID (*Aphis gossypii*) - MISSOURI - Found infesting 177 of 816 fields (21 percent) in southeast. Natural enemies expected to effectively control infestations. (Harrendorf, Jones).

THRIPS - TEXAS - The heavy thrips pressure in high plains area appears to have ended with a steady decrease during past 2 weeks. (Rummel).

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#### WEATHER OF THE WEEK ENDING JULY 6

Mostly warm temperatures, sunny skies, and variable shower activity typified the week's weather over major sections of the Nation.

TEMPERATURE: Cloudy skies and frequent shower activity combined to help promote below normal average temperatures over the Southeast. Averages were only slightly below normal as sultry weather prevailed all during the period. Unseasonably low averages also dominated west of the Rockies. Largest deficiencies were in the Central Valley of California and southwest Louisiana where departures were greater than 6°. Weekly averages were mostly above normal from southern areas of the Rockies and Plains northward, over the Great Lakes, and the Northeast. Early in the week, heating boosted averages, despite a cooling trend during the weekend, over the North Central and much of the East. Maxima in New England exceeded 100° on the 30th and 1st. Rising temperatures all week in the southern Rockies and the central and southern Plains led to a hot spell. Goodland, Kansas, observed an especially warm weekend with a 108° high on Independence Day, and a 106° high on Sunday. Goodland reported the largest weekly departure with 9° above normal, though similar maxima were observed daily in the Southwest deserts.

PRECIPITATION: Moderate to locally heavy rains fell over the Gulf and South Atlantic States eastward from Texas as recurring shower activity prevailed. Many areas from Florida to Louisiana received 2- to 4-inch amounts; rain of 5 days at Lake Charles, Louisiana, totaled over 8.5 inches. Beneficial rains fell in much of New England and New York, although areas from Connecticut into interior Virginia continued dry. Also, Asheville, North Carolina, logged the driest June of record. The drought persists in nearly all of Delaware, and much of nearby areas of New Jersey and Maryland. However an isolated thundershower at Safe Harbor, Pennsylvania, on the 3d left 5.85 inches of rain in 5 hours. Most sections of the Far West received negligible amounts; no rainfall was recorded at most stations in Arizona, Nevada, and California. However, scattered shower activity produced moderate rainfall from the northern Great Plains into northern sections of Oklahoma and Arkansas. Totals ranged over 1 inch in a large area from Missouri into South Dakota and Minnesota. Hail to 1.25 inches in diameter caused almost total loss of garden and truck crops near Silver Lake, Kansas, during the night of July 3. (Summary supplied by U.S. Weather Bureau).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

JACK-PINE BUDWORM (Choristoneura pinus) - MICHIGAN - Larvae fed on new growth this year; therefore, less noticeable in Huron and Manistee National Forests, where test spraying conducted. Damage decreased this season from that present in 1963 in Manistee National Forest; most larvae now pupated. (Millers). WISCONSIN - Moderately heavy in parts of 2 townships in Burnett County. Moderate 1963 population in Polk County remains essentially the same, except Apanteles sp. (a braconid) more numerous than 1963. Pupation underway in Polk County June 19; first pupae noted June 24 in Burnett County. (Wis. Ins. Sur.). MINNESOTA - Mostly pupated in northeast, with some light adult emergence. (Minn. Ins. Rpt.).

SPRUCE BUDWORM (Choristoneura fumiferana) - UTAH - Outbreak reported from Salt Lake City area on blue spruce seedlings shipped from out of State during October 1963. (Bell). MINNESOTA - Mostly pupated in northeast; adults emerging. (Minn. Ins. Rpt.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - NEW YORK - Pupae still present within dead and discolored buds and partially grown shoots; moth emergence expected within next few days at Martville, Cayuga County. (N.Y. Wkly. Rpt., June 29).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MISSOURI - In south central area, infesting scattered shortleaf pine saplings in Howell County (Barnhart, June 24) and in Oregon County (Solomon, June 25).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Mostly fifth instars present in east central area; no pupation observed. (Minn. Ins. Rpt.). WISCONSIN - First pupae observed June 22 in Douglas County. Kill of larvae in outbreak area treated near end of May appears good. Evaluation of larval mortality and other effects of spraying continuing. (Wis. Ins. Sur.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - INDIANA - Populations increasing and causing considerable damage throughout Marion County, central area. (Clark).

WHITE-PINE WEEVIL (Pissodes strobi) - MINNESOTA - Damage now obvious. Some infestations high; 46 percent of white pine infested north of Libby, Aitkin County. (Minn. Ins. Rpt.).

PINE ROOT COLLAR WEEVIL (Hylobius radialis) - MINNESOTA - Damage appearing east of Side Lake, St. Louis County; mostly larvae, but few pupating. (Minn. Ins. Rpt.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - MISSOURI - Infesting few older shortleaf pines in Oregon and Ozark Counties, south central. (Solomon, June 25).

PINE BARK APHID (Pineus strobi) - NEW YORK - Especially active in Onondaga, Cayuga and Oswego Counties. (N.Y. Wkly. Rpt., June 29).

SPRUCE GALL APHIDS (Chermes spp.) - NEW YORK - C. abietis (eastern spruce gall aphid) active in Onondaga, Cayuga and Oswego Counties. (N.Y. Wkly. Rpt., June 29). PENNSYLVANIA - C. cooleyi (Cooley spruce gall aphid) emerged June 29 on spruce in Centre County. (Udine).

SPITTLEBUGS (Aphrophora spp.) - MINNESOTA - A. parallela (pine spittlebug) adults appearing in east central area; some very high populations present. (Minn. Ins. Rpt.). WISCONSIN - Heavy infestation of A. parallela encountered in Burnett County on young jack pine up to 20 years old. Heavy spittle masses covered areas of smooth bark; dripping from trees. First newly emerged A. saratogensis (Saratoga spittlebug) adults reported from Jackson County June 23; populations ranged light to moderate in Marinette County, where 60 percent of nymphs in third stage June 23. Generally light in Lincoln County; nymphal development appeared much further advanced than usual for time of year; 95 percent in fourth stage June 23. (Wis. Ins. Sur.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MINNESOTA - Egg hatch appears complete in east central area; numerous lady beetles feeding on crawlers and adults. (Minn. Ins. Rpt.). WISCONSIN - Few crawlers emerging in Bayfield County infestation June 22. Nearly full-grown lady beetle larvae feeding on scales. (Wis. Ins. Sur.). MISSOURI - Infesting shortleaf pines in Shannon (south central) and St. Francois (east central) Counties. (Hurlbut, Allmon; June 28).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEW YORK - Large numbers of first generation developing in several Scotch pine plantations at Martville, Cayuga County; as many as 102 counted on single needle. Ultimate stage larvae of Chilocorus stigma (twice-stabbed lady beetle) numerous on infested trees. (N.Y. Wkly. Rpt., June 29). RHODE ISLAND - Crawlers evident in Warwick, Kent County. (Veilleux, Mathewson).

SPRUCE BUD SCALE (Physokermes piceae) - MINNESOTA - Crawlers present; hatch just beginning. (Minn. Ins. Rpt.).

GRASSHOPPERS - WISCONSIN - Nymphs of unspecified species numerous on sandy soils of some young pine plantations near Hatfield, Jackson County, on June 24. Plantations badly scarred by hail June 20. (Wis. Ins. Sur.).

SAWFLIES - MINNESOTA - Scattered populations of Pikonema alaskensis (yellow-headed spruce sawfly) continue to defoliate spruce. Hatch of Pristiphora erichsonii (larch sawfly) general; larvae mostly first stage. (Minn. Ins. Rpt.).

INTRODUCED PINE SAWFLY (Diprion similis) - MINNESOTA - All larval stages feeding in east central area. Some relatively high first-generation counts found on roadside white pine; light on Scotch and jack pines. (Minn. Ins. Rpt.). WISCONSIN - Second-stage larvae feeding on Scotch pine in Langlade County June 24. Only few windbreak trees lightly infested. (Wis. Ins. Sur.).

JACK-PINE SAWFLY (Neodiprion pratti banksianae) - MINNESOTA - Feeding mostly completed. Other species on jack pine lightly scattered and in middle instars. (Minn. Ins. Rpt.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Severe on spruce at localities in Anne Arundel and Prince Georges Counties. (U. Md., Ent. Dept.).

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - NEVADA - Heavy larval populations continue on bitterbrush and serviceberry in Steamboat-Galena Creek area and Washoe Valley, Washoe County. At Carson City, Ormsby County, populations generally lighter than in Washoe County, but wild rose, willow and desert peach (Prunus andersoni) being defoliated. In Galena Creek area of Washoe County, many larvae being killed by virus, but no virus-killed larvae found in Washoe Valley or Carson City. (Bechtel, Cooney, Washburn, et al.). See CEIR 14(27):734.

A GELECHIID MOTH - NEVADA - Larvae heavy on bitterbrush (Purshia tridentata) in Carson City, Ormsby County, in conjunction with Hemerocampa vetusta (western tussock moth), defoliating many plants. (Bechtel, Cooney, Washburn, et al.).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - WISCONSIN - Nearly full-grown larvae feeding on elms in Madison area, Dane County. First-generation adults appeared in Madison blacklight trap June 28. (Wis. Ins. Sur.).

PINK STRIPED OAKWORM (Anisota virginiensis) - MINNESOTA - First and second-stage larvae feeding on oak in east central area. Many egg masses yet unhatched; some adults still present. Very localized, serious defoliation can be expected. (Minn. Ins. Rpt.).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Tents and webbing heavy on shade trees in Dona Ana and Eddy Counties. (N.M. Coop. Rpt.). KANSAS - Small nests ranged 1-2 per walnut tree in Douglas County. First-generation larvae present. (Thompson, June 23).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - RHODE ISLAND - Eggs noted in Cranston, Providence County. (Sorensen). ALABAMA - Egg masses ranged 1-5 per cherry tree on numerous trees observed in Marion and Fayette Counties. (McQueen).

WESTERN TENT CATERPILLER (Malacosoma pluviale) - OREGON - Former high populations in Washington and Yamhill Counties virtually disappeared, apparently as result of a virus disease. (Prescott).

SATIN MOTH (Stilpnotia salicis) - CALIFORNIA - Larvae heavy on white poplar in Alturas, Modoc County. Infestation apparently confined to this species. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - Defoliated area in Cranston, Providence County, (CEIR 14(27):732) amounts to approximately 400 acres; pupation noted. Controls applied. (Veilleux, Mathewson). NEW YORK - Areas of defoliation on Minnewaska Mountain apparent from Accord to Ellenville. Pupation estimated at 5 percent on June 25. (N.Y. Wkly. Rpt.). CONNECTICUT - Males in flight in Devils Hopyard State Park June 28. (Phillips, Johnson).

OAK LEAF ROLLERS - CONNECTICUT - Adults of Argyrotaenia quercifoliana and Argyrotoxa semipurpurana appearing by hundreds on shrubs, lawns and at lights indicate possible heavy infestation in 1965. (Savos).

A COTTONWOOD LEAF MINER (Coptodisca n. sp.) - ARIZONA - Defoliating cottonwood trees in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

CANKERWORMS - WISCONSIN - Final defoliation survey June 26 indicated defoliation extremely variable; although it appeared generally not as severe in specific timber stands which were also surveyed previous 2 years, defoliation apparently a little more widespread. Evidence of refoiliation apparent in some localities. Severe, late spring frosts in surveyed area posed difficulty in estimating defoliation by these pests. (Wis. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - CONNECTICUT - Larvae a problem at Dayville, Windham County. (Savos). NORTH DAKOTA - Larvae feeding on elm and willow in eastern areas; infestations scattered. (Frye).

ELM LEAF BEETLE (Galerucella xanthomelaena) - WASHINGTON - All stages feeding on American elms at Ephrata, Grant County; damage severe. Newly deposited eggs also present. (Powell, June 26). ILLINOIS - Causing browning of many elm leaves in southern area. (Ill. Ins. Rpt.). OHIO - Early stage larvae skeletonizing elms in Columbus, Franklin County, central section. Trees 10-35 percent defoliated. (Lyon). VERMONT - Injury prevalent on roadside elms in western part of State. (MacCollom, June 29).

COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) - FLORIDA - Larvae and adults infesting leaves of Lombardy poplar and severe on weeping willow at Lake Monroe, Seminole County, June 26. (Youtsey). ALABAMA - Light on cottonwood and willow in Tallapoosa and Lee Counties. (Barwood).

LOCUST LEAF MINER (Xenochalepus dorsalis) - ILLINOIS - Reported from Harin County, southeast. This is a new county record. (Ill. Ins. Rpt.).

LARGER ELM LEAF BEETLE (Monocesta coryli) - ALABAMA - Heavy and damaging elm tree in Walker County, where infestation light in 1963. (Thornton).

A LEAF BEETLE (Anomoea laticlavata) - FLORIDA - Severe on leaves of live oak at Lake Monroe, Seminole County, June 25. (Youtsey).

ELM BARK BEETLES - IOWA - Adults of Scolytus multistriatus (smaller European elm bark beetle) and Hylurgopinus rufipes (native elm bark beetle) active. At Waterloo, Black Hawk County, both species laying eggs under bark of partly dead elm just felled; tree had much sap, but larval survival and growth good; freshly laid eggs and newly emerged to half-grown larvae present. On June 26 at Dunlap, Harrison County, several S. multistriatus adults, newly excavated brood galleries, many eggs and one newly emerged larva noted. (Iowa Ins. Inf., June 29).

GREEN JUNE BEETLE (Cotinis nitida) - ILLINOIS - Adults heavy on some maples in extreme southern tip of State. (Ill. Ins. Rpt.).

A WEEVIL (Phyllobius oblongus) - PENNSYLVANIA - Abundant on elm, wild cherry and maple in Lawrence County. (Adams, June 18).

APHIDS - NEW YORK - Unspecified species on maples most common problem in Nassau County; honeydew coating cars parked under infested trees. (N.Y. Wkly. Rpt., June 29). CALIFORNIA - Drepanaphis sp. heavy on maples in Yreka, Siskiyou County. (Cal. Coop. Rpt.).

LEAFHOPPERS - COLORADO - Damaging leaves of trees and ornamentals generally; numerous requests for determination. (Ext. Serv., Hantsbarger).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW YORK - Increasing and very abundant on elms not treated for other insects. Increasing generally, compared with 1963. (N.Y. Wkly. Rpt., June 29). ILLINOIS - Crawlers present on elms in central part of State. (Ill. Ins. Sur. Bull.). CALIFORNIA - Heavy on elms in Ramona, San Diego County. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - INDIANA - Increasing generally throughout State and causing considerable damage to soft maple, red maple and ash. (Clark).

OAK SCALES - IOWA - Kermes spp. noted on oak at Agency, Wapello County; full of eggs at present. (Iowa Ins. Inf., June 29). CALIFORNIA - Protodiaspis agrifoliae heavy on Quercus sp. in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

GALL MIDGES - DELAWARE - Galls of Rhabdophaga strobiloides noted on willows in an area of New Castle County. (MacCreary). OHIO - Parallelodiplosis florida very heavy on occasional pin oak in Cuyahoga County, northeast. Trees appeared quite unsightly. (Custer).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Adults common on new growth in Kingston area, Washington County. (Sorensen, Mathewson). PENNSYLVANIA - In pupal stage on birch at Chalfont, Bucks County, June 19. (Cole).

PEAR-SLUG (Caliroa cerasi) - WISCONSIN - Nearly full-grown larvae caused extensive feeding injury on northern ash in southern Rock County. (Wis. Ins. Sur.).

SPIDER MITES - NEW YORK - Building up on elms. Large numbers of eggs recently deposited on foliage beginning to hatch. Complex of species present. (N.Y. Wkly. Rpt., June 29).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Continues extremely heavy on arborvitae and other coniferous shrubs; 10-12 larvae per foot of branch and as high as 75 per square foot on nearby grass reported in Montgomery, Montgomery County, where extreme population explosions occurred. (McCay). FLORIDA - Infesting Ixora sp. at Perrine, Dade County, June 26. (Berckemeyer). GEORGIA - Heavy on cedar in Atlanta area. (Blasingame). MARYLAND - Causing heavy injury to arborvitae around building at Branchville, Prince Georges County. (U. Md., Ent. Dept.). PENNSYLVANIA - Larvae active on spruce and arborvitae at Lebanon, Lebanon County, June 22. (Sleesman). ILLINOIS - Damage ranges none to severe on ornamental evergreens in southern half of State. (Ill. Ins. Rpt.).

MIMOSA WEBWORM (Homadaula albizziae) - NEW JERSEY - Larvae active in Middlesex County. (Ins.-Dis. Newsltr.). DELAWARE - First young larvae of season noted on honeylocust in New Castle County. (Burbutis, Crossan). MARYLAND - Increasing on mimosa and honeylocust in most sections. (U. Md., Ent. Dept.). ILLINOIS - Damage to mimosa and ornamental honeylocust ranges none to very severe in southern half of State. (Ill. Ins. Rpt.). KANSAS - Small, second-generation larvae present on Moraine honeylocust in Johnson County, east central. (Thompson).

A WEBWORM - KANSAS - Counts of 200-300 larvae per tree noted on juniper in Rooks County, north central. Very severe local infestation present 2-3 years but not reported by homeowner. (Thompson, June 11).

A CASEBEARER (Acrobasis grossbecki) - FLORIDA - Larvae infesting leaves of pyracantha at Ocala, Marion County, June 24. (Graham, Adkins).

LILAC LEAF MINER (Gracilaria syringella) - IDAHO - Damaging lilac foliage at Bonners Ferry, Boundary County. (Ingle).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Larvae medium on juniper nursery stock locally in San Diego, San Diego County. (Cal. Coop. Rpt.).

NOCTUID MOTHS - FLORIDA - Larvae of Prodenia ornithogalli (yellow-striped armyworm) and Trichoplusia ni (cabbage looper) moderate on leaves of Philodendron cordatum at Apopka, Orange County, June 24. (Musgrove).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Moderate to heavy on various ornamentals and smartweed in sections of Queen Annes, Talbot and Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - First adults noted June 17 in rose gardens in Wythe County; heavy numbers found in farm fields on wild rose, plum, cherry and grape last week in June (Bird); adults observed on plum and cherry on June 29 in Chase City, Mecklenburg County (Copley); adults common on variety of plants in Franklin, Pittsylvania, Roanoke, Montgomery and Giles Counties (Tarpley, June 30). GEORGIA - Feeding on shrubs and apple in Stephens County. (Newman). Single adults taken in trap at Waycross, Ware County. (Davenport).

ROSE CHAFER (Macroductylus subspinosus) - RHODE ISLAND - Troublesome in Coventry, Kent County, and Peace Dale, Washington County. (Mathewson). NEW YORK - Appears to be much heavier than usual in Westchester County. (N.Y. Wkly. Rpt., June 29). WISCONSIN - Reports indicate considerable adult feeding damage to ornamentals in Trempealeau, Sauk, Marathon, Portage, Jackson, Waushara, Eau Claire and Chippewa Counties. Adults also noticeable in corn in Chippewa and Portage Counties. (Wis. Ins. Sur.).

A SCARAB (Strigoderma arboricola) - IOWA - Noted on roses in Clinton County and in field of corn in Buchanan County. (Iowa Ins. Inf., June 29).

ROSE CURCULIO (Rhynchites bicolor) - RHODE ISLAND - Noted on rose in Warwick, Kent County. (Veilleux, Mathewson). COLORADO - Infesting roses in ornamental experimental plots at Fort Collins, Larimer County. (Simpson).

HOLLYHOCK WEEVIL (Apion longirostra) - CALIFORNIA - Heavy on hollyhock in Siskiyou County. This is extension of known area of infestation and a first record for Siskiyou County. (Cal. Coop. Rpt.). OREGON - Adults very abundant on buds of cultivated hollyhock in Ashland, Jackson County. (Schuh). This is a new State record. (PPC).

THREE-LINED POTATO BEETLE (Lema trilineata) - CALIFORNIA - Medium on Physalis ixocarpa (ground-cherry) in Lakeside, San Diego County. (Cal. Coop. Rpt.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - PENNSYLVANIA - Light to medium on few 30-foot Lombardy poplars at Feasterville, Bucks County, June 20; galls full size this date. (Simons).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on euonymus on a Queen Annes County property. (U. Md., Ent. Dept.). VIRGINIA - Heavy on ligustrum at a location in Smithfield, Isle of Wight County. (Rowell, Jones; June 27). INDIANA - Infesting planting of Pachistima sp. at South Bend, Elkhart County. (Schuder). MICHIGAN - Crawlers active in Ingham County. (Hoffman, Janes).

COCCIDS - DELAWARE - Aspidiotus ancylus (Putnam scale) hatching on dogwood in New Castle County. (MacCreary). PENNSYLVANIA - Lecanium fletcheri (Fletcher scale) crawlers active on Taxus spp. June 17 in Butler County, but not active on arborvitae. (Goodman). SOUTH CAROLINA - Icerya purchasi (cottony-cushion scale) infesting boxwood in Dorchester County. Florinia theae (tea scale) infestations at all time high in Dorchester County; many growers failed to use oil sprays in spring, but present controls apparently satisfactory. (Nettles et al., June 30). FLORIDA - Phenacaspis cockerelli scattered moderately to severely on leaves of Strelitzia sp. at Merritt Island, Broward County, June 22. (Levan). Pseudo-coccus adonidum (long-tailed mealybug) moderate on stem and leaves of dracaena at Apopka, Orange County, June 24. (Musgrove). Ceroplastes floridensis (Florida wax scale) moderate to severe on stem and leaves of euonymus at Cocoa, Brevard County, June 24. (Levan). Phenacoccus gossypii (Mexican mealybug) moderate on stem and leaves of Chinese hibiscus at Apopka June 29. (Musgrove). WISCONSIN - Lecanium sp. heavy on arborvitae in nurseries in Portland County; less than 10 percent of crawlers beneath mother scales, although persistent high temperatures in area expected to stimulate greater activity. (Wis. Ins. Sur.). MINNESOTA - L. fletcheri hatching on junipers and arborvitae in St. Paul-Minneapolis area. (Minn. Ins. Rpt.). CALIFORNIA - Chrysomphalus rossi heavy on nursery stock of Araucaria sp. in San Diego, San Diego County. (Cal. Coop. Rpt.).

A FLATID PLANTHOPPER (Metcalfa pruinosa) - GEORGIA - Moderate to heavy on boxwood, azalea, holly and other ornamentals in Atlanta area. (Blasingame).

PHLOX PLANT BUG (Lopidea davisi) - PENNSYLVANIA - Abundant on phlox in Huntingdon County June 22. (Udine).

ROSE-SLUG (Endelomyia aethiops) - IDAHO - Quite abundant in Idaho Falls, Orofino and Moscow areas; larval feeding causing considerable damage in some instances. (Kohl, Fitzsimmons, Portman).

A CIMBICID SAWFLY (Zaraea americana) - CALIFORNIA - Medium on snowberry in Susanville, Lassen County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NORTH DAKOTA - Scattered infestations noted on ornamental conifer plantings in northeast. (Frye).

A FALSE SPIDER MITE (Pentamerismus erythreus) - IDAHO - Heavy on arborvitae hedge in Caldwell, Canyon County. (Bechtolt).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - CALIFORNIA - Occurrence of Culex tarsalis and other species extremely light this spring. Mosquito occurrence estimated at one-eighth of normal in Sacramento-Yolo County area; decided reduction also reflected in other areas. Rainfall below normal and cool spring not favorable for mosquito development. Due to intermittent rain pattern, abatement districts active since early in year. Light trap catches have been extremely low, but began to increase week of June 27 - July 3. Rice fields now causing increase which could rise sharply with warm weather. In Sacramento-Yolo County area, 22,000 acres of rice paddies planted with Gambusia affinis (a mosquito fish). No chemical control necessary in planted paddies. Mosquito occurrence should be well below 5-year average this year. (G. Umberger, Mosquito Abatement).



OREGON - High Aedes dorsalis populations, incident to irrigation waters in Crook County, becoming problem; no controls applied. Aedes vexans and Aedes sticticus populations high along Columbia River in Columbia and Multnomah Counties as result of flooding; controls underway in Multnomah County. (Miller). WASHINGTON - Enormous numbers of Aedes nigromaculatus developed in an acre flooded pasture near Orthello, Grant County. (Bliss, Rowley; June 26). IDAHO - Mosquitoes, mostly Culex spp. and Aedes spp., apparently more abundant in most areas than in past few years. (Gittins). UTAH - Mosquitoes troublesome to fisherman in many northern and central area canyons; A. dorsalis and C. tarsalis larvae conspicuous on 40,000 acres of wet land near Great Salt Lake in Weber County; 10,000 acres in county treated to date; spring rains increased mosquito breeding area greatly. Normal control in Weber County usually 18,000 acres per year. Culex spp. larvae increasing conspicuously. A. dorsalis troublesome in western farm areas, but rare in cities. Unusually troublesome in Laketown and Randolph areas of Rich County. (Fronk, Knowlton; June 30). Mosquitoes very troublesome in College area, Cache County, and in Cedar City, Iron County; also troublesome in Center-ville area, Davis County; seriously troublesome to ranchers and livestock in West Tremont-Penrose area of Box Elder County and Ashley Creek and Green River areas of Uintah County. Unspecified species troublesome about camping and fishing areas in Logan Canyon and East Canyon, Cache County. (Knowlton). NORTH DAKOTA - A. vexans exceeded 100 per 5-minute collection; A. dorsalis averaged 150 per animal side and may exceed this number on horses in eastern areas. Mosquitoes apparently dominant human and livestock pests in eastern part of State. Range cattle bunching due to mosquito attack. (Noetzel). MINNESOTA - Total of 1,329 larval collections made in Metropolitan Mosquito Control District during week ending June 29; A. vexans present in 662 and larvae too small to determine in 538; these larvae probably A. vexans. In collections from 16 light traps, 2,922 female mosquitoes taken; 2,459 were A. vexans; 170 Mansonia perturbans taken in traps in northern Anoka and Washington Counties. In 57 15-minute bite collections, 258 mosquitoes taken; 240 were A. vexans. In 217 5-minute daytime bite collections, 1,613 mosquitoes taken; 869 A. vexans, 260 A. cinereus, 242 A. sticticus. Brood of A. vexans resulting from heavy rains of June 22 emerged July 1-2. A brood of mosquitoes expected to emerge in southern third of State during week of July 6; this brood resulted from rains earlier in week. Numerous inquiries concerning mosquito control received from northern Red River Valley area. Tremendous mosquito populations now present as result of heavy rain and flooding. (Minn. Ins. Rpt.). IOWA - Large numbers of mosquitoes will emerge from many overflow pools caused by recent heavy rains. Evening spraying of animals will give best protection if expected populations emerge. (Iowa Ins. Inf., June 29). OHIO - During period June 15-26 at Toledo, Lucas County, ratio of female to male approximately 3 to 1. A. vexans most abundant species. Species collected include 155 A. vexans, 2 A. dorsalis, 1 A. stimulans, 3 A. spencerii, 74 Culex pipiens, 24 C. restuans, 8 C. territans, 1 C. tarsalis, 13 Anopheles punctipennis and 1 Culiseta inornata. (Miller, Brockway). TEXAS - Adults moderate in Jefferson County area during first half of May. Populations were dense in isolated areas; however, little migration occurred. Significant migrations took place during latter part of month. Larvae were numerous and widespread early in May. Salt marsh and fresh water breeding areas were flooded and producing. One M. perturbans adult taken in light trap; also an Anopheles atropos. Specimens of Psorophora varipes were also collected. (Jefferson Co. Mosq. Cont. Comm.).

BITING MIDGES (Culicoides spp.) - UTAH - Extremely troublesome to humans in Leeds-Leeds Canyon area of Washington County June 22-25. Occurrence 3 weeks later than usual. (Torchir, Knowlton).

BLACK FLIES - SOUTH CAROLINA - Unspecified species annoying horses in Laurens County. (Nettles et al., June 30). OHIO - Causing considerable annoyance to residents in northwest section, especially near Toledo, Lucas County. (Miller, Brockway). IDAHO - Numerous species abundant in many areas of northern, west central and south central sections. Adults extremely abundant on Moscow Mountain; populations generally higher this spring than noted during past few years. (Gittins, Manis).

TABANIDS - IDAHO - Chrysops spp. adults extremely numerous in Bingham County; many reports of biting received. (Bishop). UTAH - Tabanus punctifer annoying horses near Logan, Cache County, and Chrysops discalis annoying livestock near Brigham City, Box Elder County. (Knowlton). Unspecified species appearing in some Uintah County areas. (Lindsay, Knowlton). NORTH DAKOTA - Tabanus lineola (striped horse fly) ranged 3-20 per cow in sandhills area in southeast; Chrysops sp. averaged 2 per animal in same area. (Noetzel). MICHIGAN - Deer and horse flies troublesome in various areas. (Dowdy et al.). ILLINOIS - Horse flies very light in east-southeast and southeast districts on cattle. (Ill. Ins. Rpt.). DELAWARE - Female Chrysozona rara collected from pitcher-plant on June 26 at Bethel, Sussex County. Collected and determined by E. P. Catts. This is a new State record. (Burbutis, Crossan). SOUTH CAROLINA - Deer flies extremely heavy in wooded areas of Colleton and Hampton Counties. Annoying livestock and humans. (Nettles et al., June 30).

HORN FLY (Haematobia irritans) - GEORGIA - Averaged 188 per animal in 3 untreated Spalding County herds. (Roberts). SOUTH CAROLINA - Heaviest infestations of season noted on number of herds throughout State. (Nettles et al., June 30). INDIANA - Ranged 50-150 per head on cattle in southern and north central sections. (Bram, Saugstad). ILLINOIS - Varied 20-400 (averaged 175) per animal on cattle in east-southeast and 50-1,000 (averaged 400) per animal on cattle in southeast. (Ill. Ins. Rpt.). IOWA - Range 70-150 (averaged 100) per head on untreated dairy cows; none found on treated dairy herd nearby. (Iowa Ins. Inf., June 29). MICHIGAN - Reported troublesome in various areas. (Dowdy et al.). NORTH DAKOTA - Up to 1,000 per bull noted in southeastern sandhills area; averaged about 250 per animal, including cows, calves and bulls. (Noetzel). UTAH - Troublesome on cattle in Bothwell-Penrose area, Box Elder County; numbers still low in Uintah County. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - IOWA - Ranged 10-30 (averaged 15) per head on group of untreated dairy cows. None found on nearby treated dairy herd. (Iowa Ins. Inf., June 29). ILLINOIS - Rather light on cattle in pastures in east-southeast and southeast districts; ranged 0-3 (averaged less than 1) per animal. (Ill. Ins. Rpt.).

SHEEP KED (Melophagus ovinus) - UTAH - Ranged moderate to normal in numbers in Uintah County flocks. (Lindsay, Knowlton).

FACE FLY (Musca autumnalis) - NORTH DAKOTA - Ranged 5-25 per cow and somewhat higher on horses in sandhills area in southeast district. (Noetzel). IOWA - Counts showed largest increases on cattle during week ending June 29. Ranged 30-200 (averaged 40) on group of untreated dairy cows. Nearby treated dairy herd averaged less than 10 per animal. Apparently first generation beginning to appear. Farmers encouraged to use morning application of one of recommended dairy sprays. (Iowa Ins. Inf.). ILLINOIS - Varied 0-3 (averaged 0.3) per face on cattle in east-southeast district. None noted on cattle in southeast. (Ill. Ins. Rpt.). INDIANA - Adult populations continue low in southern quarter of State; averaged less than 1 per face on cattle. Reached maximum of 4 per face on cattle in north central section. (Bram, Saugstad). MARYLAND - Ranged 2-13 per head on 6 dairy herds in Frederick County. (U. Md., Ent. Dept.). MISSOURI - Counts per head in northern part of State varied greatly; by county, they were as follows: Randolph - 0.8 and 3.7; Macon - 5.5 and 4.5; Adair - 3.0 and 10.9. (Wingo). GEORGIA - Ranged 20-50 per face on cattle in Polk County. This is a new county record. (Stowe).

HOUSE FLY (Musca domestica) - MICHIGAN - Troublesome in various areas of State. (Dowdy et al.). UTAH - Numbers below normal for July 1 in central and northern areas, due to cold and stormy spring; however, generally abundant in some southern localities. (Knowlton).

BLOW FLIES - OHIO - Populations range moderate to heavy in northeast section. (Lyon).

CATTLE GRUBS (Hypoderma spp.) - MICHIGAN - Adults reported troublesome in various areas of State. (Dowdy et al.). UTAH - Adults annoying cattle in northern Davis County. (Knowlton).

BED BUG (Cimex lectularius) - COLORADO - Infestation reported in Montrose County. (Ext. Serv., Hantsbarger).

AN ASSASSIN BUG (Triatoma sp.) - TEXAS - Annoying residents in localized areas of Erath County. (Gary).

FLEAS - KANSAS - Several home infestations of Ctenocephalides felis (cat flea) and C. canis (dog flea) reported. (Gates). SOUTH CAROLINA - Tunga penetrans (chigoe) infesting combs of poultry in Hampton County. (Nettles et al.).

WASPS - RHODE ISLAND - Polistes spp. and Vespula spp. causing concern to homeowners statewide. (Mathewson).

TICKS - WISCONSIN - Populations of unspecified species remain high in few areas in northern portion of State, although reports indicate decrease during recent weeks. (Wis. Ins. Sur.). MICHIGAN - Populations of Dermacentor variabilis (American dog tick) heavy in many upper Peninsula counties; present on man and many wild animals. (Wilson, Mattson).

CHICKEN MITE (Dermanyssus gallinae) - PENNSYLVANIA - Numerous complaints of this pest in homes during season and of irritation to residents. (Udine). IDAHO - Specimens collected in farm home in Saint Anthony area, Fremont County. (Portman).

CHIGGERS - WISCONSIN - Reports indicate increase in scattered areas such as Walworth, Polk, Crawford and Chippewa Counties. (Wis. Ins. Sur.).

HOUSE CENTIPEDE (Scutigera coleoptrata) - CALIFORNIA - Medium in household and biting occupants in Sonora, Tuolumne County. (Cal. Coop. Rpt.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

SPRINGTAILS - RHODE ISLAND - Large numbers reported about foundation of house at Foster, Providence County. (Veilleux, Mathewson). CONNECTICUT - Large numbers reported annoying in several localities. (Savos). MARYLAND - Abundant and annoying in and around homes in Howard and Washington Counties. (U. Md., Ent. Dept.). VIRGINIA - Extremely abundant and creating nuisance in homes in Giles County (June 24) and in Fork Union, Fluvanna County (June 26). (Tarpley, Holpp, Ryland).

BOXELDER BUG (Leptocoris trivittatus) - TEXAS - Local, heavy populations in Tarrant County causing considerable concern by entering homes. (Graves). UTAH - More numerous and troublesome in and about homes in Uintah County than usual. (Lindsay, Knowlton).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Nymphs heavy in yards and residences in Clovis, Fresno County. (Cal. Coop. Rpt.).

A SCENTLESS GRASS BUG (Padera haematoloma) - TEXAS - Probably this species present in large numbers in localized areas of Erath County; annoying in homes. (Gary).

WEEVILS - MICHIGAN - Brachyrhinus ovatus (strawberry root weevil) adults migrating into houses in Lenawee County. (Bless). WISCONSIN - Calomycterus setarius (a Japanese weevil) migrating into houses in Dane County. B. ovatus, more common during past weeks, has now decreased. (Wis. Ins. Sur.). UTAH - Large numbers of B. ovatus and B. rugosostriatus entered home in Cache County. (Knowlton).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Becoming problem to homeowners in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Causing concern in all parts of State. (Peabody, Mathewson, Veilleux, King). CONNECTICUT - A problem around many homes. (Savos). UTAH - Becoming more annoying about homes in Salt Lake City. (Knowlton).

TERMITES - ALABAMA - Incisitermes snyderi (a drywood species) infested home in Houston County. Det. by T. E. Snyder. (Ledbetter, Warren; June 19). MICHIGAN - Infestations of Reticulitermes spp. (subterranean species) reported from Wexford, Wayne, Kent and Ingham Counties; some winged adults emerging. (Bartlett, Kidd, Janes). UTAH - Swarming of unspecified subterranean species noted in home in Salt Lake City. (Knowlton).

PAVEMENT ANT (Tetramorium caespitum) - CONNECTICUT - Swarming continues in many homes over State. (Savos). NEW JERSEY - Continues to swarm in many areas. (Ins.-Dis. Newsltr.). MARYLAND - Winged forms and workers a nuisance in and around homes at 2 Prince Georges County localities. (U. Md., Ent. Dept.).

CARPENTER ANTS - CONNECTICUT - A problem statewide. (Savos). IOWA - Winged adults of Camponotus herculeanus continue to swarm in all parts of State. (Iowa Ins. Inf., June 29). UTAH - Unspecified species caused slight damage to home at Salt Lake City. (Knowlton).

WHARF BORER (Nacerdes melanura) - MARYLAND - Adults collected in basement of home in Baltimore. (U. Md., Ent. Dept.).

#### STORED-PRODUCT INSECTS

GRANARY WEEVIL (Sitophilus granarius) - OHIO - Adults ranged 200-300 in corn screening at Columbus elevator, Franklin County. (Galford, June 15).

BEAN WEEVIL (Acanthoscelides obtectus) - OHIO - Adults infested 22 bags of beans in supermarket in Columbus, Franklin County. (Galford, June 13).

A DERMESTID BEETLE (Attagenus alfieri) - NEVADA - Adults collected in feedstore in Overton, Clark County, during June. This is a new State record. (Bechtel).

RICE WEEVIL (Sitophilus oryzae) - NEVADA - Adults collected in feedstore in Overton, Clark County, during June. This is a new State record. (Bechtel).

INDIAN-MEAL MOTH (Plodia interpunctella) - ALABAMA - Extremely dense populations of adults, larvae and pupae occurring in all warehouses inspected in Mobile County. (Seibels).

#### BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Hippodamia convergens (convergent lady beetle) numerous in cotton and alfalfa in Yuma, Maricopa, Pinal and Graham Counties. (Ariz. Coop. Sur.). IDAHO - Unspecified species generally low in numbers in alfalfa infested with pea aphid (Acyrtosiphon pisum) throughout south central area. (Gittins). WYOMING - Adults of several species per 100 sweeps averaged 32 in alfalfa, 19 in sugar beets and 34 in potato fields in Goshen County. (Marks).

ARKANSAS - Several species, primarily Hippodamia convergens, found in high numbers in alfalfa. Most numerous beneficial species in cotton in areas checked. (Ark. Ins. Sur.). FLORIDA - Adalia sp. noted on leaves and bloom of Ixora spp. at Fort Lauderdale, Broward County, June 25. (Clinton).

A PUNCTURE-VINE WEEVIL (Microlarinus lareynii) - ARIZONA - This seed feeding species infesting 80 percent of puncture-vine seed set in Elroy and Casa Grande areas of Pinal County. (Ariz. Coop. Sur.).

BIG-EYED BUGS (Geocoris spp.) - CALIFORNIA - Populations range moderate to high in Fresno County cotton. (Stromberg, June 24). ARKANSAS - Primarily G. punctipes present in alfalfa in high numbers; few G. uliginosus present. Eggs of Geocoris spp. very numerous on cotton plants in areas checked. (Ark. Ins. Sur.).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults per 100 sweeps averaged 42 in alfalfa, 37 in sugar beets and 24 in potatoes in Goshen County. (Marks). ARKANSAS - Small numbers noted in alfalfa. (Ark. Ins. Sur.).

AN INSIDIOUS FLOWER BUG (Orius insidiosus) - ARKANSAS - High numbers noted in alfalfa. (Ark. Ins. Sur.).

AN ASSASSIN BUG (Sinea sp.) - ARIZONA - Abundant in cotton fields in Yuma County. (Ariz. Coop. Sur.).

GREEN LACEWINGS (Chrysopa spp.) - IDAHO - Adults common and sometimes abundant in alfalfa throughout south central area; these fields generally infested with pea aphid (Acyrtosiphon pisum). (Gittins).

ALKALI BEE (Nomia melanderi) - WASHINGTON - Males emerging in nesting sites, 2 weeks later than normal, at Basin City, Franklin County. (Johansen, June 26). IDAHO - First emergence recorded June 23 on beds checked yearly. This date 14-21 days later than average recorded past few years. (Waters).

A LEAFCUTTING BEE (Megachile rotundata) - WASHINGTON - Males emerging from nest blocks recently placed out in alfalfa field stations near Warden, Grant County. (Johansen, June 26). NEVADA - Males began emerging in Orovada area, Humboldt County, during last week of June. (Lauderdale).

A PARASITIC BRACONID (Apanteles vitripennis) - CONNECTICUT - During May 28-31, two releases of this gypsy moth (Porthetria dispar) parasite made. This is first attempt to colonize species in United States. Total of 1,000 adults liberated at Roosevelt Forest, Stratford, Tolland County, and 1,832 adults released in Putnam State Park, Redding, Fairfield County. Small number provided for release in unsprayed sites where egg masses occur. (PPC, East. Reg., May Rpt.).

PARASITES - WISCONSIN - Parasitism of Pseudaletia unipuncta (armyworm) larvae appeared heavy in most instances where third instars collected in infested oat fields in Rock, Iowa, Dane and Columbia Counties were dissected. In one field, of 8 larvae examined, Winthemia quadripustulata (a tachina fly) larvae present in 2 and eggs present in one; one contained larvae of Apanteles militaris (a braconid) and pupal cases of this wasp were common in field. Rogas terminalis (a braconid) appearing in numbers approximately those of armyworm in blacklight trap at Platteville, Grant County. Parasitism will play important role in determining armyworm situation during next few weeks. (Wis. Ins. Sur.).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - MASSACHUSETTS - Emergence began week of July 4. (Wave). RHODE ISLAND - Isolated adults collected in Kingston area, Washington County. (Mathewson). OHIO - Four adults noted in Wooster, Wayne County, northeast. (Shambaugh, Forsythe). INDIANA - Eight adults collected in South Bend, Elkhart County, north central. (Porter). ILLINOIS - Emergence began at Sheldon, Iroquois County; peak activity expected this month. (Ill. Ins. Sur. Bull.).

A SCARAB (Pleurophorus caesus) - IDAHO - Adult flight in Arena Valley late in afternoon of June 28; flight occurred no higher than 6 feet above ground and it was estimated that one flying beetle occupied each cubic yard of air. (Waters).

A SAP BEETLE (Glischrochilus sp.) - INDIANA - Adults and pupae collected near corn roots in Porter County, northwest. (Gould, Matthew).

WHITE-LINED SPHINX (Celerio lineata) - ALABAMA - Native plants on 40-acre field following crop of winter rye being destroyed by extremely high larval populations. Larvae 1 to 3.5 inches long ranged 1-5 per square yard in many areas of field. Thousands gathered and sold as fish bait. (Morris, Arant).

CLOVER CUTWORM (Scotogramma trifolii) - DELAWARE - Adults very common in black-light trap in Sussex County; averaged 6 per night. (Burbutis, Crossan).

A PSYCHID MOTH (Apterona crenulella form helix) - IDAHO - Noted in numbers on side of building in Boise. (Portman).

AN ALKALI BEE PARASITE (Heterostylum robustum) - WASHINGTON - Emerging at Basin City, Franklin County. (Johansen, June 26).

A SCIARID MIDGE (Sciara sp.) - OHIO - Larvae noted in masses on lawn in Fairfield County. (Smith, Peterson).

ARGENTINE ANT (Iridomyrmex humilis) - CALIFORNIA - Heavy on grounds of market in Richmond, Contra Costa County. (Cal. Coop. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Found for the first time in Wheeler County, GEORGIA. Aerial treatment completed in Calhoun County, ALABAMA. First bait application completed in Horry, Jasper and Orangeburg Counties, SOUTH CAROLINA. Aerial treatments completed in Ashley and Union Counties, ARKANSAS. Treatments of all known infestations in Chambers County, TEXAS; treatments of highway rights-of-way completed in Montgomery County. (PPC, South. Reg., May Rpt.).

A SLUG (Arion ater) - CALIFORNIA - Medium on property in Hayward, Alameda County. (Cal. Coop. Rpt.). This is first ARS record for Alameda County. (PPC).

CORRECTIONS

CEIR 13(INDEX):3 - SPECIAL REPORTS - Wireworm populations during 1962-1963 fall-to-spring season and their damage to potatoes in vicinity of Charleston, South Carolina 970, should read 951.

CEIR 14(26):676 - CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Delete "Field in Door County had 30 percent plant reduction." This damage caused by WIREWORMS. (Wis. Ins. Sur.).

LIGHT TRAP COLLECTIONS

State	County	Locality	Date	Time	Temperature	Humidity	Wind	Direction	Light	Phase	Moisture	Soil	Plant	Height	Number	Species	Other
ARKANSAS		Hope	6/25-7/1												0		
		Warren	6/18-7/1												16		
		Kelso	6/25-7/1												0		
		Gainesville	6/30	BL											3		
		Lifton	6/18-24												3		
		Chapman	6/26-7/2												0		
		Posey	6/16-22												214		
		Vanderburgh	6/16-22												23		
		Harrison	6/16-22												18		
		Dubuois	6/16-22												24		
FLORIDA		Sullivan	6/16-22												1		
		Greene	6/16-22												1		
		Switzerland	6/16-22												154		
		Franklin	6/16-22												2		
		Parke	6/16-22												16		
		Shelby	6/16-22												0		
		Hamilton	6/16-22												116		
		Tippecanoe	6/16-22												0		
		Jasper	6/16-22												119		
		Allen	6/16-22												0		
KANSAS		St. Joseph	6/16-22												1		
		La Grange	6/16-22												12		
		Garden City	6/24, 26, 29												4		
		Hays	6/16, 25, 30												2		
		Manhattan #1	6/27-7/2												25		
		Manhattan #2	6/26-29												342		
		Mound Valley	6/27												4		
		Atterna	6/28-29												20		
		Centerville	6/24-30												13		
		Berlin	6/20-24												59		
MICHIGAN		Monroe	6/23-29	BL										3			
		Branch	6/23-29												7		
		Kalamazoo	6/23-29												9		
		Livingston	6/23-29												5		
		Jackson	6/23-29												2		
		Macomb	6/23-29												14		

\* BL = blacklight; I = incandescent; MW = mercury vapor; 0 = other

\*\* air = alfalfa; beet = garden beet; sugar beet; cole = cole crops (crucifers); cont. = cotton; TC = field corn; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.







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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPER populations of over 100 per square yard reported in Wisconsin, approximately 10,000 acres of rangeland economically infested in east central area of Oklahoma; controls applied to several thousand acres in South Dakota and Wyoming. (p. 785). CORN EARWORM infestations high in untreated corn in Kansas, heavy on sweet corn over Louisiana, and expected to become more troublesome in Ohio than in 1963. (p. 786). EUROPEAN CORN BORER moth flights and egg laying increasing in several States; larval numbers generally above normal in Maryland and controls recommended on sweet corn in Vermont. SOUTHWESTERN CORN BORER infestations heavier than in past several years in Arkansas. (p. 787). NORTHERN CORN ROOTWORM infesting untreated field corn plots continuously in corn in northwest Ohio; many plants with weak root systems. CORN LEAF APHID colonies appearing on corn in southern Wisconsin; very abundant on barley in area of Utah; high on Sudan grass in area of Wisconsin; and increasing on cultivated Johnson grass in Arizona. CHINCH BUG appearing on corn in northwest Ohio. (p. 798). PEA APHID counts on alfalfa high in Minnesota, heavy in Colorado, and infestations medium to heavy on seed alfalfa in Nevada. SPOTTED ALFALFA APHID increasing rapidly on alfalfa in central Wisconsin. (p. 791). POTATO LEAFHOPPER yellowing alfalfa in Illinois and treatments applied in Wisconsin. THREE-CORNERED ALFALFA HOPPER increasing rapidly on alfalfa in areas of Arizona. (p. 792).

POTATO LEAFHOPPER heavy on beans in Wisconsin. (p. 802). ONION THRIPS heavy on several crops in Ohio. (p. 803). APHIDS abundant on various truck crops in several States. (pp. 799-802).

BOLL WEEVIL continues generally low in cotton-growing areas. BOLLWORMS increased in central Texas and damaging numbers continue in most cotton fields in Rio Grande Valley; building up in all sections of South Carolina. Bloom and square survey in cotton in Graham County, Arizona, produced only 2 PINK BOLLWORM larvae. (pp. 804-805). LYGUS BUGS moving from alfalfa to cotton in Kern County, California, and populations increasing in most cotton areas of Arizona. (p. 806).

ELM LEAF BEETLE considerably above normal in most sections of Maryland and necessitated controls in Salt Lake County, Utah. (p. 810). HORN FLY counts on livestock high or increasing in several Central States. (p. 814). JAPANESE BEETLE appearing in Massachusetts and Michigan. (p. 820).

DETECTION

A DILARID (Nallachus americanus) (Order Neuroptera) reported for first time in Iowa. (p. 820). New County records included GARDEN SYMPHYLAN (Scutigerella immaculata) in Van Buren, Wapello and Jefferson Counties, Iowa (p. 790); CALIFORNIA RED SCALE (Aonidiella aurantii) in Santa Cruz County, California (p. 798); a PINK CITRUS RUST MITE (Aculus pelekassi) in De Soto County, Florida (p. 798); LOCUST LEAF MINER (Xenochalepus dorsalis) in Pike County, Illinois (p. 811); HOLLYHOCK WEEVIL (Apion longirostre) in Napa County, California (p. 813); and a BROWN SPIDER (Loxosceles reclusa) in Edwards County, Illinois (p. 816).

CORRECTIONS and ADDITIONAL NOTES

See page 821.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 817).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Clover and Alfalfa, Alfalfa Hay and Red Clover Hay in Illinois. (pp. 825-826).

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

WEATHER OF THE WEEK ENDING JULY 13

Eastward from the central Plains and Mississippi Valley, the Nation underwent a showery, mild week. Elsewhere, hot, sunny weather prevailed.

**TEMPERATURE:** Maximum temperatures exceeding 90° were conspicuous only by their relative absence in the North Central and east of the Mississippi. Over this area, weekly temperatures generally were near or below normal. Cincinnati, Ohio, recorded the largest deficiency of 6° below normal. Weekend cooling in the Oklahoma and northern Texas area ended a 2-week hot spell that saw maxima soar to over 100° daily. Numerous daily record highs were set from Nebraska into Texas. On the 12th, a 104° reading at Victoria, Texas, made it the hottest July day in 25 years. Beloit, Kansas, logged its second consecutive day of 113° on the 6th. Weekly averages ranged to over 6° above normal at several stations in this region. Over the Mountain States of the Far West, weekly average temperatures were generally near normal. However, small areas of interior Washington and western Nevada had averages exceeding 6° above normal. Reno, Nevada, recorded maxima over 94° each day of the week; 2 days 100° or more. On the 11th, the mercury hit 105° at The Dalles, Oregon, and Furnace Creek in Death Valley, California, heated to 121° on the 12th.

**PRECIPITATION:** Most rainfall in the Far West and southern Great Plains was negligible. No precipitation was recorded in much of Texas and large areas of California, Arizona, Idaho, and Utah. However, significant rains over 1 inch fell in eastern Arizona and much of New Mexico, mostly during the weekend. Rains fell on several days eastward from the northern and central Plains and lower Mississippi Valley. Totals over 1 inch covered large areas from Minnesota and Kansas to Florida and the central Atlantic coast. Large areas in this region received over 2 inches. Tupelo, Mississippi, measured a 24-hour fall of 4.99 inches early on the 12th and over 6 inches for the week. North Platte, Nebraska, equaled a July 24-hour rainfall record with 3.15 inches on the 10th, 2.50 inches of which fell in 30 minutes. Dry areas of Tennessee, Illinois and Indiana also received welcome rains. The most substantial rains in a couple of months fell over the Central Atlantic States, relieving the drought that extended from New England into North Carolina. Totals were generally over 1 inch. Numerous stations in central and southern New Jersey and interior Virginia, where the drought situation was becoming critical, had over 2 inches. On the 8th - 9th, Trenton, New Jersey, measured a new 24-hour record fall of 4.85 inches. Nearby Washington Crossing received 8.05 inches in the same period. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - GEORGIA - Romalea microptera (eastern lubber grasshopper) infestations moderate in lawns in Fayetteville, Fayette County. (Woodliff). MARYLAND - Nymphs of Melanoplus spp. heavy in some red clover fields and hay mixtures on upper Eastern Shore. (U. Md., Ent. Dept.). ILLINOIS - Melanoplus spp. varied 0-8 (averaged 2.6) per square yard in grass in central district and 0-1 (averaged 0.2) in west-southwest district. Populations 2-3 per sweep in alfalfa in central and west districts. Occasional adult of M. sanguinipes (migratory grasshopper) observed in many areas in central district. (Ill. Ins. Rpt.). WISCONSIN - Populations of over 100 per square yard reported, and many fields in sandier portions in Green and Rock Counties had 40-50 per square yard. Adults reported migrating from soil bank fields in Waushara County and a serious threat in sandy soils in Langlade County. Small nymphs becoming noticeable in many areas; counts 10-20 per 10 sweeps noted in Dodge, Fond du Lac and Winnebago Counties. Nymphs of M. femurrubrum (red-legged grasshopper) predominate in most fields and range from first to fifth instar. Few adults of M. sanguinipes noted and adults of M. bivittatus (two-striped grasshopper) found feeding on corn and soybeans in area of Adams County. (Wis. Ins. Sur.). MINNESOTA - Adult M. bivittatus and M. packardii (Packard grasshopper) showing up in light sandy soil areas around Minneapolis and St. Paul. These two species only small percentage of grasshopper population; M. femurrubrum is by far predominant. In Anoka, Washington, Dakota and Scott Counties, alfalfa had from less than 1 to 75 per square yard. Some movement into corn and soybeans noted. In Wilkin and Clay Counties, roadside populations ranged up to 50 (averaged 25) per square yard; first and second instars present. Some movement into marginal rows of soybeans noted. In southwest and south central districts, populations in alfalfa averaged 5-6 per square yard. An occasional field in Redwood and Martin Counties had 12-15 per square yard. Roadside populations becoming important in these 2 districts. M. differentialis (differential grasshopper) increased over last year. Movement into corn and soybeans noted. In northwest district, populations generally very low. Kittson and Marshall Counties only counties where "hoppers" showing up, averaging 5 per square yard in alfalfa. Populations seem equally divided between M. bivittatus and M. femurrubrum. Former species in third and fourth instars and latter species still hatching and in first and second instars. Farmers urged to check their fields. Early treatments before "hopper" movement recommended. (Minn. Ins. Rpt.).

NORTH DAKOTA - Grasshopper survey in Richland, Ransom, Cass, Traill and Grand Forks Counties showed marginal counts of less than 1 to 8 (average 2) per square yard; field counts averaged less than 1 per square yard. Percent development: Firsts 5, seconds 5, thirds 40, fourths 40, fifths 8, adults 2. M. femurrubrum and M. sanguinipes dominant. (Brandvik). In Bottineau, Renville, Burke, Divide and Williams Counties, marginal counts ranged from less than 1 to 20 (averaged 3-8) per square yard; field counts ranged from less than 1 to 12 (averaged 1-5) per square yard. M. sanguinipes, M. bivittatus and M. packardii dominant. Few M. femurrubrum encountered. Most of "hoppers" in third and fourth instars; few adults observed. (Scholl). Few areas in southwest had 5-20 "hoppers" per square yard in field margins and 5-10 in small grain and alfalfa fields; most in third and fourth instars, with a few adults present. M. bivittatus, M. packardii and M. sanguinipes dominant, with a few M. differentialis encountered. (Frye).

SOUTH DAKOTA - Spraying started on range area at Pine Ridge on July 1; 22,000 acres of range sprayed in Shannon County as of July 6. (Burge). Cropland populations range 5-75 nymphs per square yard along field margins. Counts as high as 60 nymphs per single corn plant in margin of cornfield in Gregory County; field adjoining a newly mowed field of alfalfa. (Hintz). WYOMING - Approximately 72,000 acres controlled under cooperative control program; 12,000 in Johnson County near Elk Mountain, 16,000 in Goshen and Platte Counties in Goshen Hole area and 44,000 acres in other areas of Goshen and Platte Counties. Control on approximately 90,000 acres in another area of Johnson County due to begin July 11. (Spackman). NEBRASKA - Cropland areas in Boyd, Holt, Keya Paha and northwestern Knox Counties had 8-20 grasshoppers per square yard in weedy roadsides, alfalfa, sweetclover, field margins and soil bank land. Populations consist of M. bivittatus,

third to fifth instar and some adults; M. differentialis, first to third instar; and M. sanguinipes, first to fourth instar. Controls being executed on nymphs in some hatching areas. (Bergman). KANSAS - Field counts of "hoppers", primarily M. sanguinipes, M. bivittatus and M. differentialis, averaged 1-3 per square yard in southeast and east central districts. Some counts in margins as high as 15-20 per square yard, with most marginal counts being below 10 per square yard. Some comments heard of grasshoppers being a problem in gardens in same area. (Peters). MISSOURI - Melanoplus spp. causing moderate to heavy damage in marginal 10-20 rows of soybeans in northwest area; averaged 5-10 per square yard in alfalfa in same area. In southwest, counts remain low (5-10 per square in fence rows) and leaf feeding in soybeans light. In alfalfa in southwest, counts 3-7 per square yard. Isolated spots of heavy infestations over western part of State reported. (Houser, Thomas, Wood). OKLAHOMA - Approximately 10,000 acres of rangeland economically infested in Pittsburg County east central area; counts 20-30 per square yard. Stages ranged from third instar to adult. Dominant species M. bivittatus, Boopodon nubilum, Hesperotettix speciosus and Dissosteira carolina (Carolina grasshopper). Light to moderate infestations also present in rangeland in Ellis (northwest), Roger Mills (west central) and Cleveland (central) Counties. Moderate infestations reported in alfalfa in Choctaw (southeast) and Washington (northeast) Counties. Heavy infestations present in sorghum in Muskogee County (east central). (Okla. Coop. Sur., July 3). Moderate to heavy infestations of several species present in rangeland in Cleveland (central), Pittsburg (east central) and Kiowa (southwest) Counties. A moderate infestation reported on peanuts in Bryan County, south central area. (Okla. Coop. Sur., July 11). NEW MEXICO - Grasshoppers light to moderately heavy in alfalfa in Valencia, Bernalillo and Sandoval Counties; averaged 8-20 per 25 sweeps in fields in Grants area and 10-30 per 25 sweeps in Sandoval County. (N.M. Coop. Rpt.). UTAH - Grasshoppers beginning to damage crops in several areas of Millard County. (Knowlton). NEVADA - Heavy infestations, predominantly Melanoplus cinereus with a few Poecilotettix longipennis, south of Silver Springs, Lyon County, have defoliated hairy horsebrush (Tetradymia comosa), littleleaf horsebrush (T. glabrata), Nevada dalea (Dalea polyadenia) and various weeds and grasses; grasshoppers now migrating to uninhabited areas where ornamental trees and shrubs and home gardens heavily infested and being heavily damaged. (Batchelder, Bechtel). CALIFORNIA - Aeoloplides tenuipennis populations medium on range grass and sage in Mettler area, Kern County. (Cal. Coop. Rpt.). WASHINGTON - Nymphal survey in some counties during week of June 22 revealed following populations: Whitman County - 3,000 acres rangeland (Steptoe Canyon) infested with M. sanguinipes; averaged 25 per square yard. Remainder of county reveals no economic count at this time. Adams, Lincoln, southern Okanogan, Grant and Franklin Counties - no economic infestations noted in any range or crop areas. A high count of 3-5 per square yard observed north of Coulee City; M. sanguinipes in fourth instar. No reports of "hoppers" received from county agents. (Parkinson, July 3).

CORN EARWORM (Heliothis zea) - GEORGIA - Light infestations in corn in Lowndes County. (French). MARYLAND - Only few moths taken in light traps at Centreville and Berlin on Eastern Shore. (U. Md., Ent. Dept.). NEW YORK - Pupation noted July 5 in Hudson Valley. Level of tassel infestation up to 1 percent in field of sweet corn at Hurley and another at New Paltz. Protection of ears will be necessary in last third of July and after. If July average temperature runs 75° F. or higher, expect a heavy earworm year. (N.Y. Wkly. Rpt.). OHIO - Early instars infesting sweet corn at all roadside markets visited in central section. Some markets reported 5 percent infestation. Populations expected to buildup and become more troublesome this year than in 1963. (Lyon). KANSAS - Untreated ears of corn 50-75 percent infested in southeast; larvae in third to fifth stages. (Peters). MISSOURI - Heavy flights of first-generation adults continue in southern part of State. (Harrendorf, Jones). Pupation occurred in central area. (Houser, Thomas, Wood). ARKANSAS - Small numbers present in 7 of 16 soybean fields checked in Lonoke County. (Little). LOUISIANA - Heavy on sweet corn over State and heavy on late-planted fields of corn in St. Tammany Parish. (Cancienne, July 6). OKLAHOMA - Moderate to heavy infestations reported on corn and sorghums in Osage and Garfield Counties, north central area, and in Mayes (northeast) and Choctaw (southeast) Counties. (Okla. Coop. Sur., July 3). TEXAS - Light to moderate infestations on corn and grain sorghum in Grayson County, with some pupation occurring. (Turney).



EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MARYLAND - Corn planted before May 15 generally moderate to heavily infested in all sections. Numbers generally above normal. Larvae feeding in tassels and stalks primarily. Adults now appearing in substantial numbers in blacklight trap at Centreville. (U. Md., Ent. Dept.). DELAWARE - Second adult flight of season starting as indicated by blacklight trap in Sussex County. (Burbutis, Crossan). NEW YORK - Pupation began July 2 in Hudson Valley. Latter part of first-larval generation on plantings of sweet corn now tasseling out is much more abundant than earlier part. Treatments may be advised if borers abundant. (N.Y. Wkly. Rpt., July 6). VERMONT - Controls for sweet corn protection urged. (MacCollom, July 6). OHIO - Egg laying rapidly declining and expected to be completed in next several days in Wayne County, northeast. (Barry). MICHIGAN - Young larvae, mostly second instars, and feeding injury evident over wide area of corn-growing section of State; 22 percent of plants found infested in 3 Monroe County corn fields July 7. A blacklight trap sampling of adults continues in most Lower Peninsula counties extending as far north as Antrim. (Newman, Snow, Houke, Sowerby, Rothney). INDIANA - Larval populations feeding in midribs and entering stalks of corn in northwest and west central sections; 20 percent of field corn infested (maximum of 40 percent) generally, with one larva per plant. (Bram, Saugstad). WISCONSIN - Few fifth instars noted in more advanced areas and fourth instars rather common. Percent infestation 32 in southern Sauk County, 24 in Columbia County, 20 in Green County, 16 in northern Iowa County, 8-15 in Dane County, 12 in Waushara County, 11 in Grant and Green Lake Counties, 8 in Rock and Juneau Counties, 4 in Marquette, Adams and Lafayette Counties and 0 in Fond du Lac and Dodge Counties. Fields ranged from 40 inches extended leaf to tasseling. (Wis. Ins. Sur.). MINNESOTA - Moth flight and egg laying continue in west central, central and southwest districts. No egg masses found in south central district. Limited checks in southeast district showed no egg masses. Borers per 100 plants 48 in south central district, 20 in southwest and 59 in southeast. Development 16 percent first, 53 percent second, 17 percent third and 14 percent fourth instar in south central district; 21 percent first, 53 percent second and 21 percent third instar in southwest; 45 percent first, 36 percent second, 14 percent third and 5 percent fourth instar in southeast district; and 100 percent first instar in west central district. Egg masses per 100 plants 0 in south central, 3 in southwest, 0 in southeast and 12 in west central district. (Minn. Ins. Rpt.). NORTH DAKOTA - Egg masses appeared in Fargo early part of week; 25 percent of plants had egg masses on foliage latter part of week. Catches in light traps low to July 10. (Frye). NEBRASKA - Infestations of first to fourth instars ranged 75-100 percent in some Dixon County fields. (Roselle). Infestation ranged 35-60 percent in Boyd, Keya Paha and Knox Counties. (Bergman). MISSOURI - Increasingly heavy flights of first-generation moths occurring in "bootheel" area of State during period June 27-July 10. (Harrendorf, Jones). LOUISIANA - Very light in north-east area. (Cancienne, July 6).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - LOUISIANA - Infestations heavy enough in northeastern corn to justify treatments. (Cancienne, July 6). ARKANSAS - Infestations heavier than in past several years. (Ark. Ins. Sur.). OKLAHOMA - Light infestations present in corn in Choctaw County, southeast. One report of a heavy infestation received from Sequoyah County, east central area. (Okla. Coop. Sur., July 3). MISSOURI - Light trap catches of spring-generation moths increasing in southeastern area. (Harrendorf, Jones).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - Light in St. John the Baptist Parish. Infestations rising with continuous hatching occurring. Sugarcane fields should be checked regularly and carefully. Some fields required 10-days treatment. (Cancienne, July 6).

STALK BORER (*Papaipema nebris*) - NEBRASKA - Infestations very common with noticeable damage showing up in east, northeast and north area. Field of castorbeans severely damaged in Knox County. (Bergman). SOUTH DAKOTA - Still destroying marginal rows of corn in eastern part of State. Several fields in Moody County had as high as 80 percent of outside rows infested with larvae. (Hintz). IOWA - Badly damaged knee-high corn locally in Clayton County. Also observed in Black

Hawk and Chickasaw Counties. (Iowa Ins. Inf., July 6). MAINE - Unidentified larvae, apparently this species, moderate and causing moderate damage to corn in Wells area in mid-June. (Boulanger, July 5).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - LOUISIANA - Heavily infested field of 2-week-old rice in St. Landry Parish; loss may run as high as 30 percent. Light on soybeans in southwest area. (Cancienne, July 6).

ARMYWORM (*Pseudaletia unipuncta*) - MICHIGAN - Heavy flight of adults continues with 346 moths taken at Jackson County blacklight trap for highest weekly report; no young larvae found in survey of lodged oats in Monroe County. (Snow, Irons, Newman). WISCONSIN - Greatest potential threat in parts of Rock County. Most larvae in second stage, but incidence of parasitism in older larvae indicated a natural control factor. Lodging scarce in northeast; highest counts 1 per square foot in standing grains in Outagamie and Oconto Counties. (Wis. Ins. Sur.).

FALL ARMYWORM (*Laphygma frugiperda*) - GEORGIA - Moderate to heavy infestations in corn in Lowndes County. (French). TENNESSEE - Infesting late corn as a budworm in eastern and central parts of State. Very early appearance in State; controls required in some fields. (Mullett, July 7). LOUISIANA - Few rice fields with infestations heavy enough to require treatment. (Cancienne, July 6).

ARMYWORMS - LOUISIANA - Increasing in pastures in Caddo Parish. (Cancienne, July 6).

BLACK CUTWORM (*Agrotis ipsilon*) - OREGON - Small numbers beginning to appear on sweet corn plantings in Marion and Polk Counties. (Ammon).

CEREAL LEAF BEETLE (*Oulema melanopa*) - MICHIGAN - Some "summer" adults entering quiescent state at base of corn leaves, grass clumps, etc., in Berrien County. High percentage of beetles in area expected to become relatively inactive after mid-July. Only one new township, in Saginaw Valley area, found infested during week. Final spray operations against "summer" adults in the Saginaw Valley to be completed in next few days. (Ring, Ruppel). INDIANA - In La Porte County, emergence of "summer" adults reached peak numbers on July 1 and 2; subsequently, numbers dropped very rapidly. However, adults continue to emerge and may be expected for 2-3 weeks. On July 9 population of 41 larvae per 100 sweeps found feeding on a roadside grassy area, and occasional larvae still being found in oat fields. Final aerial spray on an experimental block of 4 square miles to be applied July 10 to study suppressive measures against "summer" adults. (Wilson).

CORN ROOTWORMS (*Diabrotica* spp.) - NEBRASKA - Second to fourth instars causing minor damage to corn in east, northeast and north areas. Very few fields in these areas have heavy infestations with severe root damage. (Roselle, Bergman). SOUTH DAKOTA - Populations still increasing in all southeastern counties; larvae per stalk as high as 40 in Clay County, as high as 35 in treated Gregory County fields, as high as 40 in Hutchinson County, and as high as 35 in treated field in Moody County. Placement of chemical was wrong in latter instance. (Kantack, Nearman, Hintz). MINNESOTA - Larvae still difficult to find in southwest; only 3 larvae found in checks in Rock County. (Minn. Ins. Rpt.). IOWA - Applications of organophosphorus insecticides at planting time failed to prevent damage in number of northwest area corn fields. (Iowa Ins. Inf., Eldridge; July 6).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - SOUTH DAKOTA - First adult of season found in Union County on July 7. Additional adult collection reported from Hutchinson County. Pupae quite commonly collected as far north as Moody County. (Kantack, Nearman, Hintz). NEBRASKA - Adults found in Johnson County July 2 and were found past week in parts of northeast. (Roselle, Bergman). MISSOURI - Adults emerging in Nodaway and Atchison Counties, northwest; all stages present. (Houser, Thomas, Wood).

**NORTHERN CORN ROOTWORM (*Diabrotica longicornis*)** - OHIO - Untreated field corn plots planted in continuous corn infested at Hoytville, Wood County, northwest section; ranged 0-20 larvae per plant. Many plants had weak root systems. Two adults and many pupae found in 500 soil samples. (Polivka, Davidson). First report of season. (Lyon). MICHIGAN - Stages ranging from early instars to pupae present in Cass County research plots. Plant injury resulting from larval feeding evident in continuous corn fields in Cass and Branch Counties. (Wells, Dieter). IOWA - Development appears much more advanced in northern area than in Ringgold County. (Iowa Ins. Inf., July 6). WISCONSIN - First adult emergence noted at Spring Green, Sauk County, on July 7. Peak emergence expected in week or so. (Wis. Ins. Sur.).

**CORN FLEA BEETLE (*Chaetocnema pulicaria*)** - MARYLAND - Adults generally present and increasing in most corn fields over State. (U. Md., Ent. Dept.). ILLINOIS - Small numbers low on corn in western area corn. (Ill. Ins. Rpt.).

**CORN SILK BEETLE (*Luperodes brunneus*)** - ALABAMA - Feeding on corn silks locally in Choctaw County; affecting pollination. Few specimens taken at lights in Lee County. (Sexton, Balsbaugh).

**SAP BEETLES** - MARYLAND - Adults of *Carpophilus* spp. common and increasing in tassels of corn in eastern and southern sections. (U. Md., Ent. Dept.). ALABAMA - *C. dimidiatus* (corn sap beetle) adults feeding in injured and souring portions of ears of corn, especially sweet corn, in home gardens in Shelby County. (Jones). OHIO - Adults of *Glischochilus quadrisignatus* causing considerable damage to sweet corn near Batavia, Clermont County, southwest section. (Ruoff, Holdsworth). INDIANA - *Glischochilus* sp. adults increasing throughout State; causing considerable concern to homeowners and campers. (Matthew, Cleveland, Bram). ILLINOIS - *G. quadrisignatus* adults varied 0-12 per 100 plants in corn fields in central and eastern districts. (Ill. Ins. Rpt.).

**JAPANESE BEETLE (*Popillia japonica*)** - DELAWARE - Common on corn in area of New Castle County and present on same crop in areas of Sussex County. (Burbutis, Crossan). NEW YORK - Seen July 4 on corn; first of season in Highland, Ulster County. (N.Y. Wkly. Rpt.).

**WIREWORMS** - VERMONT - Damaged several stands of sweet corn. (MacCollom, July 6).

**CORN LEAF APHID (*Rhopalosiphum maidis*)** - NEW YORK - Noted on few tassels of sweet corn in Hudson Valley on July 4. (N.Y. Wkly Rpt.). WISCONSIN - Colonies commencing to appear on corn in southern counties. High populations noted on marginal rows of Sudan grass in Iowa County. (Wis. Ins. Sur.). OKLAHOMA - Light to moderate infestations present in sorghum checked in McClain (central) and Johnson (south central) Counties. (Okla. Coop. Sur.). TEXAS - Light, local populations present on grain sorghum in Grayson County; however, beneficial insects keeping infestation under control. (Texas Coop. Rpt.). COLORADO - Trace numbers observed on corn in Weld County. (Jenkins). UTAH - Very abundant on several hundred acres of barley in Nephi-Levan area of Juab County and some elsewhere. (Knowlton, Esplin). ARIZONA - Building up on Johnson grass that has not been controlled in cultivated fields in Graham County. (Ariz. Coop. Sur.). NEVADA - Populations of this species and *Macrosiphum avenae* (English grain aphid) about equal and varied 0-75 per sweep in grain fields in Churchill, Lyon and Pershing Counties. (Cooney).

**APHIDS** - NORTH DAKOTA - Trace numbers of *Macrosiphum avenae* (English grain aphid) and *Schizaphis graminum* (greenbug) seen in small grains in southwest. A trace of *Rhopalosiphum maidis* (corn leaf aphid) taken from barley near Breien, Morton County. (Frye). CALIFORNIA - *Rhopalosiphum fitchii-padi* complex heavy on sweet corn in Torrance, Los Angeles County. (Cal. Coop. Rpt.).

**CHINCH BUG (*Blissus leucopterus*)** - OHIO - Appearing on sweet and field corn in northwest section. (Blair). Infesting field corn at Wapkoneta, Auglaize County, west central section. (Brown). Infestations observed in sweet and field corn near Ottawa, Putnam County, northwest section. (Gerber). INDIANA - Scattered

populations damaging 36-40 inch corn in Newton County, northwest. Damage mostly confined to first 30 rows adjacent to small grain fields. (Gould). ILLINOIS - Practically all migrated from wheat in central and east districts and populations ranged zero to hundreds per corn plant in a few marginal rows bordering wheat. Luxuriant growth of foxtail grass along border of marginal corn being fed upon and saving corn in some fields. (Ill. Ins. Rpt.). OKLAHOMA - Moderate to heavy infestations reported on sorghum in Bryan (south central) and Grady (central) Counties. (Okla. Coop. Sur., July 3).

FALSE CHINCH BUGS (Nysius spp.) - TEXAS - Numerous reports of infestations by undetermined species on grain sorghum and other crops continue to be received from wide area of State, particularly west central, central and south central sections. (Texas Coop. Rpt.). CALIFORNIA - Heavy nymphal infestation of N. raphanus in barley locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Populations remain high in 2 districts. Average per 100 sweeps 247 in south central and 436 in southwest. Aster yellows in flax generally very low. Checks from southwest to Canadian border show it averages less than 1 percent, with an occasional field 2 percent infected, but this is rare. (Minn. Ins. Rpt.). NEBRASKA - Adults averaged 3 per 10 sweeps in alfalfa in Boyd County. (Bergman). NORTH DAKOTA - Only trace numbers seen on small grains and flax in southwest. (Frye).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Adults 2.6 and nymphs 0 per 100 sweeps in 16 Rice fields checked in Lonoke County. (Little).

STINK BUGS - LOUISIANA - Activity increasing in rice; fields should be watched closely. (Cancienne, July 6).

A DELPHACID PLANTHOPPER (Sogata furcifera) - FLORIDA - Taken on rice at 2 locations at Belle Glade (Kramer Island), Palm Beach County. (Robnett).

HESSIAN FLY (Phytophaga destructor) - MICHIGAN - Up to 40 percent of crop loss resulted from larval feeding in some St. Joseph County wheat fields. (Rothney).

SORGHUM MIDGE (Contarinia sorghicola) - ARKANSAS - Adults have been active past 2 weeks. (Ark. Ins. Sur.).

WHEAT STEM MAGGOT (Meromyza americana) - NORTH DAKOTA - One to 5 percent of wheat heads showed damage in southeast and southwest. (Frye).

SAWFLIES (Cephus spp.) - OHIO - Infestations reported in wheat from Sandusky, Seneca, Wood and Champaign Counties. Wheat stem boring and breakage common. Larvae collected from stems. (Holdsworth, Blair).

A CHALCID - MISSOURI - Larvae of undetermined species destroying brome seed in northwestern and west central areas. Adults began emerging in central area about mid-June. Infestations vary from light to heavy in individual fields in central area and generally light in northwest. (Houser, Thomas, Wood).

GARDEN SYMPHYLAN (Scutigera immaculata) - IOWA - Light (?) populations in corn fields across Van Buren, Wapello, Jefferson, Henry, Scott, Cedar, Clinton and Jones Counties; Van Buren, Wapello and Jefferson Counties new records. (Iowa Ins. Inf., Diehl; July 6).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Caused moderate damage to several fields of wheat and barley in Levan-Nephi area of Juab County. (Knowlton, Esplin).

MITES - COLORADO - Populations appear to be higher on late plantings of corn in Weld County. Moisture, temperature and fertilizing have considerable influence on populations. (Urano, Hantsbarger, Jenkins).

A CHINCH BUG (Blissus leucopterus ssp.) - LOUISIANA - Damage to lawns increasing in southern area; light in Caddo Parish. (Cancienne, July 6). NEW YORK - Found in several areas of Westchester County on lawns. (N.Y. Wkly. Rpt., July 6). CONNECTICUT - Feeding on lawns in many parts of State. (Savos).

SAGEBRUSH DEFOLIATOR (Aroga websteri) - UTAH - Only light to moderate numbers on Artemisia tridentata in Collinston-Brigham area of foothills, Box Elder County. (Knowlton).

SOD WEBWORMS (Crambus spp.) - CALIFORNIA - C. bonifatellus occurring in heavy populations in lawns in Cotati, Sonoma County. (Cal. Coop. Rpt.). OREGON - Populations of C. sperryellii high on alfalfa fields in Marion and Clackamas Counties. (Prescott).

A PSYCHID MOTH (Apterona crenulella) - UTAH - Larvae damaging range plants in Green Canyon, Cache County. (Knowlton).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Remains light on most alfalfa in New Castle County; about 1 per sweep. (Burbutis, Crossan). MARYLAND - Generally light, 0-25 per sweep, on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Adults and nymphs generally 1-5 per sweep on alfalfa in northwest and west central areas. However, in 2 uncut fields in La Porte County, populations averaged 200 per sweep. (Bram, Saugstad). ILLINOIS - Varied 4-120 per sweep in alfalfa in central and western areas. (Ill. Ins. Rpt.). WISCONSIN - Populations generally very low although one field examined in Juneau County had as high as 50 per sweep; 3-5 per sweep usual number. (Wis. Ins. Sur.). MINNESOTA - Remains high on alfalfa. Average per sweep 33 in southwest, 58 in south central, 20 in west central, 11 in northwest and 38 in southeast district. (Minn. Ins. Rpt.). NEBRASKA - Very low populations on alfalfa surveyed in northern area. (Bergman). WYOMING - Increasing slowly in Converse and Platte County alfalfa; adults and nymphs averaged 1,800 per 100 sweeps. (Marks). COLORADO - Increased to moderate to heavy numbers on alfalfa in Weld and Larimer Counties; 2,000-10,000 per 100 sweeps. Trace numbers of parasites and predators present. (Urano, Hantsbarger, Jenkins, Collette). Populations high in most Mesa County alfalfa fields; ranged as high as 8,000 per 10 sweeps. Lady beetles 10-30 per 100 sweeps. Counts in Austin and Delta areas of Delta County indicate lower aphid numbers; 1,000 per 100 sweeps with lady beetle larvae 80-100 per 100 sweeps. (Bulla). NEW MEXICO - Light infestations continue to be found in Bernalillo, Sandoval and Valencia County alfalfa, with occasional heavy, spotted infestations. (N.M. Coop. Rpt.). UTAH - Causing moderate damage to second-crop alfalfa in Meadow-Kanosh area of Millard County; 50-100 per sweep in some fields at Kanosh. (Knowlton). NEVADA - Medium to heavy infestations on seed alfalfa in Orovada, Humboldt County. (Lauderdale). Varied 20-400 per sweep in Lovelock area, Pershing County; 5-25 per sweep in Fallon-Stillwater area, Churchill County; 100-1,000 per sweep in Mason Valley and 100-200 per sweep in Smith Valley, Lyon County, alfalfa hay fields. (Cooney). OREGON - Populations very low in Milton-Freewater area seed alfalfa fields, Umatilla County; averaged 30-70 per 100 sweeps. (Halfhill, July 4). WASHINGTON - Less than 6 per sweep, mostly 3 per 10 sweeps, in alfalfa grown for seed in Walla Walla area of Walla Walla County. Recent rains may have reduced infestations to low level. (Halfhill, July 3). All stages observed (5 percent alates) on alfalfa grown for seed in Yakima and vicinity, Yakima County. Alfalfa now 10-12 inches high. Counts 15-150 per sweep, mostly 50 per sweep. Light damage noted where infestation highest. (Featherstone, July 3).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Populations increasing rapidly and infestations noted in alfalfa in central portion of State. Populations as high as 4 per 10 sweeps in Columbia, Waushara and Adams Counties. Counts per sweep in southern area averaged 8 in Spring Green, Sauk County, and Hazel Green, Grant County; 2 in Mazomanie, Dane County; and 40 and 45 per sweep at Brodhead, Green County. Degree of parasitism appeared to be about 10 percent. Predators scarce. Leaf drop prevalent in more heavily infested fields. (Wis. Ins. Sur.). NEBRASKA - Ranged 0-15 (averaged 7) per 10 sweeps in Boyd, Holt,

Keya Paha and Knox Counties. (Bergman). ARKANSAS - Surveys in Searcy County, north central, negative. (Ark. Ins. Sur.). OKLAHOMA - Light to moderate infestations, 6-12 per 10 sweeps, reported from Choctaw County, southeast. (Okla. Coop. Sur., July 3). Counts low, 5-90 per 10 sweeps, in alfalfa checked in Garvin and Murray Counties, south central. A heavy infestation, 900 per 10 sweeps, reported from Tillman County, southwest, with some honeydew present on leaves. Heavy, 450-500 per 10 sweeps, on alfalfa in Payne County, north central area; honeydew present on leaves. (Okla. Coop. Sur., July 11). COLORADO - Counts 10-30 per 100 sweeps on alfalfa in Otero County. (Schweissing, Jenkins).

POTATO LEAHOPPER (*Empoasca fabae*) - DELAWARE - Present to fairly common on alfalfa and soybeans in most areas. (Burbutis, Crossan). MARYLAND - Nymphs causing considerable yellowing of alfalfa in central and eastern sections. Counts of over 20 per sweep common in infested fields. Generally present on soybeans in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). INDIANA - Adults and nymphs increasing on alfalfa in northwest and west central sections; ranged up to 10 (averaged 2) per sweep. (Bram, Saugstad). ILLINOIS - Adults varied 10-30 per 100 sweeps in soybeans in west, 150-370 in central and 10-60 in west-southwest district. Nymphs varied from none in west district to 0-10 in west-southwest and 10-30 in central district. In alfalfa in same districts, adults varied 3-18 per sweep and nymphs from 0.4 to 29 per sweep. About 25 percent of alfalfa fields showed some degree of yellowing varying from very light to severe. (Ill. Ins. Rpt.). WISCONSIN - Treatment underway on alfalfa in Sauk and Waukesha Counties; counts ranged as high as 40 per sweep in alfalfa in Rock and Green Counties. High numbers on alfalfa in Juneau and Jackson Counties. (Wis. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Increasing rapidly in alfalfa fields in Graham, Pinal and Maricopa Counties; no increase noted in Yuma County fields. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MARYLAND - Adults numerous, up to 10-15 per sweep, in several alfalfa fields in Frederick County. (U. Md., Ent. Dept.). INDIANA - Adults averaged 5 per 10 sweeps on alfalfa in northwest and west central districts. (Bram, Saugstad).

CLOVER LEAFHOPPER (*Aceratagallia sanguinolenta*) - DELAWARE - Common on alfalfa in New Castle and Sussex Counties and present on soybeans in most areas of State. (Burbutis, Crossan).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults averaged 78 and nymphs 164 per 100 sweeps in Converse and Platte County alfalfa. (Marks). UTAH - Adults and nymphs moderately numerous in some untreated alfalfa seed fields in Millard County. (Knowlton). ARIZONA - Increasing in alfalfa throughout State, particularly in fields not cut. Averages per 100 sweeps 40 in Yuma County, 47 in Maricopa County and 200 in Graham County on uncut alfalfa. (Ariz. Coop. Sur.). NEVADA - Light populations in alfalfa seed fields in Orovada, Humboldt County. (Lauderdale). Varied 10-20 per sweep in Lovelock area, Pershing County; 5-25 per sweep in Fallon-Stillwater area, Churchill County; and 2-15 per sweep in Smith and Mason Valleys, Lyon County, alfalfa hay fields. (Cooney).

TARNISHED PLANT BUG (*Lygus lineolaris*) - DELAWARE - Adults and nymphs averaged 5-7 per 10 sweeps on alfalfa throughout State; also present on soybeans in most areas. Fairly common on clover in New Castle County. (Burbutis, Crossan). MARYLAND - Adults generally present, about 1 per sweep, on alfalfa and clover in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). ILLINOIS - Adults 40-120 and nymphs 20-100 per 100 sweeps in alfalfa in west and central districts. (Ill. Ins. Rpt.). OKLAHOMA - Heavy, 30-100 per 10 sweeps, on alfalfa in Choctaw County, southeast. (Okla. Coop. Sur., July 3). Only light infestations, 3-14 per 10 sweeps, present in Garvin and Murray Counties, south central area, and in Tillman County, southwest. A moderate infestation reported in alfalfa in Choctaw County, southeast. (Okla. Coop. Sur., July 11).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - ILLINOIS - Adults varied 0-20 and nymphs 120-700 per 100 sweeps in alfalfa in central and west districts. (Ill. Ins. Rpt.).

RAPID PLANT BUG (*Adelphocoris rapidus*) - DELAWARE - Nymphs rather numerous on clover in area of New Castle County. (Burbutis, Crossan). ILLINOIS - Adults varied 20-40 and nymphs 10-700 per 100 sweeps in alfalfa in west and central districts. (Ill. Ins. Rpt.).

SAY STINK BUG (*Chlorochroa sayi*) - UTAH - More common than during preceding 2 years in east Millard County alfalfa. (Knowlton).

ALFALFA WEEVIL (*Hypera postica*) - VERMONT - Still prevalent in fields of Bennington and Windham Counties; all instars and adults present. Pupating larvae easily found. (MacCollom, July 6). MARYLAND - Light to moderate numbers of adults and larvae on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). VIRGINIA - Very light infestations in Augusta and Rockbridge Counties. No larvae found in Appomattox and Campbell Counties but few adults collected. (Woodside, July 3). OHIO - Many alfalfa fields surveyed in Portage County, northwest. Only 3 or 4 fields found infested with very light larval populations. (Blue). NEW MEXICO - Adults averaged 3-5 per 25 sweeps in Sandoval County alfalfa. (N.M. Coop. Rpt.). UTAH - Lightest in number of years in Beaver County. (Esplin, Knowlton). WYOMING - Populations small in Converse and Platte County alfalfa; adults averaged 0.5 and larvae 12 per 100 sweeps. (Marks). OREGON - Larvae ranged 0-165 (averaged 10 in most fields) per sweep in alfalfa fields of Klamath Basin, Poe Valley to Langell Valley of Klamath County. WASHINGTON - All larval stages and adults numerous on alfalfa in Pullman area of Whitman County, but damage light so far. (Telford, July 3).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - DELAWARE - Present on soybeans in New Castle and Sussex Counties and on alfalfa in Sussex County. (Burbutis, Crossan).

A SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) - NEW MEXICO - Populations light in alfalfa statewide; apparently causing little damage to alfalfa. (N.M. Coop. Rpt.).

SPOTTED BLISTER BEETLE (*Epicauta maculata*) - UTAH - More numerous than in recent years in east Millard County alfalfa seed fields. (Knowlton).

A STRIPED BLISTER BEETLE (*Epicauta* sp.) - OKLAHOMA - Large numbers present in field of alfalfa in Payne County, north central area; eating only blooms and have not damaged rest of plant. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - NEW MEXICO - Larvae 2-5 per 25 sweeps in alfalfa in Grants area of Valencia County and 5-10 per 25 sweeps in Sandoval County. Damage evident in most fields. (N.M. Coop. Rpt.). UTAH - Moderately numerous in some alfalfa in Fillmore-Kanosh area of Millard County. (Knowlton). ARIZONA - Adult flights in or near alfalfa beginning to increase. Small larval infestations appearing in areas of Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - DELAWARE - Larvae present on soybeans and corn in some areas of Sussex County. (Burbutis, Crossan). MISSOURI - Two early stage larvae per 100 sweeps found in field of alfalfa in Greene County, southwest. (Houser, Thomas, Wood). UTAH - Damaged 5 acres of alfalfa at Flowell, Millard County. Few larvae present in other areas. (Knowlton).

ALFALFA LOOPER (*Autographa californica*) - UTAH - Present but very light in east Millard County alfalfa. (Knowlton).

FORAGE LOOPER (*Caenurgina erechtea*) - KANSAS - Counts in alfalfa in southeast and east central areas ranged 0-40 larvae per 100 sweeps. (Peters).

SALT-MARSH CATERPILLAR (*Estigmene acrea*) - CALIFORNIA - Medium on alfalfa in Monterey County, near Cholame. (Cal. Coop. Rpt.).

WEBWORMS (*Loxostege* spp.) - KANSAS - Larvae 0-30 per 100 sweeps in east central and southeast area alfalfa. (Peters). MISSOURI - Larvae of *L. similalis* (garden webworm), one-half to full grown, infesting marginal rows of soybeans in Barton County, southwest, and causing light to moderate damage. Light infestations found in alfalfa in southwest. Adults averaged 4 per square yard in field of alfalfa in Henry County, west central. (Houser, Thomas, Wood).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Adults generally present on soybeans in Queen Annes, Talbot and Worcester Counties. Heavy numbers of eggs noted in one field of soybeans near Stockton, Worcester County. (U. Md., Ent. Dept.).

COLASPIS BEETLES (*Colaspis* spp.) - ILLINOIS - Adults varied 0-20 (averaged 13) per 100 sweeps on soybeans in west district, 0-10 (averaged 3) in central district and 0-30 (averaged 14) in west-southwest district. (Ill. Ins. Rpt.). MISSOURI - Adults averaged 3-6 per 10 sweeps on alfalfa in Wright (south central) and Lawrence (southwest) Counties. Light on soybeans in Newton and Jasper Counties, southwest. (Houser, Thomas, Wood).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - DELAWARE - Present, but considerably reduced from 1963, on soybeans in western Sussex County. (Burbutis, Crossan). MARYLAND - Adults light on soybeans in Worcester County. (U. Md., Ent. Dept.).

BANDED-CUCUMBER BEETLE (*Diabrotica balteata*) - LOUISIANA - Averaged 150 per 100 sweeps on soybeans. (Cancienne, July 6).

A JAPANESE WEEVIL (*Calomycterus setarius*) - WISCONSIN - Increase in activity noted; responsible for defoliation of 50 percent of field of young soybeans in Juneau County. Field adjacent to soil bank field; larvae ranged up to 9 per leaf on soybeans before treatment. (Wis. Ins. Sur.).

GREEN CLOVERWORM (*Plathypena scabra*) - DELAWARE - All instars present to common on soybeans and alfalfa in Sussex County and alfalfa and clover in New Castle County. (Burbutis, Crossan). MARYLAND - First larvae of season taken on soybeans in Worcester County; general on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). ILLINOIS - Larvae light, 0-10 per 100 sweeps, on soybeans in west, central and west-southwest districts. (Ill. Ins. Rpt.).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - ARKANSAS - Specimens collected on soybeans in Ashley County, southeast. Det. by G. C. Dowell. (Ark. Ins. Sur.).

BEET ARMYWORM (*Spodoptera exigua*) - GEORGIA - Light infestation on cowpeas in Tift County. (French).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Counts of 8-16 per 100 terminals present in peanuts in Carter and Johnson Counties, south central area. One field in McClain County (central) had 36 per 100 terminals. (Okla. Coop. Sur.).

THRIPS (undetermined) - DELAWARE - Common to numerous on soybeans in most areas of State, but generally reduced over previous weeks. (Burbutis, Crossan). MARYLAND - Continue a problem on young soybeans and corn in all areas. Heavy on second-growth alfalfa in Queen Annes County. (U. Md., Ent. Dept.). SOUTH DAKOTA - Destroying blossoms on sweetclover and alfalfa in Gregory County and generally reported from throughout State on various crops. (Hintz). OKLAHOMA - Reported heavy on alfalfa in Kiowa County, southwest. (Okla. Coop. Sur.).



SPIDER MITES (Tetranychus spp.) - MARYLAND - No economic infestation on soybeans as yet, but conditions right for buildups. (U. Md., Ent. Dept.). ILLINOIS - Damaging fields of soybeans that border clover fields. (Ill. Ins. Sur. Bull.). ARIZONA - Light to moderate infestations occurring on alfalfa in areas of Yuma, Maricopa and Graham Counties. (Ariz. Coop. Sur.).

#### FRUIT INSECTS

APPLE MAGGOT (Rhagoletis pomonella) - MINNESOTA - Emerging in numbers; immediate controls urged. (Minn. Ins. Rpt.). WISCONSIN - One adult caught in ammonia bait traps July 5 in each of 2 locations in Madison, Dane County. (Wis. Ins. Sur.). MICHIGAN - Adults continue in sizable numbers on sticky board traps in fruit areas; largest collection (166 flies) from 2 special bait traps in unsprayed orchard in Oakland County. (Rapp, Green, Siefert). OHIO - Caused heavy damage to early maturing apples in Hancock County, northwest. Trees in small commercial orchard. (Kroetz, Banta). NEW YORK - Emergence at Highland, Ulster County, reached peak June 25. Decreased steadily since, but several hundred flies per day appearing in cages. Males outnumbered females since June 28. In other years, when peak occurred this early, there has been secondary peak near usual time (mid-July). This may still occur. Emergence continues at very low level in western area. Emergence picked up again on July 2 in Monroe County; now very heavy. (N.Y. Wkly. Rpt., July 6). CONNECTICUT - Emergence continues at low level; peak expected July 22-29 if past pattern occurs. Trees still need maximum protection, particularly early ripening varieties. (Savos, July 8). VERMONT - No emergence from seeded cages at Burlington. (MacCollom, July 7). MAINE - Emergence began in Monmouth, Kennebec County, from wealthy apple seeded cages; first emergence from McIntosh seeded cages on June 30. (Boulanger, July 4).

CECIDOMYIID MIDGES - MAINE - Dasyneura mali moderate to heavy in Turner area, Androscoggin County, in late June. Contarinia vaccinii infestations and injury noted in Jonesboro, Washington County, July 2. Maggots about two-thirds grown then, indicating hatch about June 20-25. (Boulanger, July 4).

APPLE APHID (Aphis pomi) - WISCONSIN - Numerous in Door County; treatment necessary in most orchards in area. (Wis. Ins. Sur.). OHIO - Large numbers noted in 2 orchards in Wayne and Columbiana Counties, northeast. (Forsythe). NEW YORK - Appearing on Greening apples and an unspecified species appearing on prunes in Orleans County. (N.Y. Wkly. Rpt., July 6). CONNECTICUT - Low populations in most of State; some growers used controls but most infestations limited to sucker growth. (Savos, July 8). MAINE - Winged migrants with several young noted on Red Delicious apples in Monmouth, Kennebec County, June 1; numbers generally low throughout State during early and mid-June. Moderate at Wilton, Franklin County, and heavy on young trees at Alfred, York County, in mid-June. Very heavy on young Red Delicious in Monmouth in late June. Reports from other areas indicate extremely heavy buildup in all sections. (Boulanger, July 4).

APHIDS - MAINE - Eriosoma lanigerum (woolly apple aphid) light at Turner, Androscoggin County. Anuraphis rosea (rosy apple aphid) appears heavier than usual; substantial infestations reported in Wilton, Franklin County; Alfred, York County; and Monmouth, Kennebec County. (Boulanger, July 4). FLORIDA - Aphis spiraeicola (spirea aphid) moderate to severe on leaves of apple at Holly Hill, Volusia County. (Holley, Pott; June 25). UTAH - E. lanigerum severe in small orchard in Blanding, San Juan County. (Knowlton, Argyle).

APPLE MEALYBUG (Phenacoccus aceris) - MAINE - Heavy in South Bridgton, Cumberland County, in mid-June and in Wilton, Franklin County, in late June. (Boulanger, July 4).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MAINE - Crawlers moving on May 22 in Turner, Androscoggin County, and May 29 in Sidney, Kennebec County. (Boulanger).

CODLING MOTH (*Carpocapsa pomonella*) - MAINE - Appears light in most areas; no eggs nor larvae reported. (Boulanger, July 4). VERMONT - Activity prevalent in areas with overwintering populations. (MacCollom, July 6). CONNECTICUT - Larvae moderate in abandoned orchard in Storrs; none reported in commercial orchards. (Savos, July 8). NEW YORK - Flight continues at low level in eastern area. Emergence greatly reduced in Monroe County since July 1. (N.Y. Wkly. Rpt., July 6). OHIO - Adult of first summer generation emerged July 6 in Wooster area, northeast; fully grown larvae leaving apples in large numbers. (Forsythe). MISSOURI - Very little activity reported in southeast; remainder of State reports no activity. Protection still needed, however. (Wkly. Rpt. Fr. Grs., July 8).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - WISCONSIN - First moths of second brood began appearing in Door County July 3. (Wis. Ins. Sur.). NEW YORK - Emergence expected by July 8 in western area. Second brood started emergence July 3 in Monroe County. (N.Y. Wkly. Rpt., July 6). MAINE - First instars light in Upper Gloucester and Standish, Cumberland County, in early June. First to third instars moderate in Cumberland, Cumberland County, in late June. Damage light to date. (Boulanger, July 4).

FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) - NEW YORK - Number of adults in bait traps decreasing in eastern area. (N.Y. Wkly. Rpt., July 6).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - SOUTH CAROLINA - Concern being felt; caused most serious damage since 1929. (Nettles et al., July 7). CONNECTICUT - Injury to peach terminals appearing in New Haven. (Savos, July 8). MISSOURI - Fresh entries in peach terminals reported in nearly all areas of State; none in ripening peaches to date. (Wkly. Rpt. Fr. Grs., July 8).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - MAINE - Infestation levels light in southwestern area; damage negligible to light in mid-May. No reports of summer generation. (Boulanger, July 4).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - MAINE - Infestations and damage light on apple and cherry in Washington County in area between Jonesboro and Cherryfield. (Boulanger, July 4).

EUROPEAN RED MITE (*Panonychus ulmi*) - MISSOURI - Infested peaches in southeast area but nearby apples not infested. (Wkly. Rpt. Fr. Grs., July 8). OHIO - Very heavy infestation on apple leaves at Wellston, Jackson County, south central. (Mar Hoover, Holdsworth). Building up on many apple trees in Wayne County, northeast. Number of orchardists throughout State treating for summer buildups. (Forsythe). INDIANA - Increasing on apples in Knox County, southwest; averaged between 10 and 15 per leaf with maximum counts as high as 100 per leaf. (Cleveland). MAINE - Hatch began May 8-10 in central areas of State; later in more northerly areas. Adults and eggs reported from several areas by May 27-29. Well into second generation by mid-June; females of this generation present in some early locations by late June. (Boulanger, July 4). VERMONT - Severe in many locations, especially on Red Delicious apples. (MacCollom, July 6). NEW YORK - Heat-development units totaled 1,461 on June 28; maximum population level should be July 9 in eastern area. Eggs appearing in Orleans County. (N.Y. Wkly. Rpt., July 6). VIRGINIA - Building up in apple orchards in Blacksburg area, Montgomery County. (Teske). ALABAMA - Rather heavy on Red Delicious apples in Cullman County; averaged 12 per leaf. (McQueen).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - VIRGINIA - This species and *T. schoenei* (Schoene spider mite) building up in apple orchards in Blacksburg area, Montgomery County. (Teske). CONNECTICUT - Low abundance throughout State except in New Haven where rapid increase occurring. Careful checking of all blocks urged. (Savos, July 8). MAINE - Reported in numerous locations; situation much as in 1963. Mites well up in trees at this early date. (Boulanger, July 4). OHIO - Motile mites averaged 1.4 per leaf in block of apples in Wooster, northeast section. (Forsythe). INDIANA - Ranged 0-50 per leaf on apples in Knox County,

southwest. (Cleveland). MISSOURI - Appearing in nearly all areas of State; vary from orchard to orchard and from one section of State to another. Some bronzing occurred in central area orchard. In most areas, this species poses threat during drier weather. (Wkly. Rpt. Fr. Grs., July 8).

ORCHARD MITES - ALABAMA - Undetermined species becoming serious and damaging apples in Tallapoosa County. (Canerday, Webb).

PEAR LEAF BLISTER MITE (*Eriophyes pyri*) - UTAH - Very heavy on apple foliage in small orchard at Blanding, San Juan County. (Knowlton, Argyle). Damaged pear and apple foliage in some home orchards at Nephi and Levan, Juab County. (Knowlton). MAINE - Heavy infestation and damage observed in Greene, Androscoggin County, May 15. An unidentified blister mite, probably this species, heavy and causing moderate damage on Golden Delicious apples in Wilton, Franklin County, May 19. (Boulanger, July 4).

APPLE RUST MITE (*Aculus schlechtendali*) - COLORADO - Heavy in apple orchard in Mesa County; 50-60 per leaf. Controls applied. (Bulla).

PLUM CURCULIO (*Conotrachelus nenuphar*) - MAINE - Active in Sanford and Alfred, York County, May 28-29; infestation and damage light. Moderate to heavy damage reported locally where controls poor or not applied. (Boulanger, July 4). OKLAHOMA - Heavy in plums in Cotton County. (Okla. Coop. Sur., July 3).

PLUM GOUGER (*Anthonomus scutellaris*) - OKLAHOMA - Caused extensive damage to plums in south central area. (Okla. Coop. Sur., July 3).

GREEN JUNE BEETLE (*Cotinis nitida*) - MISSOURI - Adults damaging early ripening peaches in Jasper County, southwest. Swarming heavily around farm home in Stone County on July 4. (Houser, Thomas, Wood).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MAINE - Adults active in Monmouth, Kennebec County, May 7; numerous in most areas by May 13. Light to moderate in southwestern area by mid-May. (Boulanger, July 4).

STINK BUGS - UTAH - Fairly common in orchards at Orem, Utah County; injury more common than usual on fruits this season. (Davis).

A PYRRHOCORID BUG (*Largus cinctus californicus*) - CALIFORNIA - Medium on nectarine fruit in West Sacramento, Yolo County. (Cal. Coop. Rpt.).

PERIODICAL CICADAS (*Magicicada* spp.) - MISSOURI - Brood now appears to be over; last ones seen and heard in Kansas City area about July 3. Considerable injury to terminals and twigs reported in area. (Wkly. Rpt. Fr. Grs., July 8).

PEAR-SLUG (*Caliroa cerasi*) - UTAH - Damaging home cherry orchard at Brigham City, Box Elder County. (Knowlton).

A FILBERT APHID (*Myzocallis coryli*) - WASHINGTON - Heavy infestation on unsprayed filbert orchard probably this species in Clark County. (Shanks, July 3).

A WALNUT APHID (*Monellia caryae*) - CALIFORNIA - Medium on English walnuts in Chico, Butte County. (Cal. Coop. Rpt.).

PECAN NUT CASEBEARER (*Acrobasis caryae*) - ALABAMA - Second-generation larvae light on young pecans in Monroe County. (McQueen). OKLAHOMA - Counts of 10-14 damaged nuts per 100 clusters noted in 2 native pecan groves in Johnson County. (Okla. Coop. Sur.).

FALL WEBWORM (*Hyphantria cunea*) - ALABAMA - Numerous webs noted on pecans in Monroe County; very few webs observed north of Montgomery, Montgomery County. Heavy in Mobile County. (Seibels et al.).

PECAN LEAFROLL MITE (*Aceria caryae*) - OKLAHOMA - Causing extensive leaf curling on isolated pecan trees in Stillwater area, Payne County. (Okla. Coop. Sur., July 3).

GRAPE ROOT BORER (*Vitacea polistiformis*) - MISSOURI - Noted in some vineyards near Steelville, Crawford County; vines beginning to show typical wilting and dying signs. (Wkly. Rpt. Fr. Grs., July 8).

A SCARAB (*Pelidnota punctata*) - ALABAMA - Few specimens appearing at lights; some feeding on grape foliage in Lee County. (Barwood et al.).

BLUEBERRY MAGGOT (*Rhagoletis mendax*)\* - NEW JERSEY - Adults now at peak activity and will remain heavy for about 3 weeks. Trap catches first week of July totaled 392 adults in 1963 compared with 497 in same untreated fields in 1964 for same period. Maggot infestations showing up from early flight. Wild blueberry samples contained 63 maggots per pint but cultivated fields under control continue negative. (Ins.-Dis. Newsltr.). CONNECTICUT - Problem in Stratford, Tolland County. (Savos, July 11). MAINE - First adults emerged June 23 in cages at Blueberry Hill Farm, Jonesboro, Washington County. (Boulanger, July 4).

BLUEBERRY THRIPS (*Frankliniella vaccinii*) - MAINE - Moderate infestations and injury at Jonesboro and Jonesport, Washington County; light to moderate infestations caused light injury in Franklin area, Hancock County. Observations in mid-June. (Boulanger).

FOREST TENT CATERPILLAR (*Malacosoma disstria*) - MAINE - Light infestation and injury on highbush blueberry in Jonesboro, Washington County. (Boulanger, July 4).

LEAFHOPPERS - NEW JERSEY - A blunt-nosed species which transmits false blossom disease to cranberries nearing winged stage; controls recommended. (Ins.-Dis. Newsltr.). TEXAS - Unspecified species moderate and causing leaf damage to grapes in localized areas of Montague County. (Turney).

A LEAF ROLLER MOTH (*Sparganothis* sp.) - NEW JERSEY - Flight now near peak; controls in cranberry-growing areas urged. (Ins.-Dis. Newsltr.).

BLACK-HEADED FIREWORM (*Rhopobota naevana*) - NEW JERSEY - Second generation active in some early drawn cranberry bogs. (Ins.-Dis. Newsltr.).

RED-BANDED THRIPS (*Selenothrips rubrocinctus*) - FLORIDA - Severe on at least 2 mango trees at Port St. Lucie, St. Lucie County. (Prange, June 23).

CITRUS THRIPS (*Scirtothrips citri*) - ARIZONA - Continues to persist on new growth of citrus in Yuma County and in areas of Maricopa County. (Ariz. Coop. Sur.).

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - CALIFORNIA - Medium on lemon tree in Santa Cruz, Santa Cruz County. This is new county record. (Cal. Coop. Rpt.).

A PINK CITRUS RUST MITE (*Aculus pelekassi*) - FLORIDA - Moderate on rough lemon and sweet orange at Arcadia, De Soto County. (Lamb, June 25). This is first ARS record for county. (PPC).

CITRUS RUST MITE (*Phylloprutia oleivora*) - ARIZONA - Infestation found in lemon grove in Yuma County. (Ariz. Coop. Sur.).

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\* "Recent evidence indicates that the form of *R. pomonella* infesting blueberries and huckleberries should be referred to *R. mendax* Curran." R. H. Foote. See also L. D. Christenson and R. H. Foote, *Biology of fruit flies*. Ann. Rev. Ent. 5:183(1960).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Continues a problem on citrus in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

#### TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - COLORADO - Adults and larvae noted in experimental potato plots in Weld County. (Simpson). NORTH DAKOTA - Caused heavy damage to potatoes near Elgin; averaged 10 larvae per hill. Apparently local infestation. (Frye, Gage). MICHIGAN - Larval feeding heavy in Clinton County research plots and in unsprayed Midland County fields. (Grafius, Dieter). MARYLAND - Numerous egg masses noted in 5-acre tomato field at Public Landing, Worcester County. (U. Md., Ent. Dept.). DELAWARE - Few adults present on potatoes in several areas of State. (Burbutis, Crossan). VERMONT - Easily found on many tomato and potato plantings. (MacCollom, July 6). MAINE - Single adult taken on potato foliage June 25 at Monmouth, Kennebec County; appreciable number of adults reported in southern areas of State in late June. (Boulanger, July 4).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Present on tomatoes and potatoes in most areas of State; abundant in few potato fields in New Castle County. (Burbutis, Crossan). MAINE - Moderate infestations and damage to tomatoes in Portland area, Cumberland County, in early and mid-June; general throughout Androscoggin and Sagadahoc Counties on tomatoes. (Boulanger, July 4).

FLEA BEETLES - MINNESOTA - Caused considerable leaf damage to potatoes; some feeding on all plants in most fields of Anoka County. (Minn. Ins. Rpt.). VERMONT - Easily found on many tomato and potato plantings. (MacCollom, July 6).

BLISTER BEETLES - MINNESOTA - Heavy on potato plantings at Hibbing, St. Louis County. (Minn. Ins. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adults in late potato plantings range 2-12 per 100 sweeps in Weld County. Symptoms of "psyllid yellows" appearing in early plantings. (Urano, Hantsbarger, Jenkins). Nymphs heavy in untreated spots of early potatoes; all instars and new adults noted. (Hantsbarger, Jenkins). Adults ranged 0-1 per 100 sweeps in San Luis Valley; no eggs nor nymphs recorded. (Jenkins). WYOMING - Adults ranged 0-4 per 100 sweeps on tomatoes in home gardens in Wheatland, Platte County. (Marks). CALIFORNIA - Medium on potatoes in Hemet, Riverside County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy on potatoes in Ontario, San Bernardino County. (Cal. Coop. Rpt.). COLORADO - Trace numbers on late potatoes in Weld County, (Jenkins, Urano). Slight increase of winged forms in migration studies in early and late potato areas. Field leaf counts indicate increases of wingless and winged forms in early and late plantings during past week. (Berry, Simpson). MARYLAND - Light to date on commercial peppers in Worcester County. (U. Md., Ent. Dept.). DELAWARE - Remains present but scarce on peppers in Sussex County. (Burbutis, Crossan). NEW JERSEY - Increasing generally on potatoes; high levels in some fields. (Ins.-Dis. Newsltr.).

POTATO APHID (Macrosiphum euphorbiae) - CALIFORNIA - Heavy on potatoes in Ontario, San Bernardino County. (Cal. Coop. Rpt.). COLORADO - Low on potatoes in San Luis Valley (Jenkins); trace on late potatoes in Weld County (Jenkins, Urano). RHODE ISLAND - Of concern in Smithfield; probably moderate statewide. (King, Mathewson).

LEAFHOPPERS - MAINE - Moderate to heavy on unsprayed potato foliage in central area in early July. (Boulanger).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Infested 3 fields of Katahdin potatoes in full bloom in Monroe County; averaged 1 larva per 5 plants July 7. Most second instars. (Newman, Snow, Sowerby, Rothney).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Survey of 5 potato fields in Monroe County, infested in 1963, revealed no larval activity. (Newman).

TOMATO FRUITWORM (Heliothis zea) - ALABAMA - Quite heavy and damaging in home garden tomatoes in Lee County. (Bagby et al.).

IMPORTED CABBAGEWORM (Pieris rapae) - MAINE - Adults in flight May 2 in Orono, Penobscot County, and May 26 in Aroostook County. Caused moderate damage generally throughout Androscoggin and Sagadahoc Counties to cabbage and cauliflower in early to mid-June. (Boulanger, July 4). VERMONT - Prevalent on crucifers in most gardens. (MacCollom, July 6). RHODE ISLAND - Larvae collected on cabbage in Coventry, Kent County. (Mathewson). NEW YORK - Activity heavy in Monroe County and active in many fields in Orleans County. (N.Y. Wkly. Rpt., July 6). NORTH DAKOTA - Damaged cole crops over southwest; reported in most areas of State. (Frye, Gage).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Heavy on cabbage; up to 8 per plant in experiment station plots. Light to heavy in Lee County. Light traps yield 8-10 per night at Crossville, 2-3 at Auburn and none at Fairhope. (McQueen). GEORGIA - Heavy on collards in Walton County. (Vanderford). MARYLAND - Small larvae appearing on commercial tomatoes at several Worcester County locations. (U. Md., Ent. Dept.). NEW YORK - First of season noted on Danish cabbage seedbed in Orleans County. (N.Y. Wkly. Rpt., July 6). VERMONT - Prevalent on crucifers in most gardens. (MacCollom, July 6). COLORADO - Ranged 2-4 per 100 cabbage plants in Alamosa and Conejos Counties. (Jenkins).

DIAMONDBACK MOTH (Plutella maculipennis) - TEXAS - Heavy on cabbage in Palmer County. (Van Zant). ALABAMA - Rather light on Cullman County cabbage. (Canerday).

CABBAGE MAGGOT (Hylemya brassicae) - CALIFORNIA - Heavy in turnip planting in San Jose, Santa Clara County. (Cal. Coop. Rpt.). OHIO - Destroyed approximately 10 acres of turnips in Franklin County, central. (Holdsworth). MAINE - Eggs heavy on cabbage in early June in Cape Elizabeth area; maggots heavy and caused severe damage to radishes in Scarborough, Cumberland County, during same period. Light damage in Androscoggin and Sagadahoc Counties on radishes in early June. Heavy and caused moderate damage to cabbages in Scarborough by mid-June. Heavy injury to cabbage and broccoli reported in Orono, Penobscot County, home gardens in late June. (Boulanger, July 4).

CABBAGE APHID (Brevicoryne brassicae) - DELAWARE - Abundant in cabbage field in eastern Sussex County. (Burbutis, Crossan).

HARLEQUIN BUG (Murgantia histrionica) - GEORGIA - Light to moderate on cabbage in Dalton area. (Woodliff).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light to moderate on beans in northern area. (Johnson). MARYLAND - Light on 24 acres of lima beans checked in Worcester County. (U. Md., Ent. Dept.). NEW YORK - Eggs numerous in areas where beans grown intensively in Niagara County in 1963. (N.Y. Wkly. Rpt., July 6). KANSAS - Damaging snap beans in home gardens in Doniphan, Brown and Atchison Counties; all stages present. (Eshbaugh). COLORADO - Egg mass counts low; 2 per 100 bean plants east and west of Eaton, Weld County. (Urano, Jenkins). UTAH - Injury noted in Cache and Salt Lake Counties. (Knowlton).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - DELAWARE - Larvae present on lima beans in areas of Sussex County; only slight feeding damage. (Burbutis, Crossan).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - All instars on lima beans in several areas of State; feeding injury becoming more noticeable. (Burbutis, Crossan).

COTTON SQUARE BORER (Strymon melinus) - DELAWARE - Larvae fairly common in field of lima beans in eastern Sussex County. (Burbutis, Crossan).

ONION MAGGOT (Hylemya antiqua) - MAINE - Light infestations and damage on onions in Orono, Penobscot County, home garden. (Boulanger, July 4).

ASPARAGUS BEETLES (Crioceris spp.) - MAINE - C. duodecimpunctata caused light damage to asparagus foliage in Auburn, Androscoggin County, in mid-June. C. asparagi moderate and caused light damage in Orono, Penobscot County, in early June. (Boulanger, July 4).

BEEF WEBWORM (Loxostege sticticalis) - COLORADO - Spotty infestations reported from all sugar beet areas. Controls applied. (Urano). Numbers taken in light traps in Windsor, Weld County, decreasing. (Reynolds). WYOMING - Larval counts remain low in sugar beet fields of Converse and Platte Counties; ranged 0-38 per 100 sweeps. (Marks).

SPINACH LEAF MINER (Pegomya hyoscyami) - WYOMING - Larvae decreasing in leaves of sugar beets in Converse and Platte Counties. (Marks). OREGON - Probable species in Marion County canning beets. (Ammon).

LEAF MINERS - VERMONT - Common on beets and spinach. (MacCollom, July 6). MAINE - Severely damaged beet greens in Scarborough. (Boulanger, July 4).

LYGUS BUGS (Lygus spp.) - WYOMING - Adults averaged 42 per 100 sweeps in sugar beet fields of Platte County. (Marks).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Although populations generally high, incidence of yellows in lettuce plantings in Marquette County apparently lower than in 1963. (Wis. Ins. Sur.). MAINE - Heavy on lettuce in Scarborough, Cumberland County, in early June; damage light. (Boulanger, July 4).

A COREID BUG (Liorhyssus hyalinus) - CALIFORNIA - Adults and nymphs heavy on lettuce seed heads in El Centro, Imperial County. (Cal. Coop. Rpt.).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MAINE - Moderate populations and damage in Androscoggin and Sagadahoc Counties on cucumbers and squash in early June. (Boulanger, July 4). NEW YORK - Very active in many fields in Orleans County. (N.Y. Wkly. Rpt., July 6). ALABAMA - Adults of this species and Diabrotica undecimpunctata howardi (spotted cucumber beetle) heavy on squash field in Mobile County. (Seibels). WISCONSIN - This species and D. undecimpunctata howardi numerous in commercial planting of squash in southern Dane County. First symptoms of cucumber mosaic appearing. (Wis. Ins. Sur.).

SQUASH BEETLE (Epilachna borealis) - ALABAMA - Few adults noted in squash field in Mobile County. (Seibels).

SQUASH BUG (Anasa tristis) - UTAH - Controls necessary on 4 acres of squash at Logan, Cache County. (Knowlton). OKLAHOMA - Moderate to heavy on squash in Bryan, Mayes, Cleveland and Greer Counties. (Okla. Coop. Sur., July 3). Heavy on squash in Kay County. (Okla. Coop. Sur., July 11). DELAWARE - First adults of season present June 29 on squash, pumpkin-squash and melons in New Castle and Sussex Counties. (Burbutis, Crossan).

MELON APHID (Aphis gossypii) - DELAWARE - Common to rather abundant in several fields of watermelon in Sussex County. (Burbutis, Crossan).

GRASSHOPPERS - OKLAHOMA - Several species moderate to heavy and threatening watermelons in Muskogee and Le Flore Counties. Heavy in gardens in Mayes County. (Okla. Coop. Sur., July 3).

A WEEVIL (Brachyrhinus rugosostriatus) - CALIFORNIA - Larvae and pupae of this species and Ramosia biblionipennis (strawberry crown moth) heavy in strawberry plantings locally in Greenville, Plumas County. (Cal. Coop. Rpt.).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - KANSAS - Full-grown larvae, pupae and adults numerous in strawberry fields in Sedgwick County. (Eshbaugh).

CYCLAMEN MITE (Steneotarsonemus pallidus) - VERMONT - Noted on strawberries in widely scattered areas. (MacCollom, July 6). MINNESOTA - Common on strawberries in Duluth-Iron Range area. (Minn. Ins. Rpt.).

CELERY LEAF TIER (Udea rubigalis) - MICHIGAN - Larval infestations noted in several commercial fields being harvested in Ottawa and Muskegon Counties. (Janes, Hearl).

FLEA BEETLES - LOUISIANA - Systema elongata (elongate flea beetle) ranged 5-6 per per 100 sweeps on sweetpotatoes at Arnaudville; S. blanda (pale-striped flea beetle) averaged 2 per 100 sweeps; and Chaetocnema confinis (sweetpotato flea beetle) ranged 5-6 per 100 sweeps. (Cancienne, July 6).

A TORTOISE BEETLE - LOUISIANA - Ranged 5-6 per 100 sweeps on sweetpotatoes. (Cancienne, July 6).

ASIATIC GARDEN BEETLE (Maladera castanea) - MARYLAND - Adults moderate; feeding on sweetpotato foliage near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - First adults of season found at Arnaudville; 2 per 100 sweeps on sweetpotatoes. (Cancienne, July 6).

SWEETPOTATO HORNWORM (Agrius cingulatus) - ALABAMA - Few specimens noted on morning-glory vines in Mobile County. (Wallace).

SALT-MARSH CATERPILLAR (Estigmene acrea) - LOUISIANA - Light on sweetpotatoes in Jefferson Davis Parish. (Cancienne, July 6).

RHUBARB CURCULIO (Lixus concavus) - MAINE - Feeding scars found on rhubarb petioles in Auburn area, Androscoggin County; adults not evident in mid-June. Light damage reported. (Boulanger, July 4).

RASPBERRY CROWN BORER (Bembecia marginata) - WASHINGTON - First-year larvae causing heavy damage to evergreen blackberries. About 20 percent of new canes infested in part of 1.5-acre field in Ridgefield, Clark County. (Shanks, July 3).

STALK BORER (Papaipema nebris) - WISCONSIN - Considerable boring in raspberry canes noted in at least one location. (Wis. Ins. Sur.).

RASPBERRY SAWFLY (Monophadnoides geniculatus) - WISCONSIN - Larval feeding on raspberries noted during past week. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - High on beans; up to 1 per leaf in Waushara County and 6-9 per 10 sweeps in Outagamie County. (Wis. Ins. Sur.). MINNESOTA - Some "hopperburn" noted on potatoes in Anoka and Carver Counties. (Minn. Ins. Rpt.). DELAWARE - Present on lima beans and peppers in Sussex County; common to abundant on potatoes in many areas of State. (Burbutis, Crossan).

APHIDS - GEORGIA - Heavy on collards in Walton County. (Vanderford). NEW YORK - Buildup continues on potatoes in Suffolk County; heavy on tomatoes. (N.Y. Wkly. Rpt., July 6). MAINE - Moderate numbers and damage noted on peppers and tomatoes in Orono area, Penobscot County, in early June. (Boulanger, July 4).



TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Adults and nymphs present on peppers, lima beans, watermelons and potatoes in New Castle County. (Burbutis, Crossan). VERMONT - Easily found on raspberries in all areas. (MacCollom, July 6).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - LOUISIANA - Numerous on cowpeas and tomatoes in southern part of State. (Cancienne, July 6).

SPIDER MITES - OKLAHOMA - Tetranychus spp. moderate to heavy on vegetables in Kiowa, Garfield and Cleveland Counties July 3; and heavy on tomatoes in Kay County and in gardens in Pittsburg County. (Okla. Coop. Sur., July 11). ALABAMA - Unspecified species numerous on snap beans in isolated areas of Jefferson, Lee and other counties. (Keeble et al.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - IOWA - Ranged 15-20 per leaf on garden peas at North Iowa Experimental Farm. Tomatoes and potatoes also heavily infested. (Iowa Ins. Inf., July 6).

ONION THRIPS (Thrips tabaci) - OHIO - Heavy on cabbage, cauliflower and cucumbers in Lorain County, northeast. (Sleesman). COLORADO - Light to heavy (25-100 per plant) on onions in Weld County; controls recommended on heavy populations. (Urano, Jenkins).

THRIPS - MARYLAND - Common on lima beans, cucurbits, peppers and tomato blossoms on lower Eastern Shore (U. Md., Ent. Dept.).

CUTWORMS - OHIO - Peridroma saucia (variegated cutworm) larvae feeding on head lettuce in home garden in Van Wert County, northwest. (Lyon). NORTH DAKOTA - Considerable larval damage by P. saucia noted on cabbage in Fargo area, Cass County. (Frye, Gage). MAINE - Unidentified species attacking potato plants in central area reported by a few growers. An unidentified gray species moderate and causing moderate damage to tomatoes in Cape Elizabeth, Cumberland County, and apparently similar cutworm heavy and causing severe injury to peppers in Auburn, Androscoggin County; last 2 reports made in mid-June. (Boulanger, July 4).

ROSE CHAFER (Macrodactylus subspinosus) - VERMONT - Feeding on beans noted. (MacCollom, July 6). MAINE - Heavy and caused severe damage to raspberries in Kennebunkport, York County, in mid-June. (Boulanger, July 4).

#### TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults widespread but generally light on tobacco in St. Marys County. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - MARYLAND - Few light infestations occurring on tobacco in St. Marys County. (U. Md., Ent. Dept.).

HORNWORMS (Protoparce spp.) - WISCONSIN - Small larvae present on tobacco fields in Richland County; about 50 per acre. (Wis. Ins. Sur.). MARYLAND - Light infestations only on tobacco in St. Marys County. (U. Md. Ent., Dept.).

CLIMBING CUTWORMS - WISCONSIN - Undetermined species nearly destroyed tobacco seedbed in Trempealeau County in 2-day period. Feeding on tobacco plants in field noted in other western areas of State. (Wis. Ins. Sur.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - No threatening infestations reported to date on tobacco. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Reports from Rio Grande Valley indicate damaging populations in most fields. Heavy infestations also reported in Refugio County. Light infestations appearing in many fields below Cap Rock in western area. Activity in other areas of State generally light. (Texas Coop. Rpt.). OKLAHOMA - Punctured square count of 2 percent reported from one field in Bryan County, south central; counts 1-3 percent in some Choctaw County fields, southeast. (Okla. Coop. Sur., July 3). LOUISIANA - Emergence of first-generation adults in older cotton now common throughout State. Should increase soon. (Cancienne, July 6). MISSISSIPPI - Adults found in 2 of 42 fields examined in delta area. Punctured squares found in 16 of these fields; average percent punctured squares 9.6 (ranged 0.33-93.33). (Pfrimmer et al.). TENNESSEE - Considered very light in western area and for most part are confined to southern tier of counties. Percent punctured squares in infested fields averaged 3; heaviest infested field showed 10 percent punctured squares. Conditions ideal for further increase in those fields getting showers. Spot infestations common within fields similar to last year. Some first-generation weevils expected to "hatch out" latter part of next week. Some growers mistaking physiological blasting of squares for weevil damage and applying controls unnecessarily. (Locke). ALABAMA - General "hatch out" of first generation has occurred throughout southern counties; populations spotty with high numbers occurring in many fields. However, many fields with low numbers and corresponding low square infestation. Weather conditions favorable for survival of larvae in squares. Cotton growing well and shading ground which is also favorable for survival of larvae. Controls initiated in most central and southern counties. Infestations continue light in northern counties. (McQueen et al.). GEORGIA - Counts made in 15 northwest, north and northeast area fields; percent punctured squares ranged 0-12 (averaged 7). Most cotton squaring freely with some blooming. (Johnson). Scout reports in 22 counties showed percent punctured squares 1-10 in 78 percent of fields, 11-25 in 7 percent of fields and 25-50 in 1 percent of fields. (Jordan). SOUTH CAROLINA - Becoming more abundant in eastern half of State. Punctured squares ranged 20-40 percent in fields from lower Piedmont to coast. Average percent punctured squares 3 in treated fields compared with 19 in untreated fields. (Cott. Ltr., July 6). Populations generally low in treated fields in Florence area, but all untreated fields in area have heavy infestations. (Taft et al.). NORTH CAROLINA - Infestations still generally low throughout State, although some high infestations reported from untreated fields in a few counties. Infestations in untreated fields approaching 45 percent in some parts of southeast and generally around 20 percent in east central area, while further north infestations still low but could increase rapidly. (Cott. News Ltr., July 13).

BOLLWORM (*Heliothis zea*) - CALIFORNIA - Moth activity noted in light traps in Kern County. (Black, July 2). ARIZONA - Populations continue to increase and cause damage in fields of Yuma, Pima, Pinal and Maricopa Counties. Controls have been necessary in many fields. No infestations reported in Graham County during week. (Ariz. Coop. Sur.). TEXAS - Infestations increased in central area along with increase in light trap collections. Populations remain low in north central area; however, eggs appear to be increasing. Populations generally light in western area although controls started in some areas. Reports from Rio Grande Valley indicate damaging numbers continue in most fields. (Texas Coop. Rpt.). In McLennan and Falls Counties, eggs averaged 4.1 and larvae 3.5 per 100 terminals in treated fields and 4.5 and 4.8, respectively, in untreated fields. Square injury averaged 3 percent in treated fields and 3.7 percent in untreated fields. Boll injury averaged 1.8 percent in treated fields and 3 in untreated fields. During corresponding week of 1963, eggs averaged 6.9 and larvae 12.1 per 100 terminals. Square injury averaged 17.8 percent in treated and 21.9 percent in untreated fields, and boll injury averaged 18.2 percent in treated fields and 26.4 percent in untreated fields. (Cowan et al.). LOUISIANA - Light throughout State; very few eggs noted. Expected to increase within next 2 weeks. (Cancienne, July 6).

TOBACCO BUDWORM (Heliothis virescens) - LOUISIANA - Light throughout State; very few eggs found on cotton. Expected to increase within next 2 weeks. (Cancienne, July 6).

BOLLWORMS (Heliothis spp.) - OKLAHOMA - Moderate to heavy infestations, up to 12 percent, reported from Muskogee County, east central area. Eggs found in Kiowa County, southwest. (Okla. Coop. Sur., July 3). Infestation counts 2.5 percent in Grady County, 2 percent in Kiowa County, 3 percent in Stephens County, 4 percent in Carter County, 6-8 percent in Johnson County and 2-3 percent in Marshall County. (Okla. Coop. Sur., July 11). TENNESSEE - Trace infestations present in western area; egg and larval counts ranged 0-4 per 100 terminals. Infestations heavier in early cotton. (Locke). MISSOURI - Of 949 fields scouted in "bootheel" area, 1 percent infested. Larvae averaged 0-1 and eggs 0-2 per 100 terminals. (Harrendorf, Jones). MISSISSIPPI - Activity very light in delta area with few moths being caught in light traps and very little activity in field. Eggs found in 3 of 42 fields checked with average of 0.55 per 100 terminals. No larvae found. Injured squares found in 19 of 42 fields; 0.91 percent injured. (Pfrimmer et al.). ALABAMA - Activity light over State with very few adults observed and egg counts low. (McQueen et al.). GEORGIA - Counts made in 15 northwest, north and northeast area cotton fields. Eggs ranged 0-5 (averaged 2) and larvae 0-2 (averaged 1) per 100 terminals. (Johnson). Scout reports from 22 counties showed eggs to range 1-10 per 100 terminals in 78 percent of fields, 11-25 in 14 percent of fields and 26-50 in 1 percent of fields. Larvae ranged 1-3 per 100 terminals in 58 percent of fields, 4-10 in 15 percent of fields and 11-25 in 2 percent of fields. (Jordan). SOUTH CAROLINA - Building up in all sections of State. (Cott. Ltr., July 6). NORTH CAROLINA - Infestations extremely light throughout State. (Cott. News Ltr., July 13).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - A bloom and square survey conducted by Arizona Commission of Agriculture and Horticulture during week in Graham County produced only 2 larvae. Adult emergence from experimental cages decreasing rapidly. (Ariz. Coop. Sur.). TEXAS - Heavy infestations reported from Rio Grande Valley near La Feria. (Deer).

BEET ARMYWORM (Spodoptera exigua) - GEORGIA - Moderate to heavy on cotton in Randolph County; one field infestation justified treatment. (Trussell).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Causing some damage to isolated cotton fields in Victoria and Calhoun Counties. (Deer). GEORGIA - Infestations light. (Jordan).

COTTON SQUARE BORER (Strymon melinus) - TEXAS - Continues to cause minor damage in some north central area cotton fields. (Turney). TENNESSEE - Four larvae found in Chester County infesting squares. (Locke).

STALK BORER (Papaipema nebris) - TENNESSEE - Occasional stalk of cotton found infested throughout southern counties in western area. (Locke). GEORGIA - Boring in several stalks of cotton in Fayette County. (Varner).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Populations increasing in Graham and Maricopa Counties and in areas of Pinal County. (Ariz. Coop. Sur.). TEXAS - Becoming heavier in some areas below Cap Rock in western area but infestations generally scattered. However, buildups reported in several counties. Still major insect damaging cotton in north central area. Decrease in infestations over previous week in many central area fields, but damaging populations still reported from many fields in area. (Texas Coop. Rpt.). In McLennan and Falls Counties, average per 100 terminals 7.7 in treated fields and 10.4 in untreated fields; 8.4 overall average. (Cowan et al.). OKLAHOMA - Light to moderate infestations in Muskogee, Choctaw, Bryan and Cotton Counties week ending July 3; continues light to moderate in most central, south central and southwest area counties week ending July 11. Heavy infestation, 100 per 100 terminals, noted in one field in Garvin County latter week. (Okla. Coop. Sur.). TENNESSEE - Light numbers present over cotton-growing area; damage very light. (Locke). MISSISSIPPI - Averaged 1.78 per 100 sweeps in delta area cotton. (Pfrimmer et al.).

A BLACK FLEAHOPPER (*Spanogonicus albofasciatus*) - ARIZONA - Medium to heavy infestations still persist in Graham, Pima, Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

FLEAHOPPERS - LOUISIANA - Extremely light on southern cotton; declining in other parts of State. (Cancienne, July 6). MISSISSIPPI - A black species found in 2 fields in delta area at rate of 1 per 100 sweeps. (Pfrimmer et al.).

LYGUS BUGS (*Lygus* spp.) - CALIFORNIA - Populations low throughout Kern County; however, heavy adult migrations from alfalfa hay may result in economic levels as cutting progresses during next 2-3 weeks. (Black, June 25). Beginning to move into cotton throughout Kern County. Controls applied where heavy migrations from alfalfa hay or safflower occurred. Few nymphs present in some fields. (Black, July 2). Populations increasing in Fresno County. Economic levels found in some fields in Orange Cove-Reedley area. In Caruthers to Kingsburg area, counts 5-15 per 50 sweeps. In few fields, counts 2-4 nymphs per 50 sweeps. In most other areas of Fresno County, adults dominant with only a few nymphs taken in sweep counts. (Stromberg, July 1). ARIZONA - Populations continue to increase in nearly all cotton areas of State. Damage remains light except in Pinal and Maricopa Counties where damaged squares and bolls run as high as 20-30 percent in many fields. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - LOUISIANA - Extremely light in southern area cotton; declining in other parts of State. (Cancienne, July 6). TEXAS - Locally heavy populations reported on cotton in northeast. (Gilbert). OKLAHOMA - Light infestations, up to 11 percent, in Muskogee County cotton. (Okla. Coop. Sur., July 3). TENNESSEE - Continues to cause some light damage over western area but populations not increasing. (Locke). MISSISSIPPI - Averaged 1.73 per 100 sweeps in cotton in delta area. (Pfrimmer et al.). ALABAMA - Light to medium populations present. (McQueen).

PLANT BUGS - MISSOURI - Ranged 0-25 per 100 terminals in 721 (75 percent) of 949 fields scouted in "bootheel" area of southeast. (Harrendorf, Jones).

APHIDS - CALIFORNIA - Present throughout Kern County; *Aphis gossypii* (cotton aphid) particularly prevalent in Shafter-Wasco area. Some *Myzus persicae* (green peach aphid) migration into cotton from potato fields observed. (Black, June 25). Various species still present in Kern County; several fields treated during past 2 weeks. (Black, July 2). MISSOURI - Noneconomic infestations of *A. gossypii* found in 132 (14 percent) of 949 fields scouted in "bootheel" area of southeast. (Harrendorf, Jones).

STINK BUGS - ARIZONA - Small infestations of *Euschistus* spp. and *Chlorochroa* spp. appearing in cotton fields in Yuma and Pinal Counties. (Ariz. Coop. Sur.).

THRIPS - TEXAS - Several species very light to light on cotton in Deaf Smith, Floyd, Crosby, Hale, Garza, Bailey, Lynn, Hall, Wilbarger, Jones, Nolan and Dickens Counties. Moderate to heavy in areas of Briscoe and Jones Counties. Most cotton which suffered damage earlier now growing off well. (Rummel). OKLAHOMA - Heavy infestations of *Frankliniella* spp. reported on cotton in Kiowa and Cotton Counties, southwest; light in Roger Mills County, west central. (Okla. Coop. Sur., July 3).

GRASSHOPPERS - TEXAS - Local populations in Calhoun and Victoria Counties causing damage to some cotton. (Deer).

A SERPENTINE LEAF MINER - MISSISSIPPI - Populations heavy in delta area; some defoliation of cotton occurring. (Pfrimmer et al.).

SPIDER MITES - CALIFORNIA - Still of primary concern in most Kern County cotton fields. Populations of *Tetranychus telarius* (two-spotted spider mite) increasing; however, *T. atlanticus* (strawberry spider mite) still dominant species. (Black, June 25). Spider mites still abundant in Kern County; control with all materials

exceptionally good. (Black, July 2). Spider mites general throughout Fresno County; many fields treated. (Stromberg, July 1). ARIZONA - Spotted populations of *Tetranychus* spp. causing damage and requiring controls in some fields of Yuma, Graham and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Heavy infestations, probably *T. cinnabarinus*, present in some Brazos and Robertson County cotton fields. (Meisch). TENNESSEE - Unspecified species continue to increase and cause considerable damage where controls not started. Infestations much heavier in northwestern portion of State where there has been little rainfall. Conditions ideal for buildup. (Locke). MISSOURI - Spot infestations of *T. atlanticus* found in 294 (31 percent) of 949 fields scouted in "boothel" area of southeast. Treated acres estimated at 220. (Harrendorf, Jones). ALABAMA - Infestations of unspecified species light in northern counties with some controls being applied. (McQueen). NORTH CAROLINA - All sections of State reported spider mite infestations. In some areas at least 7 out of every 10 farms infested to some extent. Careful observation recommended. (Cott. News Ltr., July 13).

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#### WEATHER BUREAU'S 30-DAY OUTLOOK

MID-JULY TO MID-AUGUST 1964

The Weather Bureau's 30-day outlook for the period from mid-July to mid-August calls for temperatures to average above seasonal normals over the Northeast, the Northern Plains, and the Southwest. Below normal temperatures are expected over the Ohio, Tennessee, and middle Mississippi Valleys, and also along the west coast and in the Pacific Northwest. In areas not specified near normal averages are in prospect. Rainfall is expected to equal or exceed normal east of the Mississippi River and west of the Continental Divide. Subnormal amounts are predicted for the remainder of the Nation except for near normal in the Central Plains.

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.

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

JACK-PINE BUDWORM (Choristoneura pinus) - MICHIGAN - Very heavy defoliation of current year's needles occurred in southeastern Otsego, Crawford and northwestern Ogemaw Counties. (Flink). WISCONSIN - Pupation appeared complete in Polk County on July 2; moths had emerged from about 50 percent of pupae observed. (Wis. Ins. Sur.). MINNESOTA - Mostly pupated in central, north central and northeast areas; adults beginning to appear. Populations low in east and northeast areas. (Minn. Ins. Rpt.).

SPRUCE BUDWORM (Choristoneura fumiferana) - OREGON - First adults of season taken in blacklight traps in Marion County. (Goeden). MINNESOTA - Present in nursery in Duluth, Saint Louis County; controls effective. (Minn. Ins. Rpt.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - MINNESOTA - Causing heavy loss of leaders of jack pine in 5 to 7-foot plantation stock north of McCormick Lake in Pine County. (Minn. Ins. Rpt.).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Approximately 20 percent of larvae pupated in Douglas County July 1. (Wis. Ins. Sur.).

PINE WEBWORM (Tetralopha robustella) - NEW JERSEY - Severe on pines in Denville area of Morris County. (Ins.-Dis. Newsltr., Runge).

AN OLETHREUTID MOTH (Eucosma gloriola) - MICHIGAN - Larvae of this pine borer caused some damage to Scotch pine in Ottawa and Sanilac Counties. (Janes).

A PINE TIP MOTH - ARKANSAS - Second larval brood nearing end of feeding period; pupation approximately 10 percent in southwest area by June 26. In general, second larval brood light in numbers. Parasite activity commonly observed. (Ark. For. Pest Rpt., July).

WHITE-PINE WEEVIL (Pissodes strobi) - NEW JERSEY - Damaging white pine and spruce in Denville area of Morris County. (Ins.-Dis. Newsltr., Runge). RHODE ISLAND - New damage markedly evident statewide. (Mathewson, Sorensen).

BARK BEETLES - ARKANSAS - Normal increase of Ips spp. (engraver beetles) and Dendroctonus terebrans (black turpentine beetle) occurring. Some sign of explosive conditions in few areas, though most activity now occurring in small, localized areas starting around a damaged or weakened tree. One report lists 13,000 acres with increased activity of these 2 species. Plantations have not fully recovered from 1963 drought and continued dry weather this season putting much pine acreage in dangerous condition, especially for outbreak of Ips spp. Plantations should be observed frequently for next few months. Salvage operations should be increased as needed to suppress any alarming spots that appear. Areas defoliated by an unspecified loblolly sawfly in very good condition for outbreaks of Ips spp. (Ark. For. Pest Rpt., July). NEBRASKA - Phloeosinus sp. infesting redcedar in Jefferson County. (Bergman). WISCONSIN - New adults of Ips spp. about ready to emerge from red pine in Sauk County July 1. (Wis. Ins. Sur.).

PINE CHAFER (Anomala oblivia) - MICHIGAN - Adult feeding and general defoliation reported from one Otsego County pine plantation. Feeding reported completed. (Flink).

PINE COLASPIS (Colaspis pini) - LOUISIANA - Activity declining in southwest; lighter in East Baton Rouge and East Feliciana Parishes than for past several years. (Cancienne, July 6).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - IDAHO - Spotty infestations reported on Colorado blue spruce in Nampa, Canyon County. (Bechtolt). UTAH - Caused conspicuous injury to many spruce trees in Cedar Breaks-Navajo Lake area of Kane County. (Knowlton). NEW JERSEY - Emerging from galls on blue spruce in Morris County. (Ins.-Dis. Newsltr., Runge).

EASTERN SPRUCE GALL APHID (Chermes abietis) - NEW YORK - Galls completely formed in Erie County. (N. Y. Wkly. Rpt., July 6). MAINE - Overwintering forms very abundant on spruce in southern portion of State on April 1. (Maine For. Serv.).

PINE BARK APHID (Pineus strobi) - MINNESOTA - Infesting Norway pine seedlings in nursery at Eveleth, Saint Louis County. (Minn. Ins. Rpt.). MAINE - Probably this species, light in Jonesboro, Washington County. (Boulinger, July 4).

A GALL APHID (Pineus floccus) - NEW YORK - Appears to be an unusual problem on red spruce and pine in Monroe County. Located at base of needles and on twigs, with many needles browned. Red spruce infested with many aphids in numerous twig galls. Positively determined from galls on red spruce in Allegany County. (N. Y. Wkly. Rpt., July 6).

PINE LEAF CHERMID (Pineus pinifoliae) - MAINE - Light on white pine generally throughout State in June. Tips commonly brown from 1963 attack alone or in combination with 1963-1964 winter injury. (Maine For. Serv.).

PINE SPITTLEBUGS (Aphrophora spp.) - WISCONSIN - Nymphal transformation of A. parallela (pine spittlebug) to adult complete in Polk County July 2. Most nymphs of A. saratogensis (Saratoga spittlebug) in fifth instar July 3 in northeast counties. Populations of A. saratogensis generally light; no aerial control planned. (Wis. Ins. Sur.). MINNESOTA - A. parallela mostly adults in central and north central districts; some very heavy populations present; no damage noted. A. saratogensis adults appearing in small numbers on jack pine in central and north central districts. (Minn. Ins. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - UTAH - Moderate on blue spruce at Beaver, Beaver County. (Knowlton).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Crawlers emerged third week of June in Oneida County. (Wis. Ins. Sur.).

LARCH SAWFLY (Pristiphora erichsonii) - MINNESOTA - Mostly in early instars; some eggs yet to hatch. Browning and fraying of old needles appearing. (Minn. Ins. Rpt.).

CONIFER SAWFLIES - MINNESOTA - Middle and late-stage first-generation larvae of Diprion similis (introduced pine sawfly) present in central and north central districts; some pupation noted. No pupation found in northern Pine County; population generally light. Neodiprion lecontei (red-headed pine sawfly) eggs hatching in southern half of central and north central districts on roadside and plantation jack pine; some browning noted; eggs unhatched in Hill City area, Aitkin County. (Minn. Ins. Rpt.). WISCONSIN - Larvae of N. pinetum (white-pine sawfly) abundant on ornamental white pines; most full grown, although young larvae also present. (Wis. Ins. Sur.). ARKANSAS - Specimens of N. taedae linearis continue to produce parasitic species, dipterous and hymenopterous. First brood of N. lecontei fully grown and most in soil for pupation. Infestations of latter species relatively light this year. (Ark. For. Pest Rpt., July).

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - Some late-stage larvae continue to feed in north central and east districts, causing damage to new growth. (Minn. Ins. Rpt.).

A XYELID SAWFLY (Pleuroneura borealis) - MAINE - Generally moderate on fir and caused light injury statewide during June. (Maine For. Serv.).

FALL WEBWORM (Hyphantria cunea) - KANSAS - Large web noted on walnut tree in Chautauqua County, southeast. (Peters). MISSOURI - Young larvae found in webs on black walnut in Greene and Stone Counties (southwest) July 4; very few webs noted in area. (Houser, Thomas, Wood). ARKANSAS - Infestations lightest in several years; only few nests present in trees over State. (Ark. For. Pest Rpt., July).

PINK-STRIPED OAKWORM (Anisota virginiensis) - MINNESOTA - Egg laying and hatching beginning in Smoky Hills area near Park Rapids, Hubbard County, in same hardwood stands defoliated in 1963. Populations also reported high in 30-acre tract in northern Pine County. (Minn. Ins. Rpt.).

BRUCE SPANWORM (Operophtera bruceata) - MAINE - Moderate numbers caused light damage on northern hardwoods in Sinclair area June 10; level below that of 1963. (Maine For. Serv., July 4).

SATIN MOTH (Stilpnotia salicis) - OREGON - First adults of season appearing in Willamette Valley blacklight traps. (Goeden). MAINE - Heavy and caused moderate damage to poplar during mid-June in Corinna, Penobscot County; first injury to poplars in south Portland area of Cumberland County noted in late June. Infestations and damage light in latter area. (Boulinger). Heavy numbers caused moderate damage to Carolina poplar in local areas by June 27. (Maine For. Serv.).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - OHIO - Larvae noted infesting elms at Wooster, Wayne County, northeast. (Lyon).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Seasonal trapping for male moths began July 6; some 3,000 improved traps to be used this season. The general area being trapped north of Lansing, includes parts of Ionia, Clinton and Shiawassee Counties. Emergence of male moths (if any) not expected before mid-July. (Ring, Carlson).

BIRCH CASEBEARER (Coleophora salmani) - MAINE - Moderate numbers caused light damage to white birch in northern area. (Maine For. Serv., July 4).

A WEBWORM (Tetralopha asperatella) - WISCONSIN - First eggs of season observed in Florence County on maple leaves rolled by larvae of Acleris chalybeana (a leaf roller moth). (Wis. Ins. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - MAINE - M. americanum (eastern tent caterpillar) hatched April 29 to May 2 in Augusta-Starks area; tents noticeable May 6; common locally. M. disstria (forest tent caterpillar) egg hatch on poplar occurred May 13 in Caribou area; infestations were heavy in Caribou, Presque Isle and Township 6, Range 9 by June 11, with damage moderate; infestations light and general in remainder of northern area. (Main For. Serv.). M. americanum infestations and damage light on various trees in Androscoggin and Sagadahoc Counties. (Boulinger, July 4).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Heavy on some oaks in Sequoyah County (east central). (Okla. Coop. Sur., July 3).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - CALIFORNIA - Larvae medium on madrone trees locally in Siskiyou County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Heavily damaging untreated elms in Churchill, Lyon, Pershing and southern Washoe Counties. (Cooney). UTAH - Necessitated controls on many trees in Salt Lake City and in Salt Lake County southeast of city. (Knowlton). NEW MEXICO - Moderate numbers damaging Chinese elms in Albuquerque, Bernalillo County. Skeletonizing heavy on some trees. (N.M. Coop. Rpt.). OKLAHOMA - Second-generation adults appearing over State; damage remains heavy. (Okla. Coop. Sur., July 3). Reported as heavy in Kiowa (southwest) and Osage (north central) Counties. (Okla. Coop. Sur., July 11). GEORGIA - Heavy in Atlanta area. (Blasingame). VIRGINIA - Severe on elm at a location in Leesburg, Loudoun County. (Rowell, Meek; July 6). MARYLAND - Numbers considerably above normal on American elm in most sections this season. (U. Md., Ent. Dept.). OHIO - Larvae infesting elms at Woodsfield, Monroe County, southeast. (Pollock, Blaire; July 3). MAINE - Light on elms locally in southern area; numbers noticeably less than in 1963. (Maine For. Serv., July 4).



LOCUST LEAF MINER (Xenochalepus dorsalis) - ILLINOIS - Collected in Pike County July 7. This is a new county record. (Ill. Ins. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - ALABAMA - Found on isolated dead elm in Madison County; tree probably killed by other conditions. (Hyche).

A TIMBER BEETLE (Corthylus sp.) - GEORGIA - Adults emerging in Athens area, Clarke County. (Ebel).

TWIG PRUNER (Elaphidion villosum) - CONNECTICUT - Active in few spots around State. (Savos). VIRGINIA - Infesting oak at a location in Pulaski, Pulaski County (Tarpley, Rich, July 6), and oak and chestnut at a location in Clifton Forge, Alleghany County (Tarpley, July 2).

COTTONWOOD BORER (Plectodera scalator) - ALABAMA - One to two adults noted on bark and trunk, as well as feeding on leaves of willow along highway site in Lowndes County; 15 adults collected. (McQueen).

WALKINGSTICK (Diaperomera femorata) - WISCONSIN - Nymphs about one-third grown but still green in color in infestation of black locust observed near Plainfield, Waushara County. Considerable feeding occurring and nearly all leaves notched. (Wis. Ins. Sur.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - OHIO - Infesting poplar near Steubenville, Jefferson County, west central. (Knight, Holdsworth). SOUTH DAKOTA - Noted on cottonwood leaves at Kimball, Brule County. (Walstrom). NEW MEXICO - Abundant on poplars in Bernalillo and Sandoval Counties. (N.M. Coop. Rpt.).

APHIDS - MAINE - Light on roses in Jonesboro area of Washington County. (Boulinger, July 4). OHIO - Galls of Mordwilkoja vagabunda (poplar vagabond aphid) noted on poplar in Wayne County, northeast. (Neiswander). Periphyllus lycopictus (Norway-maple aphid) building up in Norway maple in Wayne County. (Lyon). MINNESOTA - Galls of Colopha ulmicola (elm cockscomb-gall aphid) common on northern area elms. (Minn. Ins. Rpt.). UTAH - Rhopalosiphum berberidis numerous on ornamental barberry in Fillmore, Millard County. Moderate populations of Thecabius populiconduplifolius folded poplar leaves near Provo, Utah County, and Ogden, Weber County. Periphyllus utahensis heavy on willow bark near Provo; attending ants very aggressive and annoying occupants at nearby motel. Pterocomma sp. abundant on weeping willows at Cedar City, Iron County; trees sticky with honeydew. Unspecified aphids heavy on cottonwood at Chalk Creek, Millard County. Myzocallis robiniae conspicuous on black locust at Fillmore, Millard County. (Knowlton). IDAHO - An undetermined species, possibly Cinara sp., spotty on arborvitae at Nampa, Canyon County, but numbers abundant. (Bechtolt). CALIFORNIA - Periphyllus testudinacea nymphs medium on maple in Yreka, Siskiyou County. Rhopalosiphum nymphaeae heavy on Potamogeton nodosus (pondweed) in Escalon district, San Joaquin County. Therioaphis tilliae medium on American linden and Myzocallis arundinariae medium on bamboo in Chico, Butte County. (Cal. Coop. Rpt.).

LEAFHOPPERS - IOWA - Averaged 5 per leaf on elms at Ames, Story County, July 1; nearly mature nymphs and adults abundant. One of the heaviest infestations observed. (Iowa Ins. Inf.). NEW YORK - Serious on shade trees in Suffolk County, especially on maples and oaks. (N.Y. Wkly. Rpt., July 6). FLORIDA - Oncometopia nigricans moderate on cassia (Cassia elata) at Plant City, Hillsborough County, July 1. (Custead).

COCCIDS - NEW YORK - Pulvinaria innumerabilis (cottony maple scale) apparently increasing in Erie County; infesting silver maple, hawthorn, honeylocust and elm. Lecanium corni (European fruit lecanium) eggs hatching in Warren County; eggs, probably this species, hatched on elm and most crawlers settled in central area. L. quercifex eggs hatching on oak in central area; few crawlers settled. (N.Y. Wkly. Rpt., July 6). SOUTH CAROLINA - L. nigrofasciatum (terrapi scale)

noted on live oak at Beaufort, Beaufort County. (Nettles et al., July 7). UTAH - Gossyparia spuria (European elm scale) heavy on elms at Escalante, Garfield County. (Knowlton, Lindsay). CALIFORNIA - Probably Rhizoecus cacticans heavy on iceplant (Mesembryanthemum sp.) plantings along roadside in Santa Barbara, Santa Barbara County. Saissetia nigra heavy on ivy (Hedera canariensis) nursery stock in San Bruno, San Mateo County. (Cal. Coop. Rpt.).

SYCAMORE LACE BUG (Corythucha ciliata) - ALABAMA - Few heavily infested, but isolated, sycamores noted in Lee and Monroe Counties. (Camerday et al.).

A CICADA (Tibicen linnei) - NEBRASKA - Adult activity very prominent in southeast; creating much noise. (Bergman).

BIRCH LEAF MINER (Fenusa pusilla) - MAINE - Severe damage found in almost all areas; injury appears greater in many locations than in 1963. (Boulanger, July 4). VERMONT - Second generation controls recommended. (MacCollom, July 6).

AN OAK LEAF MINER - MAINE - Egg laying, probably by Profenusa sp., occurred June 29 in Augusta-Dixfield areas; abundant with hatch underway. Some egg parasitism evident. (Maine For. Serv.).

A GALL WASP (Neuroterus saltatorius) - OREGON - Large numbers dropping to ground from oak leaves in Willamette Valley. Many inquiries concerning curious activities of this pest. (Larson).

A RUST MITE (Oxypleurites carinatus) - CALIFORNIA - Infested horsechestnut at Burlingame, San Mateo County. Collected June 19 by W. Davis. Det. by H. H. Keifer. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - MISSOURI - Damage to evergreens and other ornamentals very evident in southern area; bags becoming very large. Some untreated shrubs heavily damaged. (Houser, Thomas, Wood). KANSAS - Small larvae denuding evergreens in Doniphan County where not controlled. (Eshbaugh). Active over most of State. (Peters). OKLAHOMA - Moderate to heavy throughout most of State, infesting hackberry, mimosa, mockorange and boxelder as well as evergreens. (Okla. Coop. Sur., July 3). Continues moderate to heavy on evergreens in eastern two-thirds of State. (Okla. Coop. Sur., July 11). TEXAS - Heavy locally in Cooke and Grayson Counties; defoliating hackberry. (Turney). GEORGIA - Light to moderate on cedar, arborvitae and juniper in northern part of State. (Woodliff). Heavy on arborvitae in Atlanta area. (Blasingame).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Some extremely heavy damage noted on isolated trees in central area. Only one tree of thousands observed affected in Monroe, Conecuh, Lowndes and Butler Counties. Many trees in Lee and Macon Counties 30-50 percent defoliated. (Seibels et al.).

ARBORVITAE LEAF MINER (Argyresthia thuiella) - VERMONT - Caused noticeable injury to cedar and arborvitae terminals; controls recommended. (MacCollom).

CATALPA SPHINX (Ceratonia catalpae) - MISSOURI - Early stage larvae feeding on catalpa leaves in stone County, southwest, July 4. (Houser, Thomas, Wood).

WHITE-LINED SPHINX (Celerio lineata) - KANSAS - Abundant in yard in Pottawatomie County, northeast. (Gates).

A TULIPTREE BORER (Euzophera ostricolorella) - INDIANA - Larvae damaging shade trees at Plainfield, Hendricks County, central section. (Schuder).

A LEAF ROLLER MOTH (Sparganothis sp.) - FLORIDA - Larvae and pupae moderate on marigold at Plant City, Hillsborough County, July 1. (Custead).

SPOTTED CUTWORM (Amathes c-nigrum) - CALIFORNIA - Heavy on violets in Hughson, Stanislaus County. (Cal. Coop. Rpt.).

JAPANESE BEETLE (Popillia japonica) - VERMONT - Emergence noted in Rutland, Rutland County, June 30; heavy emergence expected after July 6. (MacCollom).  
NEW JERSEY - Adults present in some areas of Middlesex County. (Ins.-Dis. Newsltr.).  
MARYLAND - Outbreak adult numbers reported in Colesville area, Montgomery County. (U. Md., Ent. Dept.). VIRGINIA - Adults severe on flowers, fruit trees and grapevines in western Prince Edward County. (Peery, July 6). Apparently late in appearing in Augusta-Rockbridge County area; very few observed to July 3. (Woodside). SOUTH CAROLINA - Causing considerable complaints in Clemson-Seneca area; damaging garden flowers. (Nettles et al., July 7).

ROSE CHAFER (Macrodactylus subspinosus) - MAINE - Heavy numbers caused heavy damage to rose, geranium and other plants in Portland and South Portland, Cumberland County. Infestations and damage on various plants reported light and general in Androscoggin and Sagadahoc Counties. (Boulinger, July 4).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - NORTH DAKOTA - Several instances of complete defoliation of caragana observed in southwest area. (Frye).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - RHODE ISLAND - Adults and adult feeding evident in nurseries and on private properties. (Veilleux, Mathewson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Infestations medium on dichondra lawns in Hanford, Kings County. (Cal. Coop. Rpt.).

HOLLYHOCK WEEVIL (Apion longirostre) - CALIFORNIA - Medium on hollyhock in Sanitarium and in Calistoga, Napa County. This is a new county record. (Cal. Coop. Rpt.).

Coccids on Ornamentals - RHODE ISLAND - Diaspis carueli (juniper scale) very heavy on planting of Juniperus stricta in Kingston, Washington County. (Mathewson).  
NEW YORK - Unspecified mealybugs troublesome on yews in Westchester County. (N.Y. Wkly. Rpt., July 6). DELAWARE - Unaspis eonymi (eunonymus scale) crawlers appeared July 2 in New Castle County. (MacCreary). MARYLAND - U. eonymi heavily infested eunonymus in Baltimore. Neolecanium cornuparvum (magnolia scale) infested magnolia in Cumberland, Allegany County. (U. Md., Ent. Dept.). UTAH - Lepidosaphes ulmi (oystershell scale) heavy on some willows, poplars and lilacs in Midvale area of Salt Lake County. (Knowlton).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - NEW YORK - Injury quite widespread on ornamentals in Rockland County. (N.Y. Wkly. Rpt., July 6).

EARWIGS - NEW YORK - Infestations of ornamentals reported from several sections of Rockland County. (N.Y. Wkly. Rpt., July 6).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MISSOURI - Heavy infestation of what is probably this species reported on commercial garden roses in Cape Girardeau area. Population sufficiently heavy to damage foliage severely. (Wkly. Rpt. Fr. Grs., July 8). IOWA - Heavy on gladiolus at North Iowa Experimental Farm. (Iowa Ins. Inf., July 6). NORTH DAKOTA - Noted on juniper and spruce in most southwestern areas; damage generally moderate. (Frye).

SPIDER MITES - NEW YORK - A problem on many ornamentals in Westchester County. (N.Y. Wkly. Rpt., July 6). MARYLAND - Several species continue to infest many ornamentals, including rose, spruce, boxwood and holly. (U. Md., Ent. Dept.). ARKANSAS - Activity has increased; some pine plantations beginning to lose green color due to feeding. (Ark. For. Pest Rpt., July). UTAH - Damaging some ornamental evergreens in Salt Lake City. (Knowlton).

A SNAIL (Oxyloma effusa) - FLORIDA - Scattered and moderate on hibiscus at Palmetto, Manatee County, (Bickner, July 1), and scattered and ranged moderate to severe on same host at Mims, Brevard County, (Levan, June 26).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Moderately annoying in meadow areas west of Beaver, Beaver County (Knowlton, Esplin); numerous and troublesome in meadow and mountain areas of Randolph-Woodruff area and about some resorts near Bear Lake in Rich County; annoying humans at camps in Chalk Creek Canyon, Millard County, at Duck Creek Camp, Kane County, and about communities in parts of Box Elder and Cache Counties (Knowlton). NORTH DAKOTA - Continue very numerous and annoying to man and livestock over State. (Frye). MINNESOTA - Total of 616 larval collections made in Metropolitan Mosquito Control District week ending July 4; Aedes vexans present in 370, Culex restuans in 77, C. tarsalis in 67 and C. territans in 61. Collections from 16 light traps totaled 8,442 females, of which 84 percent were A. vexans; Mansonia perturbans, a vicious biter that breeds in cattail and sedge swamps, accounted for 677 of total. In 42, 15-minute evening bite collections, A. vexans dominant species; 107 of 148 collected this species. In 217, 5-minute daytime bite collections, A. vexans accounted for 833 of 1,542 collected; approximately 54 percent. Other counts included 133 A. trivittatus, 126 A. cinereus, 126 A. sticticus, 102 A. stimulans and 66 M. perturbans. Brood that emerged July 1-2 began appearing in Minneapolis-Saint Paul area July 6-7; light trap collections increased sharply as result of this movement. Cessation of outdoor activities by 9 p.m. recommended, since biting increases sharply at about that time. Elimination of tall grasses and weeds and spraying of hedges and shrubbery will aid in reducing mosquito nuisance. (Minn. Ins. Rpt.). VERMONT - Unspecified species annoying in all areas; recent wet weather will increase problem. (MacCollom, July 6). ALABAMA - Aedes sollicitans (salt-marsh mosquito) appeared in large numbers along coastal areas during past week of intermittent rains. Other anopheline and some culicine species noted in lesser numbers. (Seibels). LOUISIANA - Several species increasing in southern part of State; light in Plaquemines Parish. (Cancienne, July 6).

HORN FLY (Haematobia irritans) - MARYLAND - Over 35 per dairy animal noted on untreated herd in Frederick County. (U. Md., Ent. Dept.). INDIANA - Ranged 75-150 per head on cattle in northwest; averaged 50 per head in west central section. (Bram). ILLINOIS - Varied 25-500 (average 112) per animal in Ford and Grundy Counties, east and northeast districts, respectively. (Ill. Ins. Rpt.). IOWA - Increasing on pastured cattle over State; 500-1,000 per animal not unusual on dark-haired cattle and 100-500 on Gurnsey calves. If backrubbers cannot be used successfully, effort should be made to spray animals every 7 days with recommended controls. (Iowa Ins. Inf., July 6). MISSOURI - Ranged light to moderate on untreated cattle in southwest area. (Houser, Thomas, Wood). NEBRASKA - Counts estimated up to 1,500 per animal on untreated herds on range and pastures in northern and central areas. (Bergman). OKLAHOMA - Ranged 300-500 per head in most areas but as high as 1,000 per head on steers and 2,500 per head on bulls reported from Payne (north central), Logan (central) and Woodward and Ellis (northwest) Counties. (Okla. Coop. Sur., July 3). Remained moderate to heavy in most areas; ranged from 250 per head on cows to 1,500-2,000 per head on mature bulls in Payne County; averaged 400 per head on yearling steers. (Okla. Coop. Sur., July 11). UTAH - Light on herds observed in Benson-Hyde Park area of Cache County. (Knowlton). Not yet numerous in Beaver County areas. (Esplin, Knowlton).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Averaged 2.3 per animal in Ford and Grundy Counties. (Ill. Ins. Rpt.). NEBRASKA - Ranged 0-35 (averaged 11) per animal in feedlot herds in Cedar, Madison, Pierce and Platte Counties. (Bergman). OKLAHOMA - Heavy on cattle in Payne (north central), Pushmataha (southeast) and Ellis (northwest) Counties; ranged 8-20 per head. (Okla. Coop. Sur., July 3). Numbers down to 1-2 per head on unsprayed animals in Payne County area. (Okla. Coop. Sur., July 11).

TABANIDS - LOUISIANA - Counts of horse flies per cow by Parish as follows: Acadia 3-4, Saint Landry 1, Ibeville 0 and East Baton Rouge 0. Heavy on cattle in Saint Tammany Parish. (Cancienne, July 6). OKLAHOMA - Tabanus spp. ranged light

to moderate on cattle in Payne (east central), Ellis (northwest), Marshall (south central) and Pushmataha (southeast) Counties. T. lineola (striped horse fly) noted as heavy in Payne County. (Okla. Coop. Sur., July 3). Most species less numerous in Payne and Logan (central) Counties; T. sulcifrons and T. abactor dominant species. Moderate to heavy populations of unspecified species reported from Haskell (east central) and Cotton (southwest) Counties. (Okla. Coop. Sur., July 11). UTAH - T. punctifer annoying cattle in Green Canyon, Cache County. (Knowlton). Deer flies and some horse flies troublesome in North Fork area of Kane County, south of Navajo Lake. (Esplin, Knowlton). RHODE ISLAND - Chrysops univittatus numerous and biting severely in wooded area of West Kingston, Washington County. (Mathewson).

FACE FLY (Musca autumnalis) - MAINE - Populations increasing generally over State. (Boulinger, July 4). MARYLAND - Ranged 3-20 per head on untreated dairy animals in 3 herds checked in Frederick County. (U. Md., Ent. Dept.). INDIANA - Increasing slightly on cattle in northwest and west central sections, but still average less than 2 per face; maximum counts reached 5 per face in northwest. (Bram, Saugstad). ILLINOIS - Counts very low, 0-1 per head (average 0.2) in Ford and Grundy Counties, east and northeast districts respectively. (Ill. Ins. Rpt.). NEBRASKA - Activity very low on range and pastureland cattle in northern part of State. (Bergman).

HOUSE FLY (Musca domestica) - LOUISIANA - Moderate to heavy in homes in West Carroll and Caddo Parishes. (Cancienne, July 6). ARKANSAS - Numbers higher than normal at this time of year. (Ark. Ins. Sur.). OKLAHOMA - Heavy around cattle and in homes in Payne (north central), Pushmataha (southeast) and Ellis (northwest) Counties. (Okla. Coop. Sur., July 3). Remains about same as previous report. (Okla. Coop. Sur., July 11).

BLACK FLIES - ILLINOIS - Heavy and annoying horses in Du Page County, northeast, week ending July 4. (Ill. Ins. Rpt.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Adults annoying cattle in meadows in Benson-Hyde Park area of Cache County and in meadows west of Penrose, Box Elder County. (Knowlton). MAINE - Heavy infestation of H. lineatum (common cattle grub) reported in small herd of American bison at Brewer, Penobscot County. (Boulinger, July 4).

HORSE BOT FLY (Gasterophilus intestinalis) - MISSOURI - Egg laying underway in Jasper County. (Houser, Thomas, Wood).

BLOW FLIES - VERMONT - Unusually heavy around urban and suburban areas. (MacCollom, July 6).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - OKLAHOMA - Reported biting humans in several areas of eastern half of State. (Okla. Coop. Sur.). FLORIDA - Taken in bedroom of residence in Marineland, Volusia County, July 6. (Mrs. F. Gertha).

ASSASSIN BUGS - SOUTH DAKOTA - Infesting homes in Groton area of Day County. (Walstrom).

FLEAS (Ctenocephalides spp.) - RHODE ISLAND - Infestations reported in homes in Bristol and Providence. (Veilleux). GEORGIA - Abundant in Atlanta area. (Ridley). OKLAHOMA - C. canis (dog flea) and C. felis (cat flea) being found in large numbers in homes in Payne County (north central) by returning vacationers. (Okla. Coop. Sur.).

A BETHYLID WASP (Scleroderma carolinense) - GEORGIA - Causing considerable anxiety to residents in Atlanta. (Ridley).

YELLOW JACKETS - UTAH - Annoying occupants of forest camp in Logan Canyon, Cache County. (Knowlton).

TICKS - OKLAHOMA - Amblyomma americanum (lone star tick) heavy on cattle in Haskell (east central) and Choctaw (southeast) Counties. Rhipicephalus sanguineus (brown dog tick) populations becoming annoying on animals and in homes in Payne and Kay (north central) Counties. (Okla. Coop. Sur.). MAINE - Dermacentor variabilis (American dog tick) reported heavy in southern part of State during June; more inquiries than usual received from Otisfield, Casco, Raymond, Naples, Bridgton, Baldwin, Standish and Cornish. Light in these areas during 1963. (Boulinger, July 4).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - CALIFORNIA - Found on child in Oroville, Butte County. (Cal. Coop. Rpt.).

CHICKEN MITE (Dermanyssus gallinae) - MAINE - Mites, tentatively determined as this species, light and a nuisance to women and babies during early June in Mechanic Falls, Androscoggin County. (Boulinger).

A CHIGGER (Eutrombicula alfreddugesi) - OKLAHOMA - Annoying vacationers in many areas. Numbers appear to be dropping. (Okla. Coop. Sur.).

A SCAB MITE (Psoroptes cuniculi) - OHIO - Collected from ears of rabbit in Columbus, Franklin County, central section. (Johnson).

BLACK WIDOW SPIDER (Latrodectus mactans) - ARIZONA - Large numbers of young spiders appearing in all areas of Pinal County; present serious hazard to small children. (Ariz. Coop. Sur.).

A BROWN SPIDER (Loxosceles reclusa) - ILLINOIS - Collected in Edwards County July 8. This is a new county record. (Ill. Ins. Rpt.).

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

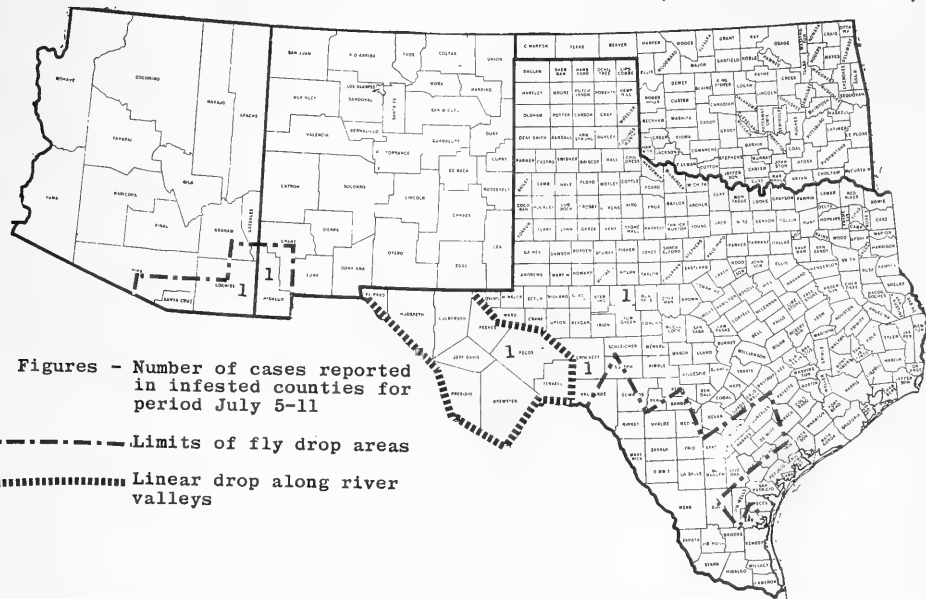
During the period July 5-11, three screw-worm infestations were confirmed in TEXAS. One each from Coke, Crockett and Pecos Counties. Coke and Crockett Counties are outside of the fly-release area. ARIZONA reported 1 case in Cochise County. NEW MEXICO reported 1 case in Hidalgo County. The Republic of Mexico reported 105 cases from the States of Sonora (37), Tamaulipas (16), Nuevo Leon (14), Coahuila (1), Chihuahua (27), Durango (6), Zacatecas (1), Vera Cruz (1), and San Luis Potosi (2). A total of 103,203,050 sterile screw-worms flies was released: 33,054,250 in Texas, 1,200,000 in New Mexico, 3,852,000 in Arizona and 56,096,800 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	3,083	23,056	65	1,975	4,743.0:100	1,167.3:100
1963	128	2,015	123	4,160	104.06:100	48.4:100
1964	4	96	50	3,982	8.0:100	2.4:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).



HOUSEHOLD AND STRUCTURAL INSECTS

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - DELAWARE - Adults rather numerous in home in northern New Castle County. (Burbutis, Crossan). WISCONSIN - Adults continue pestiferous in houses. (Wis. Ins. Sur.). IDAHO - Populations a household nuisance in Ketchum, Blaine County, and in Saint Anthony, Fremont County. (Garner, Warren).

DERMESTIDS - MASSACHUSETTS - Unspecified species of concern to homeowners in eastern area. (Garland, July 2). WISCONSIN - Dermestes lardarius (larder beetle) populations reported high in Calumet County area; incidence unusually high in Winnebago area of Winnebago County. (Wis. Ins. Sur.).

A SPIDER BEETLE (Mezium affinis) - MAINE - Moderate to heavy in a home in Augusta, Kennebec County in mid-April. (Boulinger).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - MAINE - Moderate to heavy infestations reported in 2 apartments in Augusta, Kennebec County, during January. (Boulinger).

GROUND BEETLES - MARYLAND - Undetermined species coming to lights caused nuisances in several homes over State. (U. Md., Ent. Dept.)

CASEMAKING CLOTHES MOTH (Tinea pellionella) - ALABAMA - Heavy infestations noted in several residences in Mobile County. (Seibels).

A MOTH FLY (Teimatoscopus albipunctatus) - MARYLAND - Numerous adults caused nuisance in several homes in Anne Arundel and Prince Georges Counties. (U. Md., Ent. Dept.).

LITTLE HOUSE FLY (Fannia canicularis) - MAINE - Adults extremely abundant about poultry laying house and vicinity during mid-April in Augusta, Kennebec County. (Boulinger).

AN ALYDID BUG (Alydus sp.) - GEORGIA - Large numbers entering homes in Walton County. (Vanderford). Also reported in Oconee, Franklin, Madison and Lincoln Counties, where reported coming from fields of groundsel. (Jordan).

EARWIGS - UTAH - Becoming more troublesome in some Davis and Salt Lake County communities. (Knowlton). NEW JERSEY - Prevalent in many homes and outside in some Bergen County localities. (Ins.-Dis. Newsltr.). CONNECTICUT - Continue a problem around many homes. (Savos). MASSACHUSETTS - Forficula auricularia (European earwig) causing much concern in eastern area; many requests for information received. (Garland, July 2).

FIELD CRICKETS (Gryllus spp.) - NORTH DAKOTA - Becoming problem in and around homes in southeast. (Frye).

CADDISFLIES - OHIO - Many adults annoying in home at Portsmouth, Scioto County, south central. (Wood, Holdsworth).

LEAD-CABLE BORER (Scobicia declivis) - CALIFORNIA - Heavy in wine barrels in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

CARPENTER ANTS (Camponotus spp.) - MASSACHUSETTS - Causing concern in eastern part of State. (Garland, July 2).

PAVEMENT ANT (Tetramorium caespitum) - MASSACHUSETTS - Many requests for information received from eastern area. (Garland, July 2).



STORED-PRODUCT INSECTS

A DERMESTID BEETLE (Trogoderma glabrum) - IOWA - Adults, probably this species, abundant on outside of cornbins; some noted in grain. (Iowa Ins. Inf., July 6).

BOOKLICE (Liposcelis spp.) - IOWA - Winged forms collected in stored corn in Boone and Winneshiek Counties; controls recommended. (Iowa Ins. Inf., July 6).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Adults ranged 10-30 and larvae 0-40 per 100 sweeps in alfalfa in central and west districts. (Ill. Ins. Rpt.). NORTH DAKOTA - Several species, predominantly Hippodamia convergens (convergent lady beetle) and Adalia bipunctata (two-spotted lady beetle), observed in moderate numbers in alfalfa and grain fields in southwest. (Frye). WYOMING - Adult counts of several species per 100 sweeps averaged 64 in alfalfa and 27 in sugar beets in Converse and Platte Counties. (Marks). UTAH - Adults and larvae of unspecified species numerous in Millard County alfalfa fields. (Knowlton). CALIFORNIA - Unspecified species numerous in cotton in Fresno County. (Stromberg, July 1).

GREEN LACEWINGS (Chrysopa spp.) - CALIFORNIA - Numerous in Fresno County cotton. (Stromberg, July 1). UTAH - Numerous in alfalfa in Millard County. (Knowlton). NORTH DAKOTA - Numbers moderate in alfalfa and grain in southwest. (Frye). ILLINOIS - C. oculata (green-eye lacewing) adults varied 0-10 and larvae 0-100 per 100 sweeps in alfalfa in central and west districts. (Ill. Ins. Rpt.).

MELYRID BEETLES (Collops spp.) - UTAH - Moderate numbers noted in alfalfa in eastern Millard County. (Knowlton).

DAMSEL BUGS (Nabis spp.) - ILLINOIS - Adults and nymphs varied 10-40 per 100 sweeps in alfalfa in central and west districts. (Ill. Ins. Rpt.). NORTH DAKOTA - Few observed in fields of alfalfa and grain in southwest. (Frye). WYOMING - Adults averaged 47 per 100 sweeps in alfalfa in Converse and Platte Counties. (Marks). UTAH - N. alternatus and other species numerous in alfalfa in Millard County. (Knowlton).

ANTHOCORID BUGS - CALIFORNIA - Numerous in Fresno County cotton. (Stromberg, July 1). UTAH - Orius tristicolor moderate in alfalfa in eastern Millard County. (Knowlton).

BIG-EYED BUGS (Geocoris spp.) - UTAH - Numerous in alfalfa in eastern Millard County. (Knowlton). CALIFORNIA - Dominant beneficial species in Fresno County cotton. (Stromberg, July 1).

DRAGONFLIES - ALABAMA - Swarming along bridges approaching Dauphin Island in Mobile County. Heaviest numbers observed in many years. (Seibels).

ALKALI BEE (Nomia melanderi) - NEVADA - First adults of season emerging in Orovada, Humboldt County. (Lauderdale). UTAH - Not yet active in alfalfa seed fields in eastern Millard County. (Knowlton).

A LEAFCUTTING BEE (Megachile rotundata) - NEVADA - Adult emergence heavy from artificial nests in Orovada, Humboldt County. (Lauderdale).

CICADA KILLER (Sphecius speciosus) - NEBRASKA - Adult activity increasing in areas of southeast section. (Bergman).

A SPHECID WASP (Bembix carolina) - OKLAHOMA - Catching horse flies in Seminole, Lincoln and Cleveland Counties, central area. (Okla. Coop. Sur.)

A TIPHIID WASP (Tiphia vernalis) - WEST VIRGINIA - Attempts were made to colonize this parasite of Japanese beetle (Popillia japonica) in areas where it does not occur; 20 colonies were collected in Grafton, Taylor County; and shipped to other areas. Three additional colonies were released near Parson, Tucker County. (PPC, East. Reg., May Rpt.). Twelve colonies of 100 specimens each of this wasp were released in OHIO, INDIANA, AND ILLINOIS. (PPC, Cent. Reg., May Rpt.). GEORGIA - T. vernalis was released at sites at Dahlonga, Lumpkin County, and at Atlanta, Richmond County. (PPC, South. Reg., May Rpt.).

PARASITIC WASPS - UTAH - Moderately numerous in alfalfa in eastern Millard County. (Knowlton).

#### MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - Adults in Battle Creek area, Calhoun and Kalamazoo Counties, collected in several of the first 100 traps set. Feeding injury also reported in area. (Carlson, Ring). CONNECTICUT - Probably emerged in most areas of State; scarcity indicates that pest will probably not be abundant this year. (Savos, July 11). RHODE ISLAND - More common but still no general infestation. Isolated small groups found in all parts of State. (Mathewson). MASSACHUSETTS - First emergence noted July 3 in Amherst area, Hampshire County. (Wave).

A MAY BEETLE (Phyllophaga koehleriana) - NEW MEXICO - Emergence began in Raton area, Colfax County; appearing at lights in extremely large numbers. (N.M. Coop. Rpt.)

A WEEVIL (Eudiagogus rosenschoeldi) - FLORIDA - Very heavy on various plants at Tampa, Hillsborough County. (Krause, Hale, July 2, 6).

COCKLEBUR WEEVIL (Rhodobaenus tredecimpunctatus) - MISSOURI - Tentatively identified grubs found boring through stalks of sunflower plants in Barton County. Averaged approximately 1 per 10 stems; only one grub to a stem. (Houser, Thomas, Wood).

A DILARID (Nallachus americanus (MacLachlan)) - IOWA - The collection of this small member of the Order Neuroptera on June 21 near Ames, Story County, is not only the first record of the species in the State, but is also the first record of the Family Dilaridae. Larvae are believed predaceous on insects in rotting wood. This is a rare species and the farthest west previously collected was in Michigan. Collected by T. Helms, L. Olson and H. Barton. (Iowa Ins. Inf., June 29).

MEADOW SPITTLEBUG (Philaenus spumarius) - IDAHO - Continues extremely abundant on wide variety of crops and ornamentals throughout much of northern part of State. Numbers increased during past few years; now of economic concern throughout many northern counties. (Gittins).

A ROBBER FLY - NEW MEXICO - Adults abundant on rangeland near Raton, Colfax County. (N.M. Coop. Rpt.).

SOLPUGIDS - COLORADO - Noted in Phillips and Conejos Counties. (Hantsbarger).

MOTHS - RHODE ISLAND - Amathes c-nigrum (spotted cutworm) and Halisdota tessellaris (pale tussock moth) predominated in blacklight collections July 4 in Kingston, Washington County. (Mathewson).

AN ERIOPHYID MITE - OKLAHOMA - Reported killing Bermuda grass in 4 Oklahoma City lawns, central area. (Okla. Coop. Sur.).

CORRECTIONS

CEIR 14(28):752 - SOD WEBWORMS - OREGON - Delete note on Crambus sperryellus.

CEIR 14(28):777 - A SCENTLESS GRASS BUG (Padera haematoloma) should read (Jadera haematoloma).

CEIR 14(28):781 - LIGHT TRAP COLLECTIONS - ARKANSAS - Collections for Warren 6/18-7/1 should read Morrilton 6/18-7/1. (Ark. Ins. Sur.).

ADDITIONAL NOTES

NORTH CAROLINA - Larvae of EUROPEAN CORN BORER (Ostrinia nubilalis) collected in a Person County cornfield. (Smith, Mount). CHINCH BUG (Blissus leucopterus) reported attacking corn next to recently harvested wheat locally in Granville County. (Hardee, Robertson). FALL ARMYWORM (Laphygma frugiperda) collected in Bladen County cornfield and LESSER CORNSTALK BORER (Elasmopalpus lignosellus) found in field of peanuts in Northampton County. (Robertson). A SPIDER MITE (Tetranychus sp.) reported heavy on beans in Beaufort County on June 30 (Vaughan, Robertson) and FLEA BEETLE larvae may be responsible for extensive scarring of rutabagas being grown commercially on a Pamlico County farm (Mount). Undetermined SPITTLEBUGS (nymphs) present on pecan twigs received from New Hanover County; developing nuts reported to be falling from trees. (Baggett, Mount). EUONYMUS SCALE (Unaspis euonymi) infesting euonymus locally in Moore County. (Mount). TABANIDS reported to be a considerable problem to a Rutherford County dairy farmer. (Crawford). Adults of a CHRYSOMELID (Chrysochus auratus) collected from milkweed in Yancey County about July 1. (Mount).



LIGHT TRAP COLLECTIONS

State	County	Locality	Date	Time	Light	Temp.	Humid.	Wind	Clouds	Moist.	Wind	Temp.	Humid.	Wind	Clouds	Moist.	Wind	Temp.	Humid.	Wind	Clouds	Moist.		
MICHIGAN		Monroe	6/30-7/6	BL	19																			
		Kalamazoo	6/30-7/6	BL	17																			
		Livingston	6/30-7/6	BL	17																			
		Jackson	6/30-7/6	BL	19																			
		Macomb	6/30-7/6	BL	7																			
		Newaygo	6/30-7/6	BL	3																			
		Manistee	6/30-7/6	BL	3																			
		Manistee	6/30-7/6	BL	17																			
		Manistee	6/30-7/6	BL	9																			
		Iron	6/30-7/6	BL	9																			
MISSISSIPPI		Stoneville	7/3-10	MV	13																			
		Stoneville	7/3-10	BL	14																			
MISSOURI		Portageville	7/4-10		4																			
		Columbia	7/3-8		9																			
NEW JERSEY		Aura	7/7, 9																					
		Evesboro	7/7																					
		Seabrook	7/7, 9																					
		Seabrook	7/7, 9																					
		Seabrook	7/7, 9																					
NEBRASKA		Bushnell	6/16-22		1498																			
		Bushnell	6/24-29		1520																			
		Chappell	6/12-19		446																			
		Chappell	6/20-26		76																			
		Kearney	6/20-24		5																			
		Kearney	6/25-7/7		93																			
		Kearney	6/25-7/7		262																			
		North Platte	6/25-7/1		150																			
		Ogallala	6/25-30		27																			
		Ogallala	6/25-30		6																			
SCOTTS BLUFF		Scottsbluff	6/8-14		1530																			
		Scottsbluff	6/16-22		823																			
		Scotts Bluff Exp.																						
		Sta. 6/18-24																						
		Sta. 6/25-7/1																						
NORTH DAKOTA		Fargo	7/3-10		13																			
		Kildeer	7/3-10		6																			
		Linton	7/3-10																					
		McLeod	7/3-10																					
		Bismarck	7/3-10		1																			
		Boyman	7/3-10																					
		Boyman	7/3-10																					
		Bottineau	7/3-10																					
		Bottineau	7/3-10																					

\* BL = blacklight; I = incandescence; MV = mercury vapor; 0 = other  
 \*\* Alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; peas. = peanut; pepp. = pepper; ppp. = papaya; ppp. = papaya; SC = sweet corn; soil. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.



ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Clover & Alfalfa  
(Commodity or Crop)

A. Pest or pest complex: Pea aphid

B. Number of acres <sup>a</sup> produced (From CRS)	No. <u>1,928,000</u>
C. Average yield per acre <sup>a</sup> (From CRS)	Units/ <u>1.03 ton</u>
D. Price <sup>b</sup> per unit (ton) <sup>c</sup> (From CRS)	\$/ <u>23.00</u>
E. Acres <sup>a</sup> needing control (0.8%)	No. <u>15,810</u>
F. Acres <sup>a</sup> treated	No. <u>13,925</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>20</u>
I. Loss in yield, units per acre <sup>a</sup> , C X H	Units/ <u>0.21 ton</u>
J. Loss in yield, \$ per acre <sup>a</sup> , D X I	\$/ <u>4.83</u>
K. Loss in quality, \$ per acre <sup>a</sup>	\$/ <u>          </u>
L. Yield loss for all acres <sup>a</sup> , (E-F) X I	Units <u>396. tons</u>
M. Control cost, \$ per acre <sup>a</sup>	\$/ <u>3.25</u>
N. Control cost for all acres <sup>a</sup> , F X M	\$ <u>45,256</u>
O. Yield loss for all acres <sup>a</sup> , (E-F) X J	\$ <u>9,105</u>
P. Quality loss for all acres <sup>a</sup> , (E-F) X K	\$ <u>          </u>
Q. Combined control cost and losses, N + O + P	\$ <u>54,361</u>
R. Percent loss due to each insect in the complex:	

Comment: This is approximately the same as the 1962 loss which was \$58,300.  
In general pea aphid was very light in 1963.

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

Submitted by Clarence White  
Date February 11, 1964

ATTACKING Alfalfa Hay  
(Commodity or Crop)

A. Pest or pest complex: Potato leafhopper

B. Number of acres <sup>a</sup> produced (From CRS)	No. <u>1,124,000</u>
C. Average yield per acre <sup>a</sup> (From CRS)	Units/ <u>1.25 tons</u>
D. Price <sup>b</sup> per unit (ton) <sup>c</sup> (From CRS)	\$/ <u>23.00</u>
E. Acres <sup>a</sup> needing control (4.26%)	No. <u>48,107</u>
F. Acres <sup>a</sup> treated	No. <u>30,133</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>6</u>
I. Loss in yield, units per acre <sup>a</sup> , C X H	Units/ <u>0.08 ton</u>
J. Loss in yield, \$ per acre <sup>a</sup> , D X I	\$/ <u>1.84</u>
K. Loss in quality, \$ per acre <sup>a</sup> (25%)	\$/ <u>5.75</u>
L. Yield loss for all acres <sup>a</sup> , (E-F) X I	Units <u>1,414 tons</u>
M. Control cost, \$ per acre <sup>a</sup>	\$/ <u>3.25</u>
N. Control cost for all acres <sup>a</sup> , F X M	\$ <u>98,907</u>
O. Yield loss for all acres <sup>a</sup> , (E-F) X J	\$ <u>36,220</u>
P. Quality loss for all acres <sup>a</sup> , (E-F) X K	\$ <u>101,626</u>
Q. Combined control cost and losses, N + O + P	\$ <u>233,053</u>
R. Percent loss due to each insect in the complex:	

Comment: This is an increase of \$100,608 over the 1962 estimate and in due to an increase in leafhopper populations and also an increase of \$2.50 per ton in the value of Hay. In 1962, 24,741 acres needed treatment and 12,292 acres were treated.

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

Submitted by Clarence White  
Date February 11, 1964

## ESTIMATED LOSSES AND PRODUCTION ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Illinois DURING 1963

(State or District) (Year)

ATTACKING Clover & Alfalfa  
(Commodity or Crop)ATTACKING Red clover hay  
(Commodity or Crop)A. Pest or pest complex: Clover leaf weevilA. Pest or pest complex: Lesser clover leaf weevil

B. Number of acres <sup>a</sup> produced (From CRS) d/ No. 1,928,000

C. Average yield per acre <sup>a</sup> (From CRS) d/ Units/1.03 ton

D. Price<sup>b</sup> per unit ( ton ) <sup>c</sup> (From CRS) d/ \$/23.00

E. Acres <sup>a</sup> needing control (7.56%) No. 145,757

F. Acres <sup>a</sup> treated No. 20,934

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 15

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/0.15 ton

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/3.45

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

L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 18,723 tons

M. Control cost, \$ per acre <sup>a</sup>, F x M \$/3.25

N. Control cost for all acres <sup>a</sup>, F x M \$ 69,036

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 430,639

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

Q. Combined control cost and losses, N + O + P \$ 498,675

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

B. Number of acres <sup>a</sup> produced (From CRS) No. 804,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/.76 ton

D. Price<sup>b</sup> per unit ( ton ) <sup>c</sup> (From CRS) \$/23.00

E. Acres <sup>a</sup> needing control (31.57%) No. 253,823

F. Acres <sup>a</sup> treated No. 0

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 15

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/.12 ton

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/2.76

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

L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 30,459 tons

M. Control cost, \$ per acre <sup>a</sup>, F x M \$ 0

N. Control cost for all acres <sup>a</sup>, F x M \$ 0

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 700,551.

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

Q. Combined control cost and losses, N + O + P \$ 700,551.

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

Comment: Populations were a little heavier in 1963 than in 1962. Only 112,585 acres needed treatment in 1962 and 6,154 acres were treated, leaving 104,433 acres needed treatment but not treated. Damage in 1962 was \$369,031 or \$129,642 per head of cattle or other producing units used by Crop Reporting Service.

Comment: Many fields, especially in southern Illinois, had 90 percent or more of the terminal buds killed, thus arresting stem development and preventing formation of heads.

- 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 ( ).
4. Ill. Crop Reporting Service, Illinois Annual Crop Summary, Dec. 24, 1963

- 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 Clarence White  
Date February 11, 1964Submitted by Clarence White  
Date February 11, 1964





UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPER populations continue economic in areas of Wisconsin, and economic numbers appearing in west central Minnesota; infestations heavy with damage reported on cropland in various eastern areas of South Dakota; damaging corn in northeast and heavy in crop margins in southwest Oklahoma; heavy infestations in Rio Arriba and Valencia Counties, New Mexico. (pp. 829-830). CORN EARWORM more abundant in field corn than for many years in southern Illinois; potential for damage later in season; heavy in corn in Osage County, Oklahoma. (p. 830). EUROPEAN CORN BORER causing 80-90 percent whorl damage in corn in several areas of South Dakota, locally severe in early corn in other areas of State; first pupae appearing in Wisconsin; early pupation in Illinois may indicate partial to complete third generation this season in that State. (pp. 830-831). ARMYWORM found in economic numbers in areas of Minnesota; locally heavy in Cass County, North Dakota; observations in oats and corn indicate potential outbreak in Rock County area of Wisconsin. (pp. 831-832). CORN ROOTWORMS causing economic damage to corn in southeastern South Dakota; also damaging corn in Missouri, Kansas and Wisconsin. (pp. 832-833). CORN LEAF APHID infesting 80 percent or more of field corn in areas of Indiana and numbers high in northwest Minnesota. (pp. 833-834). PEA APHID heavy on second-cutting alfalfa in eastern and western Colorado and damaging same crop in areas of Utah; medium to heavy on alfalfa in San Juan County, New Mexico, and increasing in Laramie County, Wyoming. (p. 835). POTATO LEAFHOPPER continues most important midsummer insect problem on alfalfa over Maryland; yellowing alfalfa in Wisconsin, Illinois and Pennsylvania. (p. 835).

BOLL WEEVIL punctured square counts increased greatly in areas below Cap Rock in Texas with heavy egg laying underway, and heavy populations reported from Walker and Houston Counties; continues generally low in other areas of Nation. BOLLWORMS still threat to maturing cotton in southernmost part of Texas; buildups reported in more eastern and western South Carolina counties. LYGUS BUG population increases necessitated increase in control efforts in areas of Arizona. (pp. 843-844).

Severe defoliation by RED-HEADED PINE SAWFLY on jack pine expected from Pine City to Sandstone in Minnesota. (p. 846). ELM LEAF BEETLE continues damaging. (p. 847).

HORN FLY populations increasing and becoming troublesome to cattle in several States. STABLE FLY populations high in northwest Illinois and most common fly problem in Wisconsin. FACE FLY populations increasing in several areas. (pp. 849-850).

DETECTION

New county records reported were WESTERN CORN ROOTWORM (*Diabrotica virgifera*) in Reno, Stafford, Pratt and Barber Counties, Kansas (p. 832); NORTHERN CORN ROOTWORM (*D. longicornis*) in Harper, Kingman and Reno Counties, Kansas (p. 833); ALFALFA WEEVIL (*Hypera postica*) in Switzerland County, Indiana (p. 836); ELM LEAF BEETLE (*Galerucella xanthomelaena*) in Jackson County, Iowa (p. 847); SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) in Lyon County, Nevada (p. 847); FACE FLY (*Musca autumnalis*) in Jefferson County, Missouri, and Floyd, Gordon and Pickens Counties, Alabama (p. 850).

CORRECTIONS

See page 852.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 853).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Clover and Alfalfa, and Soybeans in Illinois, 1963. (p. 857).

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

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WEATHER OF THE WEEK ENDING JULY 20

Cloudy skies and frequent showers held temperatures down over the Southeast while most other areas of the Nation experienced predominantly hot, dry weather.

**TEMPERATURE:** Mild temperatures were common over the eastern half of the country as the week began. A 50° low on the 13th at Springfield, Missouri, was the coolest July temperature ever recorded there. Warming during the period brought averages up to or above normal throughout much of the Great Plains and from the Northeast over the Great Lakes. Departures in Montana and Minnesota ranged to 7° above normal. By midperiod, near 100° heat reached the Canadian border. On the 18th, the high at Caribou, Maine, was 93°. Eau Claire, Wisconsin, logged a 101° reading on the 19th. However, temperatures averaged generally below normal from the Ohio and lower Missouri Valleys southward. The greatest deficiencies ranged to 6° over the upper Tennessee Valley. Very few daily maxima exceeded 90° over much of the Southeast; Charlotte, North Carolina, recorded a high of only 73° on the 18th. Warm temperatures prevailed all week over much of the Far West. Daily highs exceeded 100° over most of Arizona and interior southern California, though averages were slightly below normal. Temperatures also averaged below normal in the Pacific Northwest, but were near or slightly above elsewhere.

**PRECIPITATION:** In the Far West, rainfall was negligible or nonexistent in most of Nevada, California, and adjacent areas of Idaho and Oregon. However, widespread shower activity left appreciable amounts in northern Idaho, western Washington, and large areas of Arizona and New Mexico. Moderate rains also fell in the uplands of Montana and Wyoming. On the 14th, the Phoenix, Arizona, airport received its first precipitation in 2.5 months. Elsewhere, rain was mostly light or totally absent from the Mississippi to the Rockies, except in the west central Plains where isolated storms dropped locally heavy amounts. Heavy rains on the Illinois-Wisconsin side of Lake Michigan left amounts of 6 to 8 inches in the suburbs of Milwaukee on the 17th and 18th during a siege of storms. Hailstones to 2 inches in diameter hit La Crosse, Wisconsin, on the 18th. Eastward over the Lakes and Northeast rainfall was of a more modest nature. Recurring showers left moderate to excessive totals along the gulf coast and in the South Atlantic States. Heavy rains on the final day in the Coastal Bend of Texas amounted to as much as 10 inches locally. The week long showers in the Southeast produced totals such as 10.46 inches at Tallahassee, Florida; 9.33 inches at Savannah, Georgia; and 6.11 inches at Athens, Georgia; and caused local flooding. Tallahassee set a new 24-hour rainfall record of 8.72 inches on the 18th. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - MARYLAND - Melanoplus spp. nymphs and adults abundant and causing conspicuous damage in several alfalfa fields in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). ILLINOIS - Melanoplus spp. very abundant in scattered, localized spots in northern area. Vary 0-24 (average 6.3) per square yard in grassy areas. Some fields with nearly all first and second instars; other fields mostly third to fifth instars. Some migration to corn and soybeans but no damage observed. (Ill. Ins. Rpt.). WISCONSIN - Little change in populations and stages noted in most areas. Noticeable feeding on alfalfa in Brodhead area primarily by nymphs of Melanoplus femurrubrum (red-legged grasshopper) noted. Leaves nearly stripped from alfalfa in soil bank field near Mazomanie; principally M. sanguinipes (migratory grasshopper) and Ageneotettix deorum adults. Dissosteira carolina (Carolina grasshopper) adults becoming more noticeable in soybean fields. (Wis. Ins. Sur.). MINNEOTA - Economic populations appearing in scattered locations in west central area from Lac qui Parle and Chippewa to Wilkin and west Otter Tail Counties. Roadside infestations ranged 25-75 per square yard. M. femurrubrum predominant, but M. differentialis (differential grasshopper) in some cases, M. bivittatus (two-striped grasshopper) high in some areas. Some high field infestations found in alfalfa in Chippewa and Swift Counties. High counts of 20-65 per square yard found in northeast Kandiyohi, southern Stears and northwest Wright Counties. M. femurrubrum predominant in this area but few fields with 20 percent of population consisting of M. bivittatus and M. differentialis. (Minn. Ins. Rpt.). IOWA - Grasshoppers numerous in hayfields in spite of heavy rains and high humidity in Cass County. (Iowa Ins. Inf., July 13).

NORTH DAKOTA - Survey in Morton, Grant, Stark, Hettinger, Dunn and Mercer Counties showed grasshopper counts up to 17 per square yard; averaged 2-5. Field infestations ranged up to 20 per square yard; averaged 2-3. Highest field counts in weedy soil bank, alfalfa and sweet clover fields. Development ranged first instar through adult; 10 percent adults, 30 fifths, 38 fourths, 20 thirds, 2 percent seconds and a trace of first instars. (Frye, Gage). Dominant species included M. packardii (Packard grasshopper), M. sanguinipes, M. femurrubrum and M. bivittatus. (Brandvik, Scholl). SOUTH DAKOTA - Spraying in infested rangeland in Pine Ridge area of Shannon County produced good grasshopper control except when aircraft flew over deep canyons at right angles. Canyons later sprayed; entire area checked and kill found exceptionally good. Irrigation area at Oral, Fall River County, with marginal infestation up to 10 per yard but generally only 2-5 per yard and almost none in fields. Fewer grasshoppers in Elk Mountain range area in western Custer County than in 1963; ranged 6-8 per square yard except in southern area with 8-10 per square yard observed. Species include Aulocara ellioti, Phlibostroma quadrimaculatum, Ageneotettix deorum, and Trachyrhachys kiowa; 50 percent fourth and fifth instars and 50 percent adults. Cropland in eastern half of State with heavy infestations in various areas. Reports of damage received from Aurora, Buffalo and Gregory Counties; no estimate given. Crops being destroyed include alfalfa (forage and seed production) and corn. Melanoplus spp. predominant. (Burge, Zimmerman, Hintz). NEBRASKA - Light to moderate, spotted infestations present in parts of southwest. Melanoplus sanguinipes adults approximately 3 per square yard in alfalfa in Furnas County and less than 1 per square yard in green and yellow wax beans in Red Willow County. Counts of 8-10 per square yard in legumes, idle acres, fencelines and railroad rights-of-way in Dundy County. Mostly M. bivittatus nymphs and adults, M. sanguinipes adults, Dissosteira carolina adults, and Boopendon nubilum adults. (Bergman). OKLAHOMA - Several species moderate on rangeland in Cleveland, Grady, Mayes and Murray Counties. Damaging corn in Nowata County. Heavy in crop margins in most of southwest. (Okla. Coop. Sur.). NEW MEXICO - Due to drought conditions, hatch has been very erratic in most areas of State. One heavy infestation with 50-60 per square yard, mostly adults, found on about 500 acres near Regina, Rio Arriba County. Species about 90 percent Melanoplus sanguinipes (migratory grasshopper) with some M. bivittatus and Aulocara ellioti. Another spotted, heavy infestation involves approximately 1,000 acres of cropland, mostly alfalfa, near Grants, Valencia County. An estimated 4,000 acres of cropland and 500 acres of rangeland

about 40 miles south of Gallup on the Zuni Indian Reservation have up to 50 or more per square yard. Major species involved: *Camnula pellucida* (clear-winged grasshopper) 70 percent, *Aulocara elliotti* 10 percent, with *M. bivittatus* and *M. differentialis* (differential grasshopper) making up remainder of population. Two other infestations on privately owned, isolated valleys in southern McKinley County and western Valencia County with populations of 35-70 per square yard, mostly adults. *A. elliotti*, *M. sanguinipes*, *M. occidentalis*, *M. bivittatus*, *M. differentialis* and *C. pellucida* predominant species. Spotted, light to moderately heavy infestations reported along Rio Grande from 50 miles south of Albuquerque to Taos. Counts in alfalfa ranged 10-25 per 25 sweeps near Los Lunas, Valencia County, mostly *Melanoplus* spp. (N.M. Coop. Rpt.). UTAH - Damage increasing in many areas; increasing in Carbon County, especially at Helper with 25-75 per square yard in area near community. *M. sanguinipes*, *M. bivittatus*, *M. packardii* and *M. femurrubrum* especially abundant; 70 percent adults. (Knowlton). NEVADA - *M. cinereus* and few *Poecilottetix longipennis* infestations and damage to range and cultivated plants continued heavy south of Silver Springs, Lyon County. (Cooney). *M. sanguinipes* mostly nymphs, varied 0-4 per square yard in cheat grass on rangeland near Midas, Elko County, (Earnist) and 10-15 per square yard in seed alfalfa and wheat in Kings River Valley, Humboldt County, (Earnist, Lundahl). Mostly *A. elliotti*, *M. sanguinipes* and *Oedaleonotus enigma* averaged 10-15 per square yard along roadsides and cheat grass-mustard fields in Paradise Valley, Humboldt County. (Cooney). OREGON - Grasshoppers, probably *Camnula pellucida* (clear-winged grasshopper), migrating from dry range to alfalfa fields in Jackson County. Growers chemically treating some fields around edges. (Little).

CORN EARWORM (*Heliothis zea*) - NEW YORK - Extremely light in early sweet corn in Suffolk County. No adults trapped since June 20 and only 4 taken during entire season. In Hudson Valley sweet corn, collections made in early July from tassels remained in pupation. Scarcely evident in fields. (N.Y. Wkly. Rpt., July 13). DELAWARE - Generally light on corn in New Castle County. (Burbutis, Crossan). MARYLAND - Moths generally light to date in light trap collections on Eastern Shore. (U. Md., Ent. Dept.). OHIO - Light on sweet corn near Marietta, Washington County, southeast. (Racer). ILLINOIS - More abundant in southern field corn than for many years. Potential for damage later serious. (Ill. Ins. Sur. Bull.). GEORGIA - Light on peanuts throughout southern area. (Johnson). FLORIDA - This and *Laphygma frugiperda* (fall armyworm) infested 89 percent of untreated plot of sweet corn at Gainesville, Alachua County. *H. zea* 90 percent of larvae. (Habeck). ARKANSAS - Light on 4 of 16 soybean fields checked in Lonoke County. Examination July 15 of 100 row feet of sorghum in Craighead County (northeast) yielded 5 specimens. (Ark. Ins. Sur.). OKLAHOMA - Moderate on corn in Pushmataha and Choctaw Counties; heavy (76 per 100 ears) in Osage County. (Okla. Coop. Sur.). KANSAS - Eggs, larvae and/or moths observed in most corn checked in western and southern areas. Leaf, tassel and ear feeding noted. (Burkhardt, DePew, Peters). WASHINGTON - Found in whorls of corn near Othello, Adams County. (Powell, July 10).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - Extremely light on early sweet corn in Suffolk County. Mostly larger larvae with pupae increasing in sweet corn in Hudson Valley. Appearance of occasional moth and tiny larva suggested univoltine strain present though unimportant to growers. Ear tips occasionally entered by half-grown larvae moving down plants. (N.Y. Wkly. Rpt., July 13). DELAWARE - Numbers in blacklight traps increasing in Sussex County. (Burbutis, Crossan). MARYLAND - Pupation advancing steadily in tassels and stalks of early planted corn in Queen Annes and Worcester Counties. Second-generation moths increasing in light trap at Centreville. (U.Md., Ent. Dept.). INDIANA - Larvae infesting up to 20 percent of field corn (average 12 percent) in southwest. Averaged 10 percent in field corn (maximum 28 percent in Franklin County) in west central, central and east central sections. (Saugstad). ILLINOIS - Pupating throughout State. New eggs expected week of July 20. This early pupation may indicate partial to complete third generation throughout State; 2 generations normal for northern half of State. (Ill. Ins. Sur. Bull.). MICHIGAN - Larval infestations ranged 12-37 percent (average 30) in 8 fields sampled in Oakland and Shiawassee Counties. Field in Shiawassee County just tasseling July 12 showed



infestation of 37 percent; borers ranged first to fifth instars. No pupae found. Highest infestations generally on early planted corn. Heavier than usual first brood reported in Berrien, Branch, St. Joseph and Ingham Counties. Adults continue light in Lower Peninsula blacklight trap collections. (Newman, Belter, Thompson, Rothney, Wells, Snow). WISCONSIN - First pupae appearing in advanced areas of Spring Green and Janesville. Dissections indicated approximately 60-80 percent in fifth instar; remainder pupae or third instar. (Wis. Ins. Sur.). MINNESOTA - First generation not so high as anticipated in spring. Infestations vary greatly; generally taller corn has highest populations. Highest infestations found had only 60-65 percent of plants infested. Difficult to find in many fields. Egg laying continues in central, west central, southwest and northwest but at greatly reduced rate. First pupation of season in southeast. Percent borer development as follows: Southeast - 7 first, 19 second, 37 third, 26 fourth, 7 fifth instar and 4 pupae. Southwest - 55 first, 28 second, 11 third, 6 fourth and no fifth instar nor pupa. West central - 71 first, 27 second, 2 third, trace fourth and no fifth instar nor pupae. Northwest - 65 first, 35 second, and no third, fourth and fifth instars nor pupae. (Minn. Ins. Rpt.). IOWA - Not heavy in Scott County; 10-20 percent of 60 to 70-inch corn showed leaf feeding with 2-5 larvae per infested plant. Dissection showed 60 percent second and 40 percent third instars. Of 4 fields examined, none had more than 60 larvae per 100 plants. First pupa at Ankeny July 8. First-brood moths still flying and laying eggs July 7. Untreated check in field just tasseling 90 percent infested; shorter than treated part of field in O'Brien County. Two empty pupal cases noted in Thurman July 10. Second and third instars ranged 12-15 per plant in popcorn. (Iowa Ins. Inf., July 13). SOUTH DAKOTA - Whorl damage of 80-90 percent quite common in many fields in Minnehaha, Lincoln, Clay, Turner and Yankton Counties. Occasionally locally severe in early corn in other counties. (Kantack, Hintz). NORTH DAKOTA - New egg masses still found in Fargo and other southeastern areas. Hatching underway; most in first instar with a few second instars. (Frye, Gage). NEBRASKA - Second instars very light on corn in Kearney County. (Bergman).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - MISSISSIPPI - Larvae moved into corn plants. Very little control applied; severe lodging in some fields probable. (Young, Bennett, July 13). MISSOURI - Hatching in Pemescot County; appears very light. (Houser, Thomas, Wood).

ARMYWORM (*Pseudaletia unipuncta*) - NORTH DAKOTA - Heavy, local larval infestation appeared in Fargo, Cass County. Extensive feeding on grasses in large slough; some movement from slough to surrounding home gardens noted. Surveys in other areas negative in most cases. Trace numbers in barley near Warren. (Mulkern). SOUTH DAKOTA - Causing heavy damage to rye field in Aurora County; ranged 5-20 per linear foot of row. (Hintz). MINNESOTA - Economic numbers found in Morman, Polk and western Marshall Counties. Highest populations in lodged barley; averaged 3 per square foot. In wheat, populations averaged 1 per square foot. None found in oats. Lodged areas should be checked. Most infestations in lodged grain; larvae small but probably third instar. Treatment recommended when average of 3-4 larvae per square foot reached. (Minn. Ins. Rpt.). WISCONSIN - Observations in oats and corn in Rock County area indicate potential outbreak. Counts of late second instars continue around 6-40 per 10 feet of row in lodged oats. Few corn fields in Rock County with populations of outbreak proportions; 25 per square foot in grain and 5 per plant in corn with some damage. Cocoons of *Apanteles militaris* (a braconid) relatively common (adults emerged in laboratory July 14) and adults of *Winthemia quadripustulata* (a tachina fly) noted in corn. Both parasites become effective by time *P. unipuncta* attains third instar. Biological control should keep most in check. (Wis. Ins. Sur.). MICHIGAN - Blacklight catches continue high; no larval infestations reported. (Newman, Snow). ILLINOIS - Larvae ranged from newly hatched to 1 inch; vary 0-300 (average 22.4) per 100 corn plants in northern area. Infested 0-88 (average 22.4) percent of plants. Up to 6-7 larvae found on some plants. All damage due to whorl feeding in late corn; very few larvae observed on early corn, but as many as 14 small larvae per foot of row observed on grass in corn rows. Grassy corn fields more heavily infested although larvae observed in fields with little or no grass. Present in oats; up to 8 per square foot. Ranged 0-200 per 100 sweeps

in grass. Some diseased and parasitized larvae observed. (Ill. Ins. Rpt.). MISSOURI - Larvae one-third to one-fourth grown; averaged 1 per foot of row in Daviess County corn having heavy growth of foxtail. (Houser, Thomas, Wood). DELAWARE - Larvae very common in pasture; feeding on grass in eastern Sussex County. (Burbutis, Crossan).

FALL ARMYWORM (*Laphygma frugiperda*) - ALABAMA - Defoliated 100 percent of brown-top millet in Irvington area of Mobile County. (Seibels). NORTH CAROLINA - Larvae infesting 10-15 percent of whorls of late planted corn in Wayne County field. (Mount). ARKANSAS - Absent on 16 soybean fields checked in Lonoke County. Three specimens taken on 100 row feet of sorghum in Craighead County July 15. (Ark. Ins. Sur.). KANSAS - Leaf damage noted in many corn fields in western and southern areas. Percent of plants damaged ranged 0-25; full-grown larvae (first generation) found in western area. In south central area, young larvae and moths (second generation) found. (Burkhardt, DePew, Harvey, Peters). ILLINOIS - Leaving corn to pupate; new generation expected on late corn during August. (Ill. Ins. Sur. Bull.). INDIANA - Early instars feeding on small corn along edge of field in Newton County, northwest; averaged 1 per plant. (Gould). COLORADO - Distributed to some extent on corn through all areas of Arkansas Valley; controls ineffective. (Schweissing).

ARMYWORMS - MISSISSIPPI - Infested temporary grazing crops in Pike County for past 2 weeks; present in other grasses and ragging some late corn. Light trap catches at Stoneville indicate northward movement. (Young, Bennett, July 13). PENNSYLVANIA - Reports numerous. Stripped oats and moved to corn in Erie County. Moved into pasture in Warren County and disrupted highway traffic. (Adams, July 13). Infested 9-acre seeding of grass and birdsfoot trefoil in Susquehanna County. (Gesell, July 9).

STALK BORER (*Papaipema nebris*) - WISCONSIN - Fairly heavy in several corn fields in Lafayette County. (Wis. Ins. Sur.). IOWA - Larvae caused more damage to popcorn than *Ostrinia nubilalis* (European corn borer). (Iowa. Ins. Inf., July 13). OHIO - Larvae noted in field corn near Fremont, Sandusky County, north central. (Blair, Maddy).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ALABAMA - Caused 25-50 percent loss in cornfield in Houston County. (Roney).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - KANSAS - Survey made to delimit area of infestation in west central, southwest and south central parts of State. Many adults found in field corn in Rush, Scott, Lane, Finney, Pawnee, Reno and McPherson Counties. Trace numbers found in Stafford, Pratt and Barber Counties only in sweet corn or dent corn grown in home gardens; this corn tasseling and beetles feeding on pollen. In Rush, Lane and Scott Counties, some root damage observed in few fields. (Burkhardt, DePew, Peters). Severely damaged corn in Saline County. (Gates). Reno, Stafford, Pratt and Barber Counties are new ARS records (PPC). MISSOURI - Emergence approximately 75 percent complete in northwest. Late instars and pupae found. Adults feeding on silks and leaves of corn; adults in silk masses range 0-9, average 1-2. (Houser, Thomas, Wood). NEBRASKA - Adults light in Chase, Deuel, Dundy and Furnas Counties. Larval activity note in all fields surveyed; 2 fields in Furnas County had moderate to severe root damage; damage light in other fields. (Bergman). SOUTH DAKOTA - Adults under 1 percent of total population present. Occasional adult observed in extreme southeast counties and in other counties. Larvae still detected; low to medium in Lyman, Sanborn and Aurora Counties. Heavy in Lake County where larvae destroyed entire root system of corn plants. (Kantack, Hintz).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - MINNESOTA - Few adults emerged in southeast and central districts. Lodging appearing in southern counties; corn field in Carver County with very evident lodging. Averaged 10 larvae per plant; first to third instars, mostly third, found. Inspections for stunted, lodged or goosenecked plants urged. (Minn. Ins. Rpt.). WISCONSIN - Adults becoming increasingly more noticeable in larger corn; up to 4 noted in some

whorls. Feeding on silks of sweet corn in Rock County. (Wis. Ins. Sur.).  
IOWA - Adults reported active in Iowa County July 2. (Iowa Ins. Inf.).  
ILLINOIS - Few adults observed in northern area corn, but main emergence still to come. One or two reports of damage in treated fields. (Ill. Ins. Rpt.).  
OHIO - Adults emerging at Hoytville, Wood County, northwest; pupae and adults found in soil samples. Total of 66 adults noted in 277 samples. (Davidson, Polivka). MISSOURI - Adults light in northwestern area. (Houser, Thomas, Wood).  
KANSAS - Adults found in sweet corn and/or field corn in Harper, Kingman, Reno and McPherson Counties. None found west of these counties. (Burkhardt, Peters). Harper, Kingman and Reno Counties are new ARS records. (PPC).

CORN ROOTWORMS (*Diabrotica* spp.) - SOUTH DAKOTA - Continue as major insect pests in State; high or higher than in 1963 and generally more widespread in untreated fields in 24 southeastern counties. Economic damage in untreated fields in some areas extremely high with entire root systems removed. Lodging low due to dry weather and little wind. (Hintz). NEBRASKA - Damage and infestations heavy in untreated fields; adults emerging in considerable numbers in Lincoln County. (Pruess). *D. undecimpunctata howardi* (southern corn rootworm) adults averaged about 2 per 10 sweeps in Cheyenne County alfalfa. (Bergman). IOWA - Many adults of *D. undecimpunctata howardi* active at bases of corn plants in Guthrie County; probably laying eggs. (Iowa Ins. Inf., July 13).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Continues above normal on field and sweet corn; conspicuous foliage damage observed in Frederick, Talbot and Caroline Counties. (U. Md., Ent. Dept.).

DUSKY SAP BEETLE (*Carpophilus lugubris*) - WISCONSIN - Adults observed in early corn, especially in fields where corn smut most prevalent. Appears more common than usual but not of economic significance. (Wis. Ins. Sur.).

CORN SAP BEETLE (*Carpophilus dimidiatus*) - MICHIGAN - Adults found in stalks damaged by *Ostrinia nubilalis* (European corn borer) in Shiawassee County. (Dowdy).

SEED-CORN BEETLE (*Agonoderus lecontei*) - NEBRASKA - Adults found in corn and sorghum and around lights at night in Cheyenne County. (Bergman).

CEREAL LEAF BEETLE (*Oulema melanopa*) - MICHIGAN - Aerial spray operations against "summer" adults in Saginaw Valley area completed; surveys by State-Federal crews to determine new infestations ended. Most "summer" adults entered quiescent state in Berrien County research fields. Data this season show peak emergence of "summer" adults occurred in Berrien County June 27-29. Dates correspond very closely to activity in 1963. Although accumulated heat units above base 40° F. seasonably greater this season, relatively cool spell in early June slowed development to point where peak emergence this year almost identical with that of 1963. Eggs and larvae extremely difficult to find now and adults increasingly difficult to collect since July 8 when many became inactive. Population expected to remain relatively inactive for remainder of season but close watch maintained for indications of second brood. (Ring, Ruppel). INDIANA - "Summer" adults still occasionally observed emerging in La Porte County; bulk of populations moving from oats to field borders and hedgerows to aestivate. Most feeding of these adults confined to late oats which were still green. Slight feeding observed in border rows of corn adjacent to mature small grains, but this is of little consequence. (Wilson)

CORN LEAF APHID (*Rhopalosiphum maidis*) - OHIO - Noted on ears of sweet corn near Marietta, Washington County, southeast. (Racer). INDIANA - Adults and nymphs infesting 80 percent or more of field corn in southwest, south central and southeast sections. Extremely severe on 5 percent of plants in southwest section and on 20 percent of plants in south central and southeast sections. Field in Orange County, south central, had 50 percent of plants severely infested. (Bram). MICHIGAN - Colonies forming near tassels of field corn in Shiawassee County July 12. (Dowdy). WISCONSIN - Colonies on individual plants relatively large in a few fields in Sauk County; relatively low in most areas. (Wis. Ins. Sur.).

MINNESOTA - High numbers appearing on marginal rows in late-planted small grain in northwest district. (Minn. Ins. Rpt.). SOUTH DAKOTA - Quite heavy on sorghum in Turner County. (Kantack). COLORADO - Light populations continue to appear on sorghum in Arkansas Valley. Lady beetles numerous. (Schweissing). IDAHO - Alates and apterous forms spotty on corn in numerous fields checked throughout Canyon County; presently quite low. (Bechtolt).

CORN ROOT APHID (*Anuraphis maidiradicis*) - WISCONSIN - Heavy on roots of hail-damaged corn in northern Trempealeau County. (Wis. Ins. Sur.).

GREENBUG (*Schizaphis graminum*) - MINNESOTA - Counts on late-planted small grain in northwest district high; averaged 1,200 per 100 sweeps. (Minn. Ins. Rpt.).

CHINCH BUG (*Blissus leucopterus*) - PENNSYLVANIA - Moved from small grain to corn in York County and quite severe in some fields of barley in Montgomery County July 8. Several hundred per stalk of corn in Mifflin County July 14. (Menusan, Gesell, Udine). OKLAHOMA - Heavy on corn and sorghum in Mayes County (northeast). (Okla. Coop. Sur.).

RICE STINK BUG (*Oebalus pugnax pugnax*) - ARKANSAS - Averaged 3.7 adults in 100 sweeps per field; 16 fields checked in Lonoke County (east central). Only 2 nymphs collected. Comparable figures for previous week: 2.6 adults and no nymphs. Barnyard grass showing up in previously clean fields; may cause increase in population. (Ark. Ins. Sur.).

DELPHACID PLANTHOPPERS (*Sogata* spp.) - FLORIDA - *S. fucifera* complex infested rice plants at Rabbit and Kramer Islands in Belle Glade area, Palm Beach County, July 9, 13, 14. One specimen of *S. cubana* taken from rice at Rabbit Island, July 3. (Robnett).

A CORN LEAFHOPPER (*Dalbulus maidis*) - ARIZONA - Numerous adults found on field of Indian corn at Mesa, Maricopa County. (Ariz. Coop. Sur.).

A CHALCID - MISSOURI - Undetermined species reported in CEIR 14(29):790 now damaging in Bates, Henry, Benton, Cass, Pettis, Cooper, Lafayette and Saline Counties (west central) and in Platte, Ray, Buchanan, Clinton, Caldwell, Andrew, Atchison and Nodaway Counties (northwest). Estimate of damage remains same as previously reported. (Houser, Thomas, Wood).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - OREGON - Building up on grass in Jackson County. (Berry).

MITES - NEW MEXICO - Building up on foliage of corn for ensilage and on milo in Dona Ana County; treatment required in many fields. (N.M. Coop. Rpt.). DELAWARE - Increasing on soybeans in areas of Sussex County. (Burbutis, Crossan).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - NORTH DAKOTA - Increase noted in southeast; 5 per sweep on flax at Oakes. Up to 10 per sweep in lawn grass and weeds. Average in most areas 1-2 per sweep. (Frye, Gage).

SAGEBRUSH DEFOLIATOR (*Aroga websteri*) - NEVADA - Light to medium on *Artemisia tridentata* near Squaw Valley, Elko County, (Earnist) and Soldier Meadows, Humboldt County (Bechtel, Martinelli). Heavy, spotted infestations in Carson City, Ormsby County, and Steamboat, Washoe County, (Bechtel, Uriarte) and Paradise Valley, Humboldt County, (Cooney). Adult emergence beginning in all areas. (Bechtel).

FALSE CHINCH BUGS (*Nysius* spp.) - NEW MEXICO - Adults and nymphs literally covering ground and plants on rangeland near Datil, Catron County. (N.M. Coop. Rpt.).

PEA APHID (*Acyrtosiphon pisum*) - WASHINGTON - Mostly 20 per sweep on alfalfa grown for seed at Walla Walla, Walla Walla County; some parasitized aphids noted. Ranged 1-90 per 10 sweeps in Yakima and vicinity, Yakima County. No noticeable damage on alfalfa grown for seed. (Halfhill, July 10). UTAH - Damaging second-crop alfalfa in several Carbon County areas; moderate to light in fields examined in Emery and Duchesne Counties. (Knowlton). NEW MEXICO - Medium to heavy in alfalfa in Farmington-Bloomfield area, San Juan County; causing wilting and discoloration. Lighter in alfalfa in Los Lunas area, Valencia County; Bernalillo County and in Eddy, Dona Ana County. (N.M. Coop. Rpt.). COLORADO - Heavy on second-cutting alfalfa in eastern and western counties. Lady beetles, flower flies and brown lacewings abundant. (Schweissing, Bulla, et al.). WYOMING - Increasing in alfalfa fields of Laramie County; adults and nymphs average 3,500 per 100 sweeps. (Marks). NEBRASKA - Light on legumes in southwestern areas; approximately 25 per 10 sweeps. (Bergman). NORTH DAKOTA - Buildup occurred in Linton area; up to 100 per sweep. (Frye, Gage). ILLINOIS - Remains very low in lover and alfalfa in northern area. (Ill. Ins. Rpt.). INDIANA - Adults and nymphs on alfalfa generally ranged 0.2 to 8 per sweep in southeast, south central and southwest sections with maximum of 41 per sweep in Washington County. (Bram). Averaged considerably higher (ranged 8-45 per sweep, average 30) in east central, central and west central sections. (Saugstad). MARYLAND - Continues light, 0-17 per sweep, on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WISCONSIN - Ranged 6-16 per sweep on alfalfa near Mazomanie (12 percent winged). Counts of 50 and 42 per sweep in 2 different fields in Brodhead area. (Wis. Ins. Sur.). NEBRASKA - Averaged 30 per 10 sweeps in Furnas County. (Bergman). MISSOURI - Counts 2-3 per sweep in Texas and Ste. Genevieve Counties. (Houser, Thomas, Wood). OKLAHOMA - Light (5-150 per 10 sweeps) in alfalfa in Jackson, Harmon, Tillman, Kiowa, Grady, Choctaw, Washita and Caddo Counties. Heavier in one field in Caddo County, 300 per 10 sweeps, and Marshall County, 200 per 10 sweeps. (Okla. Coop. Sur.). NEW MEXICO - Mostly light to nonexistent in alfalfa checked in Eddy, Dona Ana, Valencia and Bernalillo Counties. (N.M. Coop. Rpt.). COLORADO - Low numbers noted on alfalfa in Pueblo and Montezuma Counties. (Schweissing, Jenkins).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Yellowing of alfalfa becoming increasingly more noticeable and occurring as far north as Ashland County. Damage uniformly distributed in many fields although most yellowing still near field margins. Counts of 100+ nymphs per sweep present and maturing in many areas. Adults becoming more noticeable. (Wis. Ins. Sur.). ILLINOIS - Counts of 30 and 75 per sweep taken in 2 fields of alfalfa in west-southwest district. Yellowing also observed. (Ill. Ins. Rpt.). INDIANA - Adults and nymphs averaged 5 per 10 sweeps on alfalfa in southeast, south central and southwest sections with maximum of 9 per sweep in Pike County, southwest. (Bram). Averaged 2 per sweep, ranged 0.2 to 7, in east central, central and west central sections. (Saugstad). OHIO - Ranged 55-65 per 50 sweeps on alfalfa in most southeast sections. Most alfalfa healthy and yellowing at minimum. (Lyon). MARYLAND - Continues as most important midsummer insect problem on alfalfa in all sections. Light on soybeans on Eastern Shore. (U. Md., Ent. Dept.). PENNSYLVANIA - Increasing on alfalfa generally. This pest in combination with dry weather causing discoloration of alfalfa in some areas. (Udine).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Increasing on alfalfa in Yuma, Maricopa and Pinal Counties. Ranged 60-70 per 100 sweeps; caused heavy damage in a few fields in Maricopa County. (Ariz. Coop. Sur.). ARKANSAS - Not found in Lonoke County soybeans. (Ark. Ins. Sur.).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - VERMONT - Adults excessively high on legume forage crops. (MacCollom, July 13). INDIANA - Adults averaged less than 1 per 10 sweeps in alfalfa in southwest and south central sections; maximum of 8 per 10 sweeps in Switzerland County, southeast. (Bram). Averaged less than 1 per 10 sweeps in west central and central sections; averaged 12 per 10 sweeps in east central section. (Saugstad).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Ranged 30-40 adults and nymphs per 25 sweeps in alfalfa in southeastern Valencia County and 12-16 per 25 sweeps in alfalfa checked in San Juan County. (N.M. Coop. Rpt.). ARIZONA - Continue high in alfalfa in Graham, Yuma, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). NEVADA - Ranged 8-10 per sweep in seed alfalfa fields at Bottle Creek and 10-12 per sweep in white clover seed fields in Orovada, Humboldt County. (Earnist, Lundahl). UTAH - Adults and nymphs below normal in Emery and Carbon County alfalfa fields. (Knowlton). WYOMING - Adults averaged 74 per 100 sweeps and nymphs averaged 156 per 100 sweeps in alfalfa fields of Laramie County. (Marks). WASHINGTON - *L. hesperus* and *L. elisus* adults averaged 2-3 per sweep, with few nymphs present, on alfalfa grown for seed at Gardena, Walla Walla County. (Johansen, Eves, July 10).

TARNISHED PLANT BUG (*Lygus lineolaris*) - OKLAHOMA - Light to moderate on alfalfa in most of the southern third of State. (Okla. Coop. Sur.). NEBRASKA - Light, 3-7 per 10 sweeps in southwestern legumes. (Bergman). ILLINOIS - Adults vary 40-220 (average 133) per 100 sweeps in clover and alfalfa in northern area; no nymphs observed. (Ill. Ins. Rpt.). WISCONSIN - First-generation adults unusually common on tassels in whorl of early corn. (Wis. Ins. Sur.).

PLANT BUGS (*Adelphocoris* spp.) - OHIO - *A. lineolatus* (alfalfa plant bug) averaged 15 per 25 sweeps on alfalfa in many fields in southeast section; presently most abundant plant bug on alfalfa. (Lyon). WISCONSIN - First-generation nymphs of *A. lineolatus* and *A. rapidus* (rapid plant bug) becoming increasingly more common in regrowth alfalfa. (Wis. Ins. Sur.). NEBRASKA - *A. lineolatus* ranged 4-7 per 10 sweeps in Furnas and Hitchcock Counties. (Bergman). WYOMING - *A. lineolatus* adults averaged 56 per 100 sweeps in Laramie County alfalfa. (Marks). UTAH - *A. superbus* (superb plant bug) adults and nymphs averaged 12 per 25 sweeps in alfalfa at Cottonwood Canyon, Emery County. (Knowlton).

GREEN STINK BUG (*Acrosternum hilare*) - ARKANSAS - Four specimens found in 1 of 16 soybean fields checked in Lonoke County. This only stink bug present. (Ark. Ins. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - NEBRASKA - Adults averaged 2 per 10 sweeps in 2 fields in Box Butte and Kimball Counties. (Bergman). INDIANA - Single adult collected on alfalfa in Switzerland County, southeast; this is a new county record. (Bram). OHIO - One adult and 1 larva collected in 25 sweeps in alfalfa in Washington County, southeast. Most sweeps negative. (Lyon). MARYLAND - Adult and larval populations generally below 1 per sweep level on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). VERMONT - Populations declining. (MacCollom, July 13). WYOMING - Adults and larvae remain low in alfalfa fields of Laramie County. No adults found; larvae ranged 8-12 per 100 sweeps. (Marks). UTAH - Larvae light in Carbon County; 1963 adults and recently emerged adults both present in moderate numbers. (Knowlton). NEW MEXICO - Mostly light in alfalfa in Farmington-Aztec-Bloomfield area, San Juan County. (N.M. Coop. Rpt.).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - ILLINOIS - Adults vary 10-60 (average 30) per 100 sweeps in clover and alfalfa in northern area. (Ill. Ins. Rpt.).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Light to moderate on soybeans in Worcester County. (U. Md., Ent. Dept.). ARKANSAS - Light in Lonoke County soybeans. (Ark. Ins. Sur.).

JAPANESE BEETLE (*Popillia japonica*) - MARYLAND - Adults causing light to moderate foliage injury to soybeans in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). INDIANA - Adults causing light injury to soybeans near Shoals, Martin County. (Hamilton).

BLISTER BEETLES - MISSISSIPPI - Attacking soybeans in Leflore County; spot controls applied. (Young, Bennett, July 13). OKLAHOMA - Epicauta sp. heavy in peanuts in localized areas of Marshall County (south central); present in gardens in eastern half of State. (Okla. Coop. Sur.). NEBRASKA - E. fabricii (ash-gray blister beetle) adults averaged 3 per 10 sweeps in Dundy County legumes. (Bergman). NEW MEXICO - Unspecified species ranged 1-3 adults per 25 sweeps in alfalfa fields near Los Lunas, Valencia County. (N.M. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEBRASKA - Considerable adult activity present in legumes in Hitchcock County. (Bergman). NEVADA - Adults numerous in Kings River Valley, Humboldt County, alfalfa seed fields. (Earnist, Lundahl). ARIZONA - Flights increasing in most areas of State; larvae light to moderate. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - ILLINOIS - Larvae vary 0-100 (average 53) per 100 sweeps in clover and alfalfa in northern area. (Ill. Ins. Rpt.). ARKANSAS - Light in 4 of 16 fields of soybeans checked in Lonoke County. Only one specimen collected from soybeans at Kelso, Desha County; economic insects generally very low on soybeans. (Ark. Ins. Sur.).

BEET ARMYWORM (Spodoptera exigua) - GEORGIA - Light on peanuts throughout southern area. (Johnson).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Moderate to heavy (up to 50 per 100 terminals) on peanuts in Bryan County. (Okla. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - DELAWARE - Present on soybeans and corn in areas of New Castle County. (Burbutis).

CABBAGE LOOPER (Trichoplusia ni) - ARKANSAS - Present in 2 of 16 soybean fields checked in Lonoke County. (Ark. Ins. Sur.). ARIZONA - Light populations appearing on alfalfa fields in Pinal, Maricopa and Graham Counties. (Ariz. Coop. Sur.).

WHITE-LINED SPHINX (Celerio lineata) - ARKANSAS - Possibly this species, with Loxostege similalis (garden webworm), caused rather severe foliage damage to 100-acre field of soybeans in Greene County. (Ark. Ins. Sur.).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Building up in several soybean fields on lower Eastern Shore. (U. Md., Ent. Dept.). COLORADO - Noted on lower leaves of corn in all western areas. (Bulla).

#### FRUIT INSECTS

EUROPEAN RED MITE (Panonychus ulmi) - MISSOURI - Orchards over State have 1-2 mites per leaf; very high egg counts noted on one orchard with severe bronzing in isolated spots. Weather extremely favorable for buildup. (Wkly. Rpt. Fr. Grs.). INDIANA - Continues high on apple and of primary concern (with Tetranychus telarius) in Knox County. (Cleveland). OHIO - Building up on check apple trees at Wooster, Wayne County; 140 per leaf. (Forsythe). NEW YORK - Prevalent in most orchards in Oswego County. Gradually increasing in Orleans County. High in some orchards in Niagara County but generally controlled. (N.Y. Wkly. Rpt., July 13). CONNECTICUT - Remains low, probably due to cool, wet weather. Hot, dry weather will cause rapid buildup; all blocks should be carefully checked. (Savos, July 15). VERMONT - Bronzing some Red Delicious apples in some Addison County orchards. (MacCollom).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - KANSAS - Bronzing apple and peach leaves in Sedgwick and Riley Counties. (Eshbaugh, July 10). INDIANA - Continues high in Knox County apples. (Cleveland). CONNECTICUT - Populations remain low; probably due to wet, cool weather. Return of hot, dry weather may cause rapid increase. Blocks should be carefully checked. (Savos, July 15).

SPIDER MITES - COLORADO - Tetranychus spp. building up on cover crops and bindweed in western area; some invasion into fruit trees. (Bulla). UTAH - Tetranychus sp. infested apples at Helper, Carbon County. (Knowlton). CALIFORNIA - Bryobia rubrioculus heavy on almond trees in Paso Robles, San Luis Obispo County. Temperatures not high enough to reduce female population, consequently damage and activity occurred over longer period than normal. (Cal. Coop. Rpt.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - UTAH - Infested apple leaves in orchard at Helper, Carbon County. (Knowlton).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - First adult of summer brood emerged July 4 at Wooster, Wayne County. (Forsythe). MISSOURI - Second-generation larvae apparently present on unsprayed peaches in southeastern area. (Wkly. Rpt. Fr. Grs.).

BROAD-NECKED ROOT BORER (Prionus laticollis) - RHODE ISLAND - Over 12 larvae collected from single apple tree in Chepachet, Providence County. (Mathewson).

PEAR-SLUG (Caliroa cerasi) - INDIANA - Caused severe feeding injury on 3 small cherry trees in Stark County. (Lyon).

APPLE MAGGOT (Rhagoletis pomonella) - CONNECTICUT - Emergence increased slightly, but still well below peak. Adults easily found on Astracan apples in Woodstock, Windham County. Rains should speed up maggot emergence, so trees should have maximum protections, especially early ripening varieties. (Savos). RHODE ISLAND - Adults noted in orchards in Chepachet, Providence County. (Steele, King). VERMONT - Emergence noted July 9. (MacCollom). MICHIGAN - Sticky board catches for week ending July 13 in 2 locations in Macomb County were 42 and 78 respectively. (Rapp). INDIANA - Adult flight still quite active; 8 flies per sticky board trap per night at Geromesville, Ashland County. (Lyon).

A CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - CALIFORNIA - First adult of season taken in trap at Yreka, Siskiyou County. Similar record from same property in 1963. Attempts by fruit sampling to determine whether maggot infestation exists in area to be made. (Cal. Coop. Rpt.).

CODLING MOTH (Carpocapsa pomonella) - MISSOURI - Survey July 12 of unsprayed apple trees in central area shows new entries, partly grown larvae, full-grown larvae and pupae under bark. Under control in well-sprayed commercial orchards in State. (Wkly. Rpt. Fr. Grs.). INDIANA - Number of larvae leaving apples declining. (Forsythe). NEW YORK - Larvae leaving apples in Orleans County. (N.Y. Wkly. Rpt., July 13). VERMONT - Flight about over. (MacCollom, July 13).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Adults collected in traps in Knox County. (Cleveland). MISSOURI - Few noted in ripening peaches in south-east and northwest areas; signs of recent entries into terminals in northwestern area. (Wkly. Rpt. Fr. Grs.).

PEACH TREE BORER (Sanninoidea exitiosa) - KANSAS - Caused death of some trees in 2 untreated orchards in Sedgwick County; 42 pupal cases noted at base of 1 tree. (Eshbaugh, July 10).

PEACH TREE BORER (Anarsia lineatella) - OREGON - Damaged peaches in Jackson County; larvae entering stem end. (Berry).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Second-brood adults active in Clinton County. (N.Y. Wkly. Rpt., July 13).

FALL WEBWORM (Hyphantria cunea) - INDIANA - Second and third instars observed on quince trees at Madisonburg, Wayne County. (Forsythe).



FORBES SCALE (Aspidiotus forbesi) - NORTH CAROLINA - Heavy on peach orchard in Davidson County. (Johnson, Robertson).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on plum trees locally in Modesto, Stanislaus County. (Cal. Coop. Rpt.). MARYLAND - Heavy on cross between apricot and plum at Bryans Road, Charles County. (U. Md., Ent. Dept.).

APPLE APHID (Aphis pomi) - CONNECTICUT - Populations down in most of State, but trouble reported in scattered blocks. Recent rains initiated further terminal growth in Litchfield area; this means succulent foliage and possible aphid problems. New terminal growth should be watched for aphid buildup. (Savos, July 15). NEW YORK - Problem in number of bearing and nonbearing orchards in Clinton County; controls necessary. (N.Y. Wkly. Rpt., July 13).

BLACK CHERRY APHID (Myzus cerasi) - CALIFORNIA - Nymphs and adults heavy on cherry trees in Burnt Ranch, Trinity County. (Cal. Coop. Rpt.).

ROSY APPLE APHID (Anuraphis rosea) - NEW MEXICO - Problem on untreated apple trees around homes at Farmington, San Juan County. (N.M. Coop. Rpt.). UTAH - Causing some injury in Helper-Price apple orchards, Carbon County. (Knowlton).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Light to moderate, mostly on bark and young terminal growth, on apple orchards near Farmington, San Juan County. (N.M. Coop. Rpt.).

FILBERTWORM (Melissopus latiferreanus) - OREGON - First emergence noted July 7 in Lane County. (Tinker).

WALNUT APHID (Chromaphis juglandicola) - OREGON - Heavy on English walnuts in Jackson County. (Berry).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Second-generation adults laying eggs in Love County. (Okla. Coop. Sur.).

GRAPE ROOT BORER (Vitacea polistiformis) - MISSOURI - Adult male flight reported in vineyard near Steelville July 14; this is first actual flight record of season. (Wkly. Rpt. Fr. Grs.).

BLACK-HEADED FIREWORM (Rhopobota naevana) - WASHINGTON - Adults numerous and flying on untreated cranberry bog in Long Beach area, Pacific County. (Johansen, July 10). NEW JERSEY - Active on most cranberry bogs. (Ins.-Dis. Newsltr.).

BLUEBERRY MAGGOT (Rhagoletis mendax) - NEW JERSEY - Adults very abundant and will remain at peak activity through July. (Ins.-Dis. Newsltr.).

APHIDS - UTAH - Unspecified species curling black currant apical growth at Orem, Utah County. (Knowlton).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Continued heavy infestations required controls on citrus in Maricopa and Yuma Counties. (Ariz. Coop. Sur.). CALIFORNIA - Light on orange fruit in Oroville, Butte County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Medium on citrus in Sanger, Fresno County. (Cal. Coop. Rpt.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Decreasing slightly in Yuma County; few controls applied. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Decreasing on Lycium spp. in Arkansas Valley; adults ranged 100-200 per 100 sweeps and nymphs and eggs zero per leaf. Adults ranged 2-3 per 100 sweeps on potatoes and tomatoes. Controls recommended. (Schweissing). Adults averaged 40 per 100 sweeps on Lycium in Rio Grande County and 1 per 500 sweeps on potatoes. (Jenkins). NEBRASKA - Ranged 0-189 (average 30) per 100 sweeps on early potatoes in Scotts Bluff County. (Hagen).

POTATO APHID (Macrosiphum euphorbiae) - RHODE ISLAND - Heavy on tomatoes in Peace Dale, Washington County. (Mathewson). OHIO - Pink and green forms extremely heavy on tomatoes near Marietta, Washington County; 7-35 per leaf. (Racer).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Winged forms numerous in and around potato fields at Quincy (Grant County), Othello (Adams County) and in Yakima Valley. Smallest numbers present in Quincy area. (Powell, July 10).

A WHITEFLY (Aleyrodes spiraeoides) - WASHINGTON - Pupae (only form counted) averaged 80 per 100 compound potato leaves at Quincy, Grant County. These first noted this season on potatoes. (Powell, July 10).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Unusually large numbers of larvae on potatoes in some areas of Eastern Shore. (Hofmaster). MARYLAND - Adults and larvae noted on garden potatoes and tomatoes at several locations on Eastern Shore. Heavy on eggplant at Wye Mills, Queen Annes County. (U. Md., Ent. Dept.).

POTATO FLEA BEETLE (Epitrix cucumeris) - VIRGINIA - Damage to potato tubers noted in several areas of Eastern Shore since July 7. (Hofmaster). NEW JERSEY - Very active in some potato fields. (Ins.-Dis. Newsltr.).

STRIPED FLEA BEETLE (Phyllotreta striolata) - WYOMING - Adults averaged 24 per 100 sweeps on potatoes in Laramie County. (Marks).

TOMATO HORNWORM (Protoparce quinquemaculata) - MICHIGAN - General emergence underway as evidenced by blacklight collections on Lower Peninsula. (Newman, Snow). ARIZONA - Larvae damaging tomatoes in Maricopa and Graham County. (Ariz. Coop. Sur.).

TOMATO FRUITWORM (Heliothis zea) - ALABAMA - Continues much damage on young tomatoes in home gardens. (McQueen).

VARIEGATED CUTWORM (Peridroma saucia) - INDIANA - All stages present under potato-vines in Jasper County; 10-15 per square foot. Some feeding on terminals at night. (Gould).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW MEXICO - Larvae causing severe damage to cabbage in fields in Los Lunas-Belen area, Valencia County. Adults and larvae abundant. (N.M. Coop. Rpt.). NORTH DAKOTA - Causing extensive damage to cabbage and other cole crops in southeastern area. (Frye, Gage). NEW YORK - Fairly heavy on cabbage in Ontario and Yates Counties. Adults, eggs and young larvae numerous in Niagara County. (N.Y. Wkly. Rpt., July 13).

DIAMONDBACK MOTH (Plutella maculipennis) - NEW YORK - Larvae very heavy in Monroe County. (N.Y. Wkly. Rpt., July 13).

CABBAGE MAGGOT (Hylemya brassicae) - PENNSYLVANIA - Very severe on early cabbage; many fields where not a single head harvested. Many growers had considerable loss on this early cash crop. No controls effective. (Udine).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - GEORGIA - Moderate to heavy on beans throughout southern area. (Johnson). OHIO - Larvae heavy and causing severe feeding damage on many home garden beans throughout southeast; 85-98 percent skeletonized in one home garden in Noble County. (Lyon). UTAH - Damaging in Price-Wellington area, Carbon County, and in Castle Dale-Huntington area, Emery County. (Knowlton).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - GEORGIA - Light to moderate on beans throughout southern area. (Johnson).

BEAN APHID (*Aphis fabae*) - WASHINGTON - High on pole beans at Vancouver, Clark County; increasing rapidly in field observed. (Shanks, July 10). DELAWARE - Fairly common in one or two large lima bean fields in Sussex County. (Burbutis, Crossan).

GARDEN WEBWORM (*Loxostege similalis*) - DELAWARE - Adults very common in many lima bean fields in Sussex County. (Burbutis, Crossan).

FALSE CHINCH BUG (*Nysius ericae*) - COLORADO - Numerous in many sugar beet fields in Arkansas Valley and Morgan County; some damage reported. (Schweissing, Fithian).

BLISTER BEETLES - WASHINGTON - Damaging sugar beets at Touchet, Walla Walla County. Patches 20-30 feet in diameter skeletonized. (Landis, July 10).

STRIPED CUCUMBER BEETLE (*Acalymma vittata*) - NORTH DAKOTA - Adults appearing in gardens over southeast. (Frye, Gage). MINNESOTA - Increasing on squash crops at University Farm. (Minn. Ins. Rpt.).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - MICHIGAN - Adults moderate to heavy in Easton and Mackinac Counties. (Johnson, Muller).

SQUASH BUG (*Anasa tristis*) - OKLAHOMA - Heavy on squash in Nowata County. (Okla. Coop. Sur.).

MELON APHID (*Aphis gossypii*) - MARYLAND - Unusual buildups caused noticeable foliage damage to several watermelon fields in Salisbury area. (U. Md., Ent. Dept.).

STRAWBERRY LEAF ROLLER (*Ancylics comptana fragariae*) - CALIFORNIA - Larvae and adults heavy on strawberry plantings in Aptos, Santa Cruz County. (Cal. Coop. Rpt.).

CARROT WEEVIL (*Listronotus oregonensis*) - MISSOURI - Grubs boring through carrots in Audrain County. (Houser, Thomas, Wood).

A MINT FLEA BEETLE (*Longitarsus waterhousei*) - IDAHO - Adults, probably this species, continue infesting and causing severe damage to 50-acre field of mint near Parma. Five acres of this field entirely destroyed and an additional 5 acres severely damaged. Counts approximately 5 adults per sweep. Injury first noted first week of July. (Waters, Scott).

HOP APHID (*Phorodon humuli*) - WASHINGTON - Increasing on hops at Toppenish, Yakima County. (Landis, July 10).

POTATO LEAFHOPPER (*Empoasca fabae*) - PENNSYLVANIA - Increasing on potatoes generally. (Udine). MARYLAND - Light to heavy on lima beans on several farms in Caroline County; light on peppers, cucumbers and squash on Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Remains fairly common in many potato fields in New Castle County. (Burbutis, Crossan). WISCONSIN - Noticeable on recently emerged lima beans in Rock County; some nymphs noted. (Wis. Ins. Sur.).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults and nymphs averaged 128 per 100 sweeps in potato fields of Laramie County and 86 per 100 sweeps in sugar beet fields. (Marks).

HARLEQUIN BUG (*Murgantia histrionica*) - ALABAMA - Nymphs, adults and eggs extremely heavy in some isolated gardens on cabbage, collards and eggplants. (McQueen).

BEEF LEAFHOPPER (*Circulifer tenellus*) - COLORADO - Taken in all areas of Arkansas Valley on sugar beets, alfalfa, potatoes and tomatoes; 0-20 per 100 sweeps. (Schweissing).

APHIDS - NORTH CAROLINA - Undetermined species infested commercial watermelons in Currituck County; controls necessary. (Hardesty). NEW YORK - Increasing problem on potatoes in Suffolk County. (N.Y. Wkly. Rpt., July 13). NEW MEXICO - Light to heavy on chili plants in Farmington area, San Juan County; very heavy on blossoms and newly formed pods in several fields. Treatments required. (N.M. Coop. Rpt.).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - ALABAMA - Rather heavy on turnips and collards in home gardens. (McQueen). WISCONSIN - Damaged marginal area of young lima bean planting in Rock County. (Wis. Ins. Sur.). COLORADO - Ranged 50-100 per 100 sweeps on beans in Montrose County. (Bulla).

ONION THRIPS (*Thrips tabaci*) - WASHINGTON - All stages averaged 46 per 100 compound potato leaves in field near Quincy, Grant County. (Powell, July 10). COLORADO - Ranged 50-150 per plant on onions in Pueblo County (Schweissing); 2-30 per plant (mostly nymphs) in Montrose and Delta Counties. Controls recommended. (Bulla).

THRIPS - PENNSYLVANIA - Damage in a York County field resulted in unsalable cabbage. (Gesell, July 8). NEW YORK - Rather serious problem on sweet Spanish onions in Suffolk County. Damage to onions in Orange County extensive in past. Appearing in unsprayed onion fields in Oswego County. (N.Y. Wkly. Rpt., July 13).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - WASHINGTON - Increasing on hops at Toppenish, Yakima County. (Landis, July 10). Eggs through adult present on potatoes near Quincy, Grant County; 6 adults per 100 compound leaves. Building up on mint and hops near Othello (Adams County) and Brownstown (Yakima County). (Powell, July 10).

SPIDER MITES - ALABAMA - Extremely heavy and killing snap beans in home gardens. (McQueen). MARYLAND - Heavy on some watermelon fields in Bivalve area, Wicomico County. (U. Md., Ent. Dept.). OKLAHOMA - *Tetranychus* spp. moderate to heavy in gardens in Cleveland and Murray Counties. (Okla. Coop. Sur.).

#### TOBACCO INSECTS

GREEN PEACH APHID (*Myzus persicae*) - VIRGINIA - Heavy on tobacco in spots in 4-acre field in Pittsylvania County. (Dominick). MARYLAND - No injurious infestations reported to date on tobacco. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (*Heliothis virescens*) - MARYLAND - Light to date but increasing on tobacco in St. Marys County. (U. Md., Ent. Dept.). MISSOURI - Larvae and adults light in northwestern area. (Houser, Thomas, Wood).

HORNWORMS (*Protoparce* spp.) - MARYLAND - Light to date in tobacco in St. Marys County. (U. Md., Ent. Dept.). MISSOURI - Larvae very light on northwestern tobacco. (Houser, Thomas, Wood).

CABBAGE LOOPER (*Trichoplusia ni*) - MISSOURI - Larvae light on tobacco in northwestern area. (Houser, Thomas, Wood).

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Adults moderate on most tobacco fields in St. Marys County. (U. Md., Ent. Dept.).

#### COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Punctured square counts increased greatly in areas below the Cap Rock and heavy egg laying by first-generation weevils occurring. Infestations up to 7 percent observed in at least 9 areas above Cap Rock in Dickens and Crosby Counties. Heavy populations reported from Walker and Houston Counties. Weevil infestations in Rio Grande Valley declined somewhat. Populations also posing threat in some rolling plains counties. (Texas Coop. Rpt.). Activity remains light in McLennan and Falls Counties. Punctured squares ranged 0-12 percent (averaged 1.3 percent) in 37 treated fields; ranged 0-19 percent punctured squares (averaged 2.7 percent) in 18 untreated fields. (Cowan et al.). OKLAHOMA - Punctured squares ranged 1-10 percent in Cotton, Kiowa, Greer and Jackson Counties (southwest), Marshall, Jefferson and Bryan Counties (south central), and Choctaw County (southeast). (Okla. Coop. Sur.). ARKANSAS - Only 44 fields where controls recommended; this represents increase of 10 fields over previous week. (Wkly. Cott. Ins. Rpt.). MISSISSIPPI - Infestations increasing in few fields, but situation light generally in delta counties. Adults found in 4 of 35 fields checked. Punctured squares found in 14 of these fields; averaged 4.12 percent in infested fields. (Pfrimmer et al.). Rains increased infestations in many fields. Hatch occurred and controls should be applied on close schedule to bring infestations under control, especially in "hot spots." (Bennett, Young, July 13). ALABAMA - Heavy "hatch out" continues in most fields in southern counties. Infestations and "hatch outs" spotted among fields and communities. "Hatch out" heavy in isolated fields throughout central area; as far north as southern St. Clair County. Counts low in many other central area fields. Larvae, some 4-8 days from pupation, in ground square; weather favorable for high survival. Few young larvae observed in Colbert County. Infestations of much lesser degree reported in Sand Mountain and Tennessee Valley areas, with extreme light first-generation "hatch out" expected. (McQueen). GEORGIA - Counts made in 28 southern area fields; percent punctured squares ranged 0-88 percent (average 24). (Johnson). Counts in 3 Putnam County fields ranged 2-10 percent (average 6). (Beckham). Scout reported in 24 counties showed percent punctured squares zero in 3 percent of fields, 1-10 in 79 percent, 11-25 in 16 percent and 26-50 in 2 percent of fields. (Coleman). TENNESSEE - Most overwintered weevils have died out in western area. Light numbers of first-generation weevils appearing in southern tier of counties; peak emergence should occur about July 24. Square counts in infested fields 2 percent punctured squares compared with 3 percent previous week. Heaviest infested field found in McNairy County, with 6 percent punctured squares. Conditions favorable for increase, but light damage expected until second generation appears. Less than half of fields in regularly weevil infested portion of cotton-growing area have infestations at present. (Locke). SOUTH CAROLINA - Populations generally low in treated fields in all sections. Only 3 counties reported more than 5 percent punctured squares in treated fields. Some untreated fields reported with as high as 50 percent damaged squares. (Cott. Ltr., July 13). Numbers increasing in untreated or inadequately treated fields in Florence area. General migration expected last week of July. (Taft et al.). NORTH CAROLINA - Punctured squares averaged 3.6 percent in 74 fields in a community in Edgecombe County. (Reed).

A STRIPED BLISTER BEETLE (*Epicauta* sp.) - OKLAHOMA - Defoliating cotton in Payne and Logan Counties. (Okla. Coop. Sur.).

BOLLWORMS (*Heliothis* spp.) - CALIFORNIA - Occasional larva found in several areas of Fresno County but populations far below treatment level. (Stromberg, July 8). NEW MEXICO - Moderate moth flights in Dona Ana and Eddy Counties previous 2 weeks. Light, spotted infestations in southern counties. (N.M. Coop. Rpt.). TEXAS - Still a threat to maturing crop in southernmost part of State. Controls needed in many areas of mid-section and activity increased in north central area, but populations generally low. Increasing on high plains with heaviest infestation

in irrigated cotton. (Texas Coop. Rpt.). OKLAHOMA - Continue light in most cotton-growing areas; exceptions were Marshall County with 11 percent and 15 percent infestations and Choctaw County with up to 30 percent. (Okla. Coop. Sur.). MISSOURI - Of 983 fields scouted, 16 infested; larvae ranged 0-2 and eggs 0-5 per 100 terminals. (Harrendorf, Jones). ARKANSAS - Moth catches in light traps in Desha and Hempstead Counties significantly higher than in past several weeks. Bollworm activity statewide, declined over past week. (Wkly Cott. Ins. Rpt.). MISSISSIPPI - Moth flight activity increasing; larval infestations in fields expected to show increase; eggs found in 7 of 35 fields checked for average of 0.52 per 100 terminals. (Pfirmer et al.). ALABAMA - Low egg and larval counts throughout State. (McQueen). GEORGIA - Egg counts ranged 6-48 per 100 terminals (averaged 17) in southern part of State. (Johnson). TENNESSEE - Found in every field surveyed, but continue light. Isolated fields show up to 6 larvae or eggs per 100 terminals. (Locke). SOUTH CAROLINA - Buildups reported in more eastern and western counties, with central area reporting as only present in fields. (Cott. Ltr., July 13). NORTH CAROLINA - Present in some fields in southern part of State. (Robertson).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Beginning to appear in light numbers in Maricopa, Graham and Pinal Counties. (Ariz. Coop. Sur.). GEORGIA - Light to moderate infestations in south area, with most fields having loopers infected with Bacillus thuringiensis. (Johnson). SOUTH CAROLINA - Present in about 25 percent of counties. (Cott. Ltr., July 13).

SALT-MARSH CATERPILLAR (Estigeme acrea) - ARIZONA - First-generation larvae found in Graham County field for first report of season. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Small infestations beginning to appear for first time this season in Yuma County. (Ariz. Coop. Sur.).

STALK BORER (Papaipema nebris) - ALABAMA - Few plants observed affected along field borders. (McQueen).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Populations increasing in Pima and Maricopa Counties but majority of infestations not economic. Decrease noted in Graham County. (Ariz. Coop. Sur.). TEXAS - Populations on decrease in north central area and light to moderate on high plains and adjacent areas. (Texas Coop. Rpt.). OKLAHOMA - Light to moderate infestations present in most south central and southwestern counties. (Okla. Coop. Sur.). ALABAMA - One field in Tallopoosa County with high population observed; squares being lost. (McQueen).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Some fields in Shafter area, Kern County, need treating. Populations range 2-10 per 50 sweeps. (Leigh, July 5). Infestations general throughout Fresno County; adults more abundant but nymphs present. Some blossoms show damage. (Stromberg July 8). ARIZONA - Increase in populations required increase in control efforts in Pima, Maricopa, Pinal and Yuma Counties. Damage continued in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Populations continue light. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - TEXAS - Some square damage and nymphs apparently increasing in north central area. (Texas Coop. Rpt.). ALABAMA - Only an occasional pest. (McQueen). TENNESSEE - Light and general; no increase noted; some blasting of young squares evident. (Locke).

PLANT BUGS - MISSOURI - Several species found in 747 of 983 fields surveyed in bootheel area; counts ranged 0-2 per 100 plants. (Harrendorf, Jones).

STINK BUGS - ARIZONA - Light populations appearing in fields of Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

SPIDER MITES - CALIFORNIA - Infestations general throughout Fresno County. Many fields treated and more will need treatment soon. Populations general in Kern County but good plant growth "masking" infestations. (Stromberg, Black

July 8, 9.). TEXAS - Causing damage in north central area. Heavy populations still being reported from some fields in Robertson-Brazos County area. (Texas Coop. Rpt.). MISSOURI - Of 983 fields scouted, 338 showed spot infestations of strawberry spider mite (*Tetranychus atlanticus*). Limited treatments applied. (Harrendorf, Jones). ARKANSAS - Continue to spread to new fields but infestation levels below previous week. (Ark. Ins. Sur.). MISSISSIPPI - Spider mites continue principal cotton pest problem. Infestations general in east central and north delta areas, spotted in remainder of delta. Erratic control results in some instances. (Pfrimmer et al.). ALABAMA - Infestations spotty; future situation depends on weather. (McQueen). TENNESSEE - Continue to cause marginal damage; heaviest infestations in northwest part of State. Lack of rainfall favorable for buildup. (Locke). GEORGIA - Infestations light to moderate. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MINNESOTA - Active with some hatching still occurring. Severe defoliation of roadside jack pine along U.S. Highway 61 expected from Pine City to Sandstone. (Minn. Ins. Rpt.). NEW YORK - Ranged from newly hatched to nearly full grown to Chemung County. (N.Y. Wkly. Rpt., July 13).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Continued attacks on short-leaf and loblolly pines reported from Angelina, Hardin, Jasper, Liberty, Newton, Orange, Polk, San Jacinto, Trinity and Tyler Counties. Damage increased during June; 1,225 brood trees controlled. Spots ranged from scattered single trees to over 100 trees in few spots. Biweekly aerial detection flights continue; land-owners continue control operations over entire infested area. Areas of heaviest concentration of spots located in central Tyler County near Woodville, northern Jasper County near Jasper, northern Orange County and northwestern Hardin County. (Texas For. Pest Comm., June Rpt.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Control action taken in Angelina, Houston, San Jacinto and Trinity Counties. Heavily infested trees salvaged in some areas. (Texas For. Pest Comm., June Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - Activity of I. avulsus, I. grandicollis and I. calligraphus increased considerably. Heavy populations, particularly of small species, observed in connection with Dendroctonus frontalis (southern pine beetle) in all counties where activity of D. frontalis reported. Spots of Ips spp., not associated with D. frontalis, occurred over same area as well as in Sabine and Gregg Counties. Outbreak occurred on 50-acre area in Sabine County; most activity in Toledo Bend Reservoir site. (Texas For. Pest Comm., June Rpt.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - PENNSYLVANIA - Adults emerged on spruce in Chester, Monroe, Centre and Cambria Counties during late June and early July. (Lear, Andreychick, Udine, Yackley).

A PINE SHOOT MOTH - WISCONSIN - Incidence of an undetermined species increasing in Waushara County; annual life cycle completed as of July 10. (Wis. Ins. Sur.).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - MISSOURI - Larvae defoliating maples in west central and northwest sections. Damage varies tree to tree; some trees completely defoliated. (Houser, Thomas, Wood). KANSAS - Stripping leaves from some soft maples in Doniphan County. (Eshbaugh).

FALL WEBWORM (Hyphantria cunea) - DELAWARE - Present on few trees in an area of New Castle County, but generally much reduced over 1963. (Burbutis, Crossan).

RHODE ISLAND - First hatch of season noted in Peace Dale, Washington County. (Stessel, Mathewson).

GYPSY MOTH (Porthetria dispar) - VERMONT - First pupae noted July 2 in Rutland; first adults and eggs July 9. (MacCollom). MICHIGAN - More than half of traps to be used in 1964 have been placed in trapping area north of Lansing. Remaining traps will be placed and first observations made during week ending July 24. (Ring, Carlson).

FOREST TENT CATERPILLAR (Malacosma disstria) - MINNESOTA - Heavy moth flight noted around Ely and other areas in northern St. Louis County. (Minn. Ins. Rpt.).

AN OAK SKELETONIZER (Bucculatrix sp.) - OHIO - Severe skeletonizing of many oaks noted in Trumbull County, northeast; larvae collected from leaves. (Custer).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEVADA - Larvae heavy on elm in Elko, Elko County. (Del Curto).



ELM LEAF BEETLE (*Galerucella xanthomelaena*) - IOWA - Larvae, pupae and adults collected in Bellevue, Jackson County. This is a new county record. (Iowa Ins. Inf., July 13). OHIO - Serious injury observed on elms in Wayne County, northeast; 50-80 percent leaf skeletonization estimated. (Neiswander, Lyon). ALABAMA - Second-generation larvae extremely heavy on many elms along streets in Lee, Macon, Tallapoosa and Walker Counties. Affected trees practically defoliated. (McGee et al.). OKLAHOMA - Moderate to heavy on elms in Cleveland, Kingfisher, Hughes, Haskell and Murray Counties. (Okla. Coop. Sur.). NEW MEXICO - All stages, probably this species, abundant on and around Chinese elms at Aztec, San Juan County, and at Albuquerque, Bernalillo County. Heavy leaf skeletonizing present; little, if any, chemical treatment applied. (N.M. Coop. Rpt.). NEVADA - Light to medium in Winnemucca, Humboldt County. (Earnist, Lundahl). OREGON - Second-generation larvae reaching full growth in Jackson County. Unsprayed trees show much damage. (Berry). WASHINGTON - Larvae severely skeletonizing American elms at Epirata, Grant County. (Telford, July 10).

LOCUST LEAF MINER (*Xenochalepus dorsalis*) - MARYLAND - Causing noticeable injury to black locust in all sections. (U. Md., Ent. Dept.).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - NEVADA - Larvae, pupae and adults collected from *Ulmus pumila* (Siberian elm) in Fernley, Lyon County. This is a new county record. (Bechtel, Martinelli).

LACE BUGS - CONNECTICUT - A problem on andromeda, rhododendron, laurel and azaleas in many parts of State. (Savos). MARYLAND - *Corythucha* spp. heavy on oaks and sycamore at several locations over State. (U. Md., Ent. Dept.). NORTH CAROLINA - *Corythucha arcuata* (oak lace bug) infested oak leaves in Lincoln County. (Choate, Robertson). MICHIGAN - *C. ciliata* (sycamore lace bug) colonies previously building up on sycamores in Ingham County, partially washed off by recent rains. (Dowdy). NEW MEXICO - Undetermined species very abundant on Canadian thistle on rangeland near Datil, Catron County. (N.M. Coop. Rpt.).

APHIDS - RHODE ISLAND - Heavy on sycamore and maple in Wakefield and Peace Dale, Washington County. (Mathewson, Stessel). NEW YORK - Street and shade trees heavy with honeydew in Erie County. (N.Y. Wkly. Rpt., July 13). WISCONSIN - Various species becoming noticeable on ornamentals in Dane County. Most commonly observed species were *Macrosiphum euphorbiae* (potato aphid) on roses and *Macrosiphoniella sanborni* (chrysanthemum aphid) on chrysanthemum. *Mordwilkoja vagabunda* (poplar vagabond aphid) galls unusually heavy on select trees in southern counties. (Wis. Ins. Sur.). UTAH - Unspecified species making poplars sticky in Helper-Price area, Carbon County, and Duchesne-Myton area, Duchesne County. *Pemphigus balsamiferae* galls numerous on some cottonwood trees near Duchesne; *Pemphigus* spp. galls numerous on some poplars near Price, Carbon County, and Duchesne. (Knowlton).

WOOLLY ALDER APHID (*Prociphilus tessellatus*) - VERMONT - Widespread and causing injury to soft maple. (MacCollom, July 13).

LEAFHOPPERS - RHODE ISLAND - Heavy and causing chlorotic stippling of sycamore and maple in Wakefield and Peace Dale, Washington County. (Mathewson, Stessel). CALIFORNIA - *Fieberiella florii* heavy on jacobinia nursery stock in Oakland, Alameda County. (Cal. Coop. Rpt.).

EUROPEAN ELM SCALE (*Gossyparia spuria*) - NEW MEXICO - Moderate to heavy on Chinese elms at Albuquerque, Bernalillo County, and at Aztec, San Juan County. Exudate a problem on walks and cars. (N.M. Coop. Rpt.). CALIFORNIA - Medium to heavy on cork and Chinese elms in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

COTTONY MAPLE SCALE (*Pulvinaria innumerabilis*) - IOWA - Heavy in Waukon, Allamakee County; controls recommended. (Iowa Ins. Inf., July 13.).

OYSTERSHELL SCALE (*Lepidosaphes ulmi*) - UTAH - Abundant on poplars and willows in Carbon and Emery County communities. (Knowlton).

MITES - OHIO - Serious injury by undetermined species noted on honeylocust at Wooster, Wayne County, northeast; leaf drop and severe yellowing observed throughout trees. (Neiswander).

BAGWORM (Thyridopteryx ephemeriformis) - ALABAMA - Continues to cause heavy damage on arborvitae and junipers in Tuscaloosa County. Isolated, heavy infestation noted on several arborvitae in Prichard, Mobile County. (Lockhart, Granberry). OKLAHOMA - Infestations moderate to heavy on evergreens and other ornamentals in Kingfisher, Grady, Payne, Adair, Hughes, Mayes and Murray Counties. (Okla. Coop. Sur.). MARYLAND - Heavy on black locust at several locations near Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

MIMOSA WEBWORM (Homadaula albizziae) - OHIO - Building up rapidly; 8 webs per honeylocust noted in Morrow County, central. Larvae light on Moraine honeylocust at Wooster, Wayne County, northeast. (Neiswander, Lyon). INDIANA - Heavy on honeylocust east of Logansport, Cass County, north central section. (Schuder). Larvae severely damaging Moraine honeylocust in Vincennes, Knox County, southwest. (Hamilton). ALABAMA - Infestation medium and widespread in Walker County. (McGee).

COLUMBINE BORER (Papaipema purpurifascia) - NORTH DAKOTA - Caused some damage to columbine in Fargo area, Cass County. (Frye, Gage).

CORN EARWORM (Heliothis zea) - GEORGIA - Heavy on petunias in Gwinnett County. (Vanderford).

ROSE CHAFER (Macrodactylus subspinosus) - MICHIGAN - Reports of annoyance relatively low recently; beetle numbers lower than usual in Otsego and Montmorency Counties this season. (McMullen).

A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) - DELAWARE - Adults abundant and attacking several ornamentals (lilac, rose, forsythia and others) in an area of New Castle County. (Burbutis, Crossan).

BOXWOOD PSYLLID (Psylla buxi) - VIRGINIA - Heavy in English boxwood at a location in Franklin County. (Tarpley, July 11).

HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) - VIRGINIA - Heavy in hackberry leaves at location in Loudoun County. (Tarpley, Harrison).

PRIVET THRIPS (Dendrothrips ornatus) - WISCONSIN - Considerable injury to privet hedges appearing in many areas of State; appears as whitening of foliage. (Wis. Ins. Sur.).

JUNIPER SCALE (Diaspis carueli) - RHODE ISLAND - Crawlers active in nursery at Cranston, Providence County. This is late appearance. (Veilleux).

A FULGORID PLANTHOPPER - ALABAMA - Adults moderate to heavy on new growth of most shrubs throughout central part of State. Heavily damaging azaleas and English ivy in Florala area of Covington County. (Stephenson et al.).

SPIREA APHID (Aphis spiraeicola) - NEW MEXICO - Probably this species, light to heavy on spirea at Farmington; honeydew very noticeable. (N.M. Coop Rpt.).

EUROPEAN EARWIG (Forficula auricularia) - MICHIGAN - Infestation, probably this species, reported by housewife in Lansing; several premises apparently involved; damage evident on dalia, begonia and shasta daisy. F. auricularia found in State for first time in August 1963 in same city. (Janes, Natharius).

A CRICKET (Cycloptilum trigonipalpus) - ALABAMA - Appearing on camellias over Mobile County; feeding on newly formed flower buds and tender shoots. (Seibels).

BRISTLY ROSE-SLUG (Cladius isomerus) - CALIFORNIA - Locally heavy on rose bushes in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - VERMONT - Causing yellowing of arborvitae. (MacCollom, July 13).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NEVADA - Unspecified species heavy in Elko, Elko County. (Earnist). Aedes dorsalis and A. melanimon heavy in Nixon, Humboldt County. (Bechtel, Martinelli). UTAH - Unspecified species very troublesome in Duchesne-Myton area and along rivers in Duchesne County; in Huntington-Castle Dale area of Emery County; and in Helper-Price-Wellington area of Carbon County. (Knowlton). NORTH DAKOTA - Continue a problem to man and other animals in most areas. A. dorsalis and A. vexans dominant species; A. nigromaculis abundant in some western areas. (Frye). MINNESOTA - Larval mosquito collections week ending July 11 totalled 341 in Metropolitan Mosquito Control District. Aedes vexans found in 111 and Aedes too small to determine in 155 collections; Culex restuans present in 35, C. tarsalis in 25 and C. pipiens in 13. Total of 9,725 females taken in sixteen light traps; 8,762 were A. vexans and 557 Mansonia perturbans. A. vexans dominant species in evening and daytime bite collections. In areas having heavy rains July 9 and 11, mosquito emergence expected July 16-18 and increase in annoyance during week of July 20. (Minn. Ins. Rpt.). OHIO - Following species collected in traps at Toledo, Lucas County, northwest: 61 Aedes vexans, 1 A. stimulans, 1 A. triseriatus, 81 Culex pipiens, 9 C. restuans, 3 C. territans, 1 C. tarsalis, 1 C. salinarius, 1 Anopheles punctipennis and 1 Uranotaenia sapphirina. (Cook, July 13). MISSISSIPPI - Unspecified species medium about livestock in delta area. (Young, Bennett, July 13).

HORN FLY (Haematobia irritans) - WYOMING - Adults causing much annoyance to livestock in Laramie County; counts of 200-300 per animal estimated. (Marks). NORTH DAKOTA - Ranged 100-150 per animal on range cattle in sandhills area; numbers in excess of 3,000 per animal noted on bulls. (Noetzel). SOUTH DAKOTA - Numbers have risen sharply during past few weeks; ranged 15-200 per animal in eastern section. (Hintz). OKLAHOMA - Light to moderate (35-150 per head) on cattle in Osage, Mayes, Haskell, Cleveland and Marshall Counties. Averaged 500 per head on cows in Pushmataha County. (Okla. Coop. Sur.). MISSISSIPPI - Ranged medium to heavy on livestock in delta area. (Young, Bennett, July 13.). ALABAMA - Ranged 20-400 (averaged 80) per animal on one herd and 50-500 (averaged 140) on another herd checked. (Vanderford). Average counts per animal, by county, as follows: Spalding 124, Pike 152, Rabun 243, White 335, Pickens 210 and Floyd 173. (Roberts, July 8-10). ILLINOIS - Ranged 0-200 (averaged 45) per animal. (Ill. Ins. Rpt.). INDIANA - Adults generally ranged 50-150 per head on cattle throughout State; maximum counts reached 300 per head in southwest and east central sections. (Bram, Dobson, Saugstad). MARYLAND - Increasing generally in Frederick County on dairy and beef animals. (U. Md., Ent. Dept.). VERMONT - Troublesome on pastured cattle. (MacCollom).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Populations high in northwest; ranged 2-120 (averaged 22.9) per animal. Much lower, 0-8 (averaged 2.5) per animal in central district and 1-8 (averaged 5) per animal in northeast district. (Ill. Ins. Rpt.). NORTH DAKOTA - Ranged 8-15 per animal on range cattle in sandhills area. (Noetzel). OKLAHOMA - Moderate (5 per head) on cattle in Pushmataha County. (Okla. Coop. Sur.). MISSISSIPPI - Ranged light to medium on livestock in delta area. (Young, Bennett, July 13). WISCONSIN - Most common fly problem reported in State. (Wis. Ins. Sur.).

FACE FLY (Musca autumnalis) - VERMONT - Troublesome on pastured cattle. (MacCollom). MASSACHUSETTS - Becoming serious nuisance on heifers in summer pasture in western area. (Wave). MARYLAND - Increasing on unprotected dairy and beef cattle in Frederick County; counts up to 35 per head. (U. Md., Ent. Dept.)

ALABAMA - Average counts per animal, by county, as follows: Chattooga 5, Floyd 10, Gordon 5, White 34, and Pickens 18. Floyd, Gordon and Pickens are new county records. (Roberts, July 8-10). MISSOURI - Adults ranged 0-6 (average 3-4) per face in Atchison County, northwest. Larvae collected in Jefferson County, east central. This is a new county record. (Houser, Thomas, Wood.) INDIANA - Continues low on cattle throughout State; averaged less than 2 per face, with many negative observations recorded. (Dobson, Bram, Saugstad). ILLINOIS - Populations increasing; vary greatly from herd to herd in northern half of State. Ranged 0-21 (averaged 3.9) per animal; however, averaged 10.8 per face on one herd. (Ill. Ins. Rpt.). WISCONSIN - Reported as problem on pastured cattle in some areas. Fairly large numbers still present on wild parsnip in southern counties; activity expected to increase as this and related plants go to seed. (Wis. Ins. Sur.). SOUTH DAKOTA - Populations increasing to economic numbers on pastured animals with advent of high temperatures; ranged 3-20 per face in east central area. Many cattle with secretions along entire side of face; flies feeding readily on this material. (Hintz). NORTH DAKOTA - Counts of 10-12 per animal made on range cattle in sandhills area. Numbers appear to be increasing. (Noetzel).

HOUSE FLY (*Musca domestica*) - MISSOURI - Specimens exhibiting face fly habits collected in St. Genevieve and Franklin Counties, ranging 3-10 (average 4) and 5-35 (average 12) per face, respectively. (Houser, Thomas, Wood). ALABAMA - Populations extremely high in and around farm home in Lee County, largely surrounded by nearby mule stables and hog houses. Pupation and adult emergence so numerous during last 15 days of rainy weather that normal controls ineffective. (McQueen).

HOG LOUSE (*Haematopinus suis*) - OHIO - Heavy on 3 sows at farm in Morrow County, central area; several hundred observed on backs, flanks and rumps of each animal. Farmer noticed hogs failed to gain weight in spite of vigorous feeding program. (Lyon).

FLEAS (*Ctenocophalides* spp.) - RHODE ISLAND - Heavy infestation reported in cellar in Wakefield, Washington County. (Hannah, Mathewson). IOWA - Irritating to humans over entire State. (Iowa Ins. Inf., July 13). NORTH DAKOTA - C. canis (dog flea) troublesome in Fargo home following return of occupants from vacation. (Post).

TICKS - OKLAHOMA - *Amblyomma americanum* (lone star tick) heavy on cattle in Haskell and Pushmataha Counties. (Okla. Coop. Sur.). MINNESOTA - *Dermacentor variabilis* (American dog tick) reported considerably active. (Minn. Ins. Rpt.)

#### HOUSEHOLD AND STRUCTURAL INSECTS

EARWIGS - VERMONT - *Forficula auricularia* (European earwig) troublesome to homeowners in Burlington area. (MacCollom). CONNECTICUT - Earwigs annoying to homeowners in many areas. (Savos). RHODE ISLAND - Complaints concerning *F. auricularia* continue from all areas. (Mathewson, King, Hannah, Veilleux). MASSACHUSETTS - *F. auricularia* increasing nuisance in western area. (Wave).

HAIRY CHINCH BUG (*Blissus leucopterus hirtus*) - PENNSYLVANIA - Migrated into homes from lawns in Allegheny County. (Udine, July 6). CONNECTICUT - Probably this subspecies causing considerable concern to many homeowners in southern part of State. (Savos).

STRAWBERRY ROOT WEEVIL (*Brachyrhinus ovatus*) - DELAWARE - Abundant in several homes in areas of New Castle County. (Burbutis, Crossan). MICHIGAN - Adults annoying in houses in Ingham and Livingston Counties. (Lott, Newman). WISCONSIN - This pest and *Calomycterus setarius* (a Japanese weevil) continue household nuisances in many homes. (Wis. Ins. Sur.).

A FALSE CHINCH BUG (Nysius sp.) - NEVADA - Numerous and creating nuisance around homes in Elko, Elko County. (Earnist).

WHARF BORER (Nacерdes melanura) - MASSACHUSETTS - Seriously damaging roof of summer camp building in eastern area. (Wave).

#### STORED-PRODUCT INSECTS

YELLOW MEALWORM (Tenebrio molitor) - MICHIGAN - Adults infesting grain bins being cleaned for storage in Berrien and Lapeer Counties. (Madaski, Lincoln).

DERMESTID BEETLES - MICHIGAN - Larvae of undetermined species infesting remnants of old grain in a Shiawassee County storage. (Wilt, Wells). COLORADO - All stages of Dermestes spp. very heavy in stored sheep pelts in Denver. Insecticidal treatments ineffective. (Daniels).

COWPEA WEEVIL (Callosobruchus maculata) - FLORIDA - Severe infestation in sack of dried conch peas at Winter Garden, Orange County. (Griffith, July 8).

#### BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Larvae and adults per 25 sweeps in alfalfa, mostly Hippodamia spp., ranged 10-25 near Farmington, San Juan County, and 40-55 in Los Lunas area, Valencia County. (N.M. Coop. Rpt.). WYOMING - Adults of several species per 100 sweeps averaged 62 in alfalfa, 47 in potato fields and 53 in sugar beets in Laramie County. (Marks). NEBRASKA - Hippodamia sp. ranged 3-22 (averaged 13) per 10 sweeps on legumes in southwest areas. (Bergman).

ANTHRICID BEETLES (Notoxus spp.) - NEW MEXICO - Large numbers being found in blooms and on terminal growth of cotton in Dona Ana, Sierra, Eddy and Chaves Counties. (N.M. Coop. Rpt.)

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults per 100 sweeps averaged 48 in alfalfa, 38 in potato fields and 26 in sugar beets in Laramie County. (Marks). NEBRASKA - Ranged 3-8 per 10 sweeps on legumes in southwest areas. (Bergman).

BIG-EYED BUGS (Geocoris spp.) - CALIFORNIA - Very abundant and feeding on spider mite colonies in cotton in Shafter area (Leigh, July 5), and in most cotton fields in Fresno County (Black, July 9). Moderate to high populations evident in Fresno County cotton. (Stromberg, July 8).

ANTHOCORID BUGS - UTAH - Feeding on infestations of several aphids on poplars and willows in Duchesne-Myton area of Duchesne County. (Knowlton). WYOMING - Orius spp. adults present in large numbers in potato fields in Laramie County; adults averaged 158 per 100 sweeps. (Marks). CALIFORNIA - Orius spp. abundant and feeding on spider mite colonies in Shafter area cotton, Kern County. (Leigh, July 5).

SYRPHID FLIES - NEW MEXICO - Larvae averaged 2-5 per 25 sweeps in alfalfa near Farmington, San Juan County. (N.M. Coop. Rpt.). UTAH - Larvae destroying infestations of several aphids on poplars and willows in Duchesne-Myton area of Duchesne County. (Knowlton).

ALKALI BEE (Nomia melanderi) - WASHINGTON - Began emerging in earliest nest sites about mid-June in Gardena area, Walla Walla County. Just beginning in cooler locations; many still in eye-colored pupal stage; few prepupae present. (Johansen, Eves, July 10).

HONEY BEE (*Apis mellifera*) - RHODE ISLAND - Large, late swarm reported in Saunderstown, Washington County. Reports also indicate a good honey crop in State this year. (Mathewson).

PARASITIC BRACONIDS - WASHINGTON - *Aphidius pulcher* and *Praon simulans* parasitizing *Acyrtosiphon pisum* (pea aphid) infesting seed alfalfa in Walla Walla, Walla Walla, County. (Halfhill - July 10).

#### MISCELLANEOUS INSECTS

JAPANESE BEETLE (*Popillia japonica*) - RHODE ISLAND - Continues sparse in State. (Mathewson). CONNECTICUT - Single adult noted at Storrs, Tolland County. (Savos). NEW YORK - No activity as yet in Chemung County. (N.Y. Wkly. Rpt., July 13). NEW JERSEY - Active in many areas of State. (Ins.-Dis. Newsltr.). PENNSYLVANIA - First adults noted in Fayette County June 14, Montgomery County June 24, Bucks County June 25 and Erie County June 30. General but numbers low June 14. (Udine et al.). INDIANA - Severely injuring wild grape and smartweed leaves near Shoals, Martin County. (Hamilton). MICHIGAN - Light numbers of adults taken in survey traps in Battle Creek and Detroit areas. No adults found in traps in rural areas of Berrien, Monroe, Wayne and Washtenaw Counties. (Ring). CALIFORNIA - Surveys to confirm eradication continue. Approximately 10,000 traps now in service over 6-county area; additional 9,000 property inspections made during week ending July 17. No evidence of pest found this season. (Cal. Coop. Rpt.).

GREEN JUNE BEETLE (*Cotinis nitida*) - ILLINOIS - Adults continue to be reported in scattered areas throughout southern half of State. (Ill. Ins. Rpt.).

A MAY BEETLE (*Phyllophaga forbesi*) - ILLINOIS - Between 9:30 and 11:30 p.m., July 10, total of 180 adults (including 40 mating pairs) collected on cherry tree in Champaign County. These undoubtedly are adults from larvae that damaged sod in a lawn in Champaign in September 1963. At that time, larvae determined as *P. ephillida*; see CEIR 13(36):1047. This is first report of *P. forbesi* in this county since 1910. It is not known to occur north of Champaign County. (Saunderson).

A PSYCHID MOTH (*Apterona crenulella* form *helix*) - IDAHO - Large numbers of bags noted on side of house in Burley, Cassia County, on July 13. (Bodily).

PSOCIDS - MARYLAND - Abundant in litter of several broiler houses in Salisbury area. (U. Md., Ent. Dept.).

CICADA KILLER (*Sphecius speciosus*) - MARYLAND - Adults active near several sandy areas at Catonsville, Baltimore County. (U. Md. Ent. Dept.).

#### CORRECTIONS

CEIR 14(27):730 - PINE TUSSOCK MOTH (*Dasychira plagiata*) - WISCONSIN should read MINNESOTA.

CEIR 14(28):753 - HESSIAN FLY (*Phytophaga destructor*) - INDIANA - Note should read: Pupae found infesting up to 15 percent of Monon wheat in Fulton County.

CEIR 14(28):754 - LEAFHOPPERS - MASSACHUSETTS - Next to last line - *Erratunus ocellaris* should read *Errastunus ocellaris*.

CEIR 14(28):759 - A ROUNDHEADED WOOD BORER (*Oberia myops*) should read (*Obera* myops).

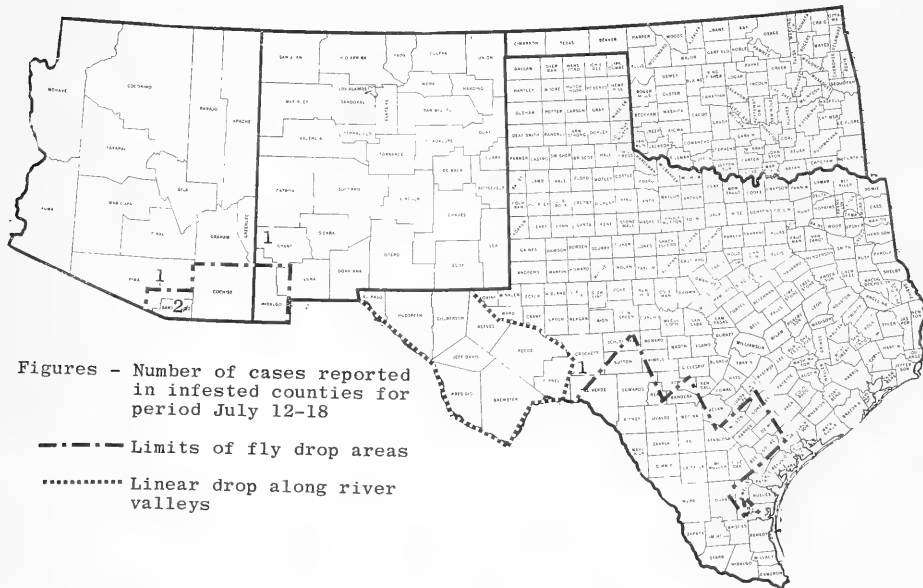
STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period July 12-18, one screw-worm infestation was confirmed in Crockett County, TEXAS; this county is outside fly-release area. One case was reported from Grant County, NEW MEXICO. ARIZONA reported 3 cases - Pima County (1), Santa Cruz County (2). The Republic of Mexico reported 104 cases from the States of Sonora (26), Durango (19), Chihuahua (2), Chihuahua (39), Nuevo Leon (10), Tamaulipas (6), and San Luis Potosi (2). A total of 95,476,650 sterile screw-worm flies was released: 25,274,250 in Texas; 1,800,000 in New Mexico; 3,392,000 in Arizona; and 65,010,400 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,994	25,050	43	2,018	4,637.2:100	1,241.3:100
1963	124	2,139	110	4,270	112.72:100	50.0:100
1964	2	97	49	3,985	4.0:100	2.4:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in number of screw-worm cases.  
(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period July 12-18

----- Limits of fly drop areas

..... Linear drop along river valleys









ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Illinois DURING 1953  
(State or District) (Year)

ATTACKING Clover & Alfalfa  
(Commodity or Crop)

A. Pest or pest complex: Grashoppers

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS) <u>1,928,000</u>	No. <u>        </u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS) <u>1.03 ton</u>	Units/ <u>        </u>
D. Price <sup>b</sup> per unit ( <u>ton</u> ) <sup>c</sup> (From CRS) <u>23.00</u>	\$/ <u>        </u>
E. <u>Acres</u> <sup>a</sup> needing control ( <u>44.66%</u> )	No. <u>861,045</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>290,074</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>16.93</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/ <u>0.17 ton</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/ <u>3.91</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup> (12.74%)	\$/ <u>3.02</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>97,065 tons</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>3.25</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>942,741</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>2,232,497</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>1,724,332</u>
Q. Combined control cost and losses, N + O + P	\$ <u>4,899,570</u>
R. Percent loss due to each insect in the complex:	

Comment: Although grasshopper populations in most of the State were much lower in 1953, damage estimates are \$613,571, higher than in 1952. Reason: Acres from 699,438 to 290,074, thus acreage treated dropped from 699,438 to 290,074, thus acreage treated increased 236,640 acres. In-creased from 324,062 to 570,971 and at the same time the value of hay increased \$2,50/ton.

- 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 ( ).
- d. Illinois Cooperative Crop Reporting Service, Illinois Annual Crop Summary, Dec. 24, 1963.

Submitted by Clarence White

Date February 11, 1964

ATTACKING Soybeans  
(Commodity or Crop)

A. Pest or pest complex: Grashoppers

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No. <u>5,575,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/ <u>29.5 bu.</u>
D. Price <sup>b</sup> per unit ( <u>bu.</u> ) <sup>c</sup> (From CRS)	\$/ <u>2.65</u>
E. <u>Acres</u> <sup>a</sup> needing control ( <u>1.98%</u> )	No. <u>110,385</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>100,650</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>20</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/ <u>5.9 bu.</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/ <u>15.64</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>        </u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>57,437 bu.</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>2.25</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>226,463</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>152,255</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>        </u>
Q. Combined control cost and losses, N + O + P	\$ <u>376,718</u>
R. Percent loss due to each insect in the complex:	

Comment: This is \$947,169 less than the estimated damage for 1952 and is due directly to the greatly reduced grasshopper populations throughout most of the heavy soybean producing area of the State.

- 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 Clarence White

Date February 11, 1964





UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

VOL. 14 No. 31

July 31, 1964

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*Cooperative*

**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPER activity increasing in South Dakota, with spraying underway to protect crops; counts high in several areas of Wisconsin; infestations present on 1,730,800 acres in Idaho. (pp. 861-862). ARMYWORM (*Pseudaletia unipuncta*) and FALL ARMYWORM (*Laphygma frugiperda*) outbreaks reported in several Eastern, Southern and Midwestern States. (pp. 863-864, 889). CORN EARWORM heavy on sweet and field corn in areas of Arizona. SOUTHWESTERN CORN BORER heavy on late corn in Louisiana. (p. 865). CORN ROOTWORM (*Diabrotica* spp.) adults common on corn in Midwestern States and larvae causing lodging of plants. (pp. 865-866). CORN LEAF APHID severe on barley in Utah, light to heavy on corn in Iowa and increasing in Wisconsin. (p. 866). PEA APHID populations high and causing loss of alfalfa in Colorado, and large populations present on alfalfa in Wyoming. (p. 867). LYGUS BUGS continue to increase on alfalfa in Arizona with controls necessary to protect seed crop. POTATO LEAFHOPPER causing yellowing of alfalfa in Wisconsin and Ohio. THREE-CORNERED ALFALFA HOPPER outbreak reported in Louisiana. (p. 868).

Curly top, transmitted by BEET LEAFHOPPER, found in several sugar beet fields in Washakie County, Wyoming. POTATO LEAFHOPPER colonies noticeable on commercial potatoes in areas of Wisconsin. (p. 876).

DETECTION

A RUST MITE (*Oxypleurites carinatus*) reported for first time in California. (p. 884). New county records reported were a GALL MIDGE (*Dasyneura gleditschiae*) in Minidoka County, Idaho (p. 884); FACE FLY (*Musca autumnalis*) in Stephens County, Georgia (p. 886); a FALSE CHINCH BUG (*Nysius caldoniae*) and BLACK THREAD SCALE (*Ischnaspis longirostris*) both reported for the first time from Hawaii County, Hawaii (p. 893).

CORRECTIONS and ADDITIONAL NOTES

See pages 888 and 889.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 885).

Hawaiian Insect Notes. (p. 893).

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Reports in this issue are for the week ending July 24, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JULY 27

Hot, humid weather east of the Rocky Mountains was highlighted by extreme heat in the central Great Plains and additional heavy rains in the Southeast where accumulations for the month already exceed previous July records at some stations. Generous thundershowers, rather widespread from the Mississippi Valley eastward, benefited many sections. Most of the Far West was hot and dry.

**TEMPERATURE:** The midcontinent heat wave was centered over the east central Great Plains where weekly averages were as much as 7° above normal and maxima at some stations exceeded 100° every day of the period. Maxima for the week reached 111° in Oklahoma, 110° in Kansas, and 112° in South Dakota. In southwest Oklahoma, maxima have reached or exceeded 100° on 27 consecutive days. Weekly maxima reached 100° or higher in most sections between the Rockies and the Mississippi River. Relative to normal, the week was also unusually hot in the Great Lakes region where weekly averages were as much as 9° above normal and maxima reached into the 90's on several days. Owing mostly to frequent showers and cloudiness which prevented daytime temperatures from reaching their normal heights, the week was slightly cooler than normal along the gulf coast, and 1° to 3° cooler in the Southeast and northward along the Atlantic coast. The week was a few degrees warmer than normal in the Far West except slightly below in Washington, Oregon, and Idaho due to the effects of cool Pacific air, and in southern portions of California and Arizona where temperatures were below normal the latter half of the week due to cloudiness and showers. The heat wave east of the Rockies was broken in most northern areas on Friday or Saturday when cool air out of the Northwest overspread areas west of the Great Lakes, and cool air from the North moving in behind a low off the middle Atlantic coast covered the Northeast.

**PRECIPITATION:** Frequent heavy showers in the Southeast totaled from 2 to over 6 inches in much of Georgia and parts of Florida and the Carolinas. Frogmore, South Carolina, reported the week's heaviest rain, 11.49 inches in a 24-hour period ending at 6 a.m., on the 22nd, 10 inches of which fell in a 3-hour period. Savannah, Georgia, at the end of the period had recorded over 14 inches in the last 10 days. Charleston, South Carolina, and Tallahassee, Florida, have already measured over 20 inches of rain for the month, new records for July, and the wettest month in history at Charleston. Over 60 inches of rain at Tallahassee, Florida since January 1, already exceeds the annual normal of 56.86 inches. Severe thunderstorms with heavy rains, high winds, and hail occurred in some extreme north central and northeastern areas as the cooler air moved in on the 24th and 25th. In the Far West, measurable precipitation was mostly limited to the lower Rocky Mountain region and the north Pacific coast. Amounts were generally light in the latter area, but some higher elevations in Arizona reported 2 to 4 inches. Hot, dry weather has created an extreme fire hazard on the Nevada ranges. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - SOUTH DAKOTA - Activity increasing in State; some spraying for crop protection underway. Numerous in spots from Meadow to Prairie City, Perkins County. McLaughlin main area of infestation in Corson County; some spraying underway. Numerous in soil bank land and some roadsides in Wicksville-New Underwood area, Pennington County. Some spraying in Philip area, Haakon County. Numerous in some alfalfa in Timber Lake and Ridge View area, Dewey County. Building up, and spraying of corn and alfalfa may be necessary in Hughes, Sanborn and Spink Counties. (Hintz). Generally 3-5 per square yard in Dewey and Ziebach Counties on Moreau River range area except in overgrazed areas where counts ranged 6-12 per square yard. Ranged 8-12 per square yard in northwest Haakon County. (Burge, Zimmerman). NORTH DAKOTA - Adult range survey in Golden Valley and Billings Counties showed averages of 3-4 per square yard; range less than 1-15 per square yard. No threatening infestations seen in these counties. Ageneotettix deorum, Aulocara elliotti and Amphitornus coloradus dominant species. (Brandvik). MINNESOTA - Surveys in central and west central districts show Wright, Kandiyohi and Swift County populations ranging 18-50 per square yard in alfalfa; contine scattered. Melanoplus femurrubrum (red-legged grasshopper) dominant in all counties. In other counties in these 2 districts counts ranged 7-10 per square yard in most fields. Occasional field with up to 50 per square yard in southern Otter Tail County and 20 per square yard in Morrison County, but most much lower. M. femurrubrum ranged second instar to adult with 80 percent in fourth and fifth instars. Adult M. bivittatus (two-striped grasshopper), M. packardii (Packard grasshopper), M. sanguinipes (migratory grasshopper) and M. differentialis (differential grasshopper) found but represent small percent of total population. Movement into corn and soybeans noted, especially where second crop of alfalfa removed. (Minn. Ins. Rpt.). WISCONSIN - Nymphs range up to 60-80 per square yard in some alfalfa; some spraying underway in Outagamie County and expected in Buffalo and Sauk Counties. Unusually high numbers in parts of Ashland, Manitowoc, Monroe, Pepin and Trempealeau Counties. Generally high in fields in Waupaca, Waushara, Adams, Columbia, southern Dane, Green and Rock Counties. Many nymphs fifth instar. M. femurrubrum in field in Brodhead area; few adults noted. Nymphs in east Jefferson and Walworth Counties ranged 9-65 per square yard; generally 30-40 per square yard. Ranged 1-24 in Kenosha, Racine and Waukesha Counties; 9-12 most common. Averaged 5 per square yard in west Jefferson, Dane, Iowa and Richland Counties. Development during period July 14-17 ranged first to fourth instars; about 60 percent in third instar and 25 percent second instar. Predominant species in all counties M. femurrubrum with M. bivittatus making 5 percent of populations in fields checked in Crawford County. M. bivittatus generally scattered throughout corn in Adams County; damage noticeable. Alfalfa in sandier areas showing considerable leaf feeding damage principally by M. femurrubrum. (Wis. Ins. Sur.). IOWA - Mostly M. differentialis with M. femurrubrum second; ranged 3-25 per square yard in fence-rows and road ditches. Ragweed chewed and in 1 field border rows of beans showed 25 percent damage. Ranged second instar to adult M. differentialis in Monona County. Spraying underway in Osceola County. Dry period could cause migration into corn and beans. (Iowa Ins. Inf., July 18).

OKLAHOMA - Several species moderate to heavy on alfalfa, rangeland, road margins, crops and gardens in most areas. (Okla. Coop. Sur.). UTAH - Grasshoppers largely winged with mating and egg laying occurring in several areas. Threatening on 5,000 acres in Carbon County, largely in Helper-Spring Glen area; 4,000 acres of range in Weber Canyon, Summit County; 1,200 acres in Morgan County in Petersen-Richville area; 1,200 acres in Wasatch County in Deer Creek Reservoir-Wallsburg area; 8,000 acres in Provo-American Fork Canyon area and 20,000 acres west and southeast of Utah Lake, Utah County, on rangelands; 2,000 acres of range in Draper area and north in Salt Lake County; 5,000 acres of range on the Wasatch Front in Davis County. This last infestation continues into Weber County. In Grand County, 85 miles southwest of Ouray (Uintah County) 1,000 acres of choice pasture very heavily infested by Camula pellucida (clear-winged grasshopper). In Sanpete County, 5,000 acres of crops and 2,000 acres of range north of Fountain

Green with heavy populations. Hansel Valley and Promontory areas seriously infested in Box Elder County. Other reports of damage or high populations received from other counties. (Burnett, Knowlton). NEVADA - Melanoplus bivittatus adults ranged 50-60 per square yard in Russian knapweed in old meadows; about 50 percent copulating and entire population heavily parasitized by flesh flies. M. bivittatus, M. packardii, M. sanguinipes, Aulocara elliotti and Oedaleonotus enigma ranged 10-12 per square yard on rangeland. A. elliotti, M. sanguinipes and O. enigma averaged 4 per square yard in brush and ches; mostly first and second instars of M. sanguinipes ranged 3-4 per square yard in alfalfa hay fields near Battle Mountain, Lander County. (Earnist). IDAHO - Recent estimates show various species occurring on 1,730,800 acres. Control, as of July 15, accomplished on 381,258 acres. Severe populations from King Hill to Mountain Home to Black Creek and around Gowen Field, Boise, Ada County, caused severe marginal damage to beans and wheat in Holister area. Spotted, heavy infestations found in Malta-Juniper area, Cassia County, and from Declo to Raft River; damage reported in Pingree-Springfield area. Principal species in desert areas: M. sanguinipes, O. enigma, M. packardii, M. bivittatus and various Oedipodinae. Grasshopper development in Glenns Ferry area July 1, principally fourth instar with majority adults; in other areas in desert, grasshoppers ranged from third instar to adult on July 15. In the high elevations in the foothills, Twin Falls, Cassia and Blaine Counties, some hatch still occurring with numerous second and third instars present. (Evans). CALIFORNIA - Nymphs and adults of C. pellucida heavy on grazing land in Hayfork, Trinity County; Melanoplus sanguinipes defectus medium to heavy on range grass in Cayamaca, San Diego County. (Cal. Coop. Rpt.).

MORMON CRICKETS (Anabrus spp.) - UTAH - Light on 300 acres north of Fountain Green, Sanpete County, and 200 acres of range on East Tooele Creek, Gand County; all rangeland. (Burnett, Knowlton).

EUROPEAN CORN BORER (Ostrinia nubilalis) - IOWA - Annual first-brood survey made July 15-17 shows State average for 73 fields as follows: 31.8 percent infested with 1.2 borers per infested plant and 56.9 borers per 100 plants. Developmental stages in percent as follows: Second instar 5, third instar 19 and fourth instar 25 and 46 percent pupae. West central and southwest heavier infested areas. Borer development ahead of that in 1963. Second-brood adults flying and peak emergence will come about July 29. (Iowa Ins. Inf., July 18). NEBRASKA - Infestations range 50-99 percent in early planted corn in parts of northeast, central and east areas. Late-planted corn approximately 10 percent infested. (Hill). Pupating in southeast; second instars infested 6 percent of sorghum field in Gage County. (Bergman). SOUTH DAKOTA - Generally quite low in Kingsbury, Beadle, Spink, Clark and Codington Counties. Infestations ranged 5-40 percent, larval counts ranged 1-3 per plant. (Hintz). MINNESOTA - Percent development by districts as follows: South central - 7 second, 29 third, 44 fourth and 15 fifth instars and 5 pupae. Southwest - 6 second, 47 third, 47 fourth instars and no fifth instar nor pupae. West central - 46 first, 14 second, 30 third and 10 fourth instars and no fifth instar nor pupae. Central - 9 second, 50 third, 14 fourth and 27 fifth instars and no pupae. (Minn. Ins. Rpt.). WISCONSIN - Examination of corn near Oakfield and Stevens Point showed most larvae second stage; third stage predominated near Hortonville. Fifth instars common near Green Lake and pupae found south of Coloma. Infestation in corn 15 percent pupae in Rock County. Some spraying necessary in Buffalo County; populations relatively high in Monroe County. Generally low in Sauk, Racine and Manitowoc Counties. (Wis. Ins. Sur.). ILLINOIS - First-generation survey started. Average number of borers per 100 plants by county as follows: Champaign 0.4, Logan 0.8, Sangamon 1.2, Christian 0.8, Macoupin 0.8 and Green 0.4. Stalk dissections in Putnam County showed second instar 2.4 percent, third 14.6 percent, fourth 11.5 percent, fifth 48.0 percent, pupae 22.9 percent and empty cases 0.7 percent. Egg laying and hatching observed in northern Peoria County. (Ill. Ins. Rpt.). MICHIGAN - First-brood pupation generally underway in Berrien County; infestations range 2-36 percent in 10 fields examined July 21 in Wayne, Oakland and Livingston Counties. Most in early instars; no pupae found. (Wells, Newman). MARYLAND - Second-

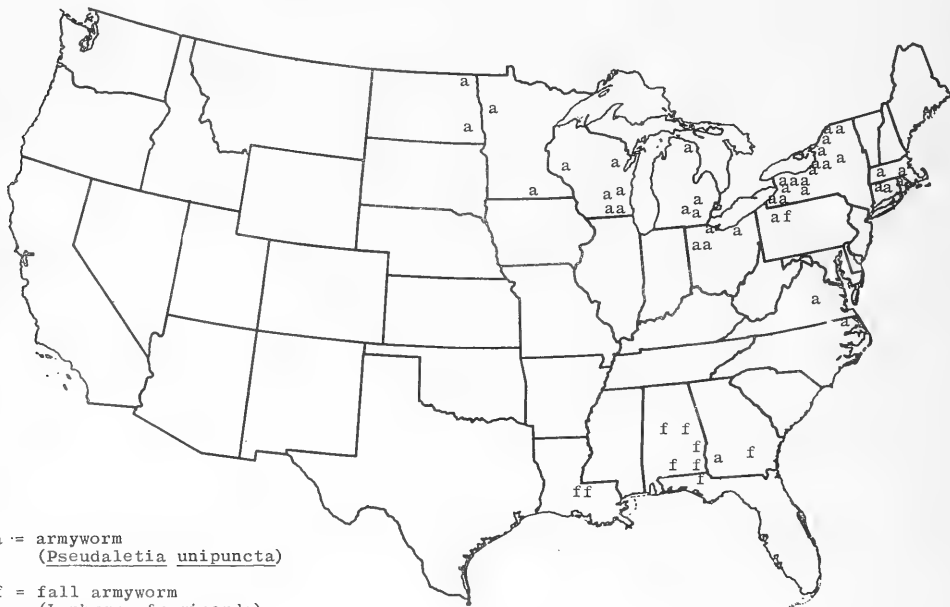
generation adult activity increasing on Eastern Shore; egg masses found on silking corn in Worcester County. Pupation underway in Frederick County. (U. Md., Ent. Dept.). DELAWARE - Adults taken daily in blacklight traps in Sussex County. (MacCreary, Crossan). NEW YORK - Pupating in Hudson Valley sweet corn; older larvae still present; males emerged by July 15. (N.Y. Wkly. Rpt., July 20).

ARMYWORM (*Pseudaletia unipuncta*) - VERMONT - Reported in Orleans, Franklin, Chittenden and Addison Counties; controls necessary in many fields. (MacCollom, July 20). MASSACHUSETTS - Scattered, heavy infestations, probably this species, reported in both western and eastern regions of State; controls necessary. (Wave). RHODE ISLAND - Outbreaks of armyworms, with this species predominating, occurring on corn and oats. Approximately 200 acres on several properties in Little Compton, Newport County, involved. Outbreaks on corn in Foster and Johnston, Providence County, and on corn on 2 properties in Kingston, Washington County; infestations in most cases associated with heavy weed condition. Involved 45 acres of corn in Cranston, Providence County. (Mathewson, Peabody, King, Veilleux). CONNECTICUT - Found in scattered locations in Windham and New London Counties on corn and oats; controls recommended. Also reported in Litchfield and Tolland Counties. (Savos, July 22). NEW YORK - Invaded small grains, Sudan grass and corn fields. Reported in Chautauqua, Cattaraugus, Niagara, Livingston, Onondaga, Cortland, Oneida, Oswego, Jefferson, Lewis, St. Lawrence, Franklin, Clinton, Albany, Otsego and Chenango Counties. Infestations in a few counties widespread and in nearly every corn, oat or hay field. Large larvae readily found in whorl-stage sweet corn in Hudson Valley; but at most on a few plants per 100. Of major interest in Orleans County and heavy, local concentrations on a few farms northeast of Avon, Livingston County. (N.Y. Wkly. Rpt., July 20). PENNSYLVANIA - This and *Laphygma frugiperda* (fall armyworm) scattered over State with damage ranging light to severe on corn and sorghum, especially on outer rows. (Udine). VIRGINIA - Larvae severe on Sudan grass in Amelia County. (Holmes). NORTH CAROLINA - Noted in Camden County wheat field; no damage apparent. (Tuten, Mount). GEORGIA - Infesting lawns at U.S. Marine Corps Supply Center, Albany. (Glover, Barnes). OHIO - First economic outbreak of season reported on Sudan grass, corn, oats and Sudax in northeast and northwest. (Holdsworth, Barry). Late instars on Sudax grass at Congress, Wayne County; occasional larva found in corn. Large numbers found under debris during high daytime temperatures. (Barry). Larvae attacking Sudan grass in Sandusky County. (Junis, Holdsworth). Infesting corn in Seneca County (Gamble, Holdsworth) and collected on oats in Hardin County (Klingler, Holdsworth). Larvae two-thirds grown in 10-acre field of oats near Orville, Wayne County. Larvae migrating into and damaging adjacent corn. (Ring). ILLINOIS - Now pupating in many northern corn fields; damage still reported and treatments underway. Diseased or parasitized larvae very common. Populations should decrease rapidly. (Ill. Ins. Rpt.). MICHIGAN - Larvae about 50 percent grown and in second and third instars; damaging Sudan grass and Sudax in Livingston, Lapeer, Wayne and Washtenaw Counties. Large percent parasitized by a tachina fly. Larvae reported on oats in Presque Isle County. Blacklight trap catches show general heavy flight still underway. (Newman, Janes, Kidd, Snow, Sieting). WISCONSIN - Treatments of sweet corn necessary in several areas; some field corn sprayed. Many fields infested and a few heavily infested. Highest square foot counts by random selection as follows: Near Waukanee 20, near Randolph 5, near Oakfield 3, near Ripon 6, and near Darien 50. Counts in lodged oats generally ranged 1-6 per 10 feet of row. Large populations on several farms in Oconto and Pepin Counties in oats. Relatively heavy in many corn fields in western Walworth and eastern Rock Counties. Feeding mostly confined to sucker growth and stunted plants; hail-damaged area most heavily infested. Most either fourth or fifth instars and nearly all heavily parasitized. Up to 70 percent of larvae in pea field had eggs of a red-tailed tachina fly evident. Pupae of *Apanteles militaris* (a braconid) up to 3 per square foot in pea fields. Ground beetles abundant in grasses within corn and along field margins. (Wis. Ins. Sur.). MINNESOTA - Situation seems under control in northwest district; some spraying in "high count" barley fields. Destroyed 2 timothy seed fields in Pennington County. Reed canary grass and timothy appear preferred hosts in that area. Careful inspection of late-planted grain fields urged. Averaged 13 larvae per square foot

in isolated Sudan grass field in Freeborn County. (Minn. Ins. Rpt.). NORTH DAKOTA - Larval damage to some small grains appeared in Red River Valley. (Frye). Head clipping in barley and wheat in Barnes and Pembina Counties; some spraying done in latter county. (Dogger).

FALL ARMYWORM (*Laphygma frugiperda*) - FLORIDA - Outbreak in Jackson County in Marianna area. Excess of 10,000 acres of pasture grass with some peanuts, corn and millet infested. Heavy rains prevented controls until last 3 days. (Fla. Coop. Sur.). GEORGIA - Heavy on lawns at U.S. Marine Corps Supply Center, Albany. (Glover, Barnes). Heavy on Coastal Bermuda grass in Appling County. (Camp). Moderate to heavy on Coastal Bermuda grass, corn and peanuts throughout southern area. (Johnson et al.). ALABAMA - Major outbreak in Coffee, Russell, Houston, Shelby and Chambers Counties and other south central and especially southeast areas of State where most peanut and Coastal Bermuda grass is threatened. This is second generation; outbreaks reported previously as far north as Fayette County. Sudax and other Sudan grass grazing and hay crops favored hosts. Fields in Chambers and Shelby Counties show 1-3 half-grown larvae per stalk on growing crops. Lawn grasses in Coffee County and other areas treated. Larvae heavy, widespread and attacking lawns, pastures, peanuts, corn and sweetpotatoes in Houston County. Pasture in Brannor area lush on July 17 looked bare by July 20. (Mathews, White, Kimbrough). Appearing on lawns in Enterprise, Dothan and other southeastern areas. (Roney, Casaday). NORTH CAROLINA - Spotty on 50 acres of corn in Wake County field; larvae one-third to one-half grown. (Wells, Mount). LOUISIANA - Scattered infestations in pastures in southern area. Heavy on newly planted sweet corn in East Baton Rouge Parish and attacking corn in Livingston Parish. (Tynes et al., July 20). MICHIGAN - Six adults, first of season, taken week ending July 20 in Branch County blacklight trap. (Newman, Tundewald).

Armyworm Outbreaks Reported July 12-17



a = armyworm  
(*Pseudaletia unipuncta*)

f = fall armyworm  
(*Laphygma frugiperda*)

CORN EARWORM (*Heliothis zea*) - NEW YORK - Mostly in pupation in Hudson Valley sweet corn. From 15 specimens which entered soil June 23, moths emerged July 19 and 20. Blacklight trap at Poughkeepsie took fresh moth July 15; two eggs found on 150 silks in same location. Similar record at Hurley. Active on some early market corn in Madison-Oneida County area. (N.Y. Wkly. Rpt., July 20). MARYLAND - Ear infestations light to date on more advanced sweet corn in Queen Annes County. (U. Md., Ent. Dept.). GEORGIA - Infested 75 percent of ears of corn in field in Franklin County. (Johnson). Heavy on soybeans in Macon County. (Brown). OHIO - Half-grown larvae collected from sweet corn in central section; infestations ranged 2-10 percent throughout central and southern sections. Damage appears sporadic. (Lyon). WISCONSIN - Few small larvae found on ears of sweet corn in Rock and Waupaca Counties. Populations very low. (Wis. Ins. Sur.). OKLAHOMA - Moderate in mature corn in Choctaw County. (Okla. Coop. Sur.). ARIZONA - Heavy on many sweet and field corn fields in Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). INDIANA - Larvae infesting up to 30 percent of sweet corn in a Tippecanoe County planting. (Matthew).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - LOUISIANA - Heavy on late corn in East Carroll, West Carroll, Caddo and Bossier Parishes. (Tynes et al., July 20). MISSOURI - First and second instars infesting up to 75 percent of stalks in some late-planted corn in southeast; eggs present also. (Keaster).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - Infestations not high enough to justify treatments in many fields. (Tynes et al., July 20).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ARIZONA - Medium and damaging sorghum in Maricopa County; some control necessary. (Ariz. Coop. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - IOWA - Fields from Carroll, Carroll County, to Red Oak, Montgomery County, show one adult per plant but not feeding on silks; apparently feeding on pollen in leaf axils. Adults emerged July 14 in Calhoun County. (Iowa Ins. Inf., July 18). MISSOURI - Emergence in northwest area increasing. (Houser, Thomas, Wood). KANSAS - Adults, primarily this species, in Phillips and Norton Counties ranged less than one to 10 per plant; some controls underway. (Peters). NEBRASKA - Approximately 60-70 percent emerged in southeast; some fields show severe root feeding injury, but corn standing. Very dry conditions appear aiding root to remain anchored. (Bergman). SOUTH DAKOTA - Emergence continues in southeast; adults ranged 1-25 per plant (average 3) throughout area. (Hintz).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - MISSOURI - Emerging in north-west area; damage to corn roots varies light to heavy in individual fields; silk feeding light. Ranged 0-3 per silk mass. (Houser, Thomas, Wood). IOWA - Adults abundant in 2 fields in eastern area. Adults feeding on silks at Denison, Crawford County. Difficult to control in Algona, Butler County. Noted in Jones County. Controls difficult on farm near Williamsburg, Iowa County; 31 specimens taken from 3 plants. (Iowa Ins. Inf., July 18). ILLINOIS - Adults now common in corn fields. (Ill. Ins. Rpt.). INDIANA - Adults emerging in corn throughout northern half of State; averaged 1-4 per plant. (Bram, Saugstad, Matthew). Larvae causing lodging of plants in one Wilson County field, northeast. (Gould). MICHIGAN - Newly emerged adults active in corn fields in Cass County. (Wells).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - ILLINOIS - Adults now common in some corn fields. (Ill. Ins. Rpt.). IOWA - Adults abundant in field in eastern area. (Iowa Ins. Inf., July 18). NEBRASKA - Adults averaged approximately 8 per 10 sweeps in alfalfa in southeast areas; occasional adult on corn and sorghum. (Bergman).

CORN ROOTWORMS - (*Diabrotica* spp.) - MINNESOTA - Normally economic problem only in southern part of State. Damaged several fields in Wright County (central) and damaged fields in Carver County (south central); caused some lodging. Ranged 3-10 adults per plant. Second to third instars severely damaged roots. Checking

of corn urged. Severely damaged corn in Jackson County field; other fields in Blue Earth and Mower Counties show light lodging. Both D. longicornis (northern corn rootworm) and D. virgifera (western corn rootworm) emerging. (Minn. Ins. Rpt.). IOWA - Survey in Ames-Onawa-Glenwood-Osceola-Indianola area indicated 64 percent of fields with no corn rootworm problems; 21 percent show slight feeding; 10 percent show 25-50 percent of roots destroyed and 5 percent with more than 50 percent of roots destroyed. Caused 40-60 percent destruction of Lyon County field; 30 larvae per 6 hills noted. Field planted to soybeans in 1963. Completely destroyed 5-6 acres of fifth-year corn in Taylor County. (Iowa Ins. Inf., July 18). ARIZONA - D. undecimpunctata tenella light to moderate on sweet corn in Graham County. (Ariz. Coop. Sur.).

SAP BEETLES - Carpophilus lugubris (dusky sap beetle) and C. dimidiatus (corn sap beetle) reported in corn injured by Ostrinia nubilalis (European corn borer) in Kalamazoo and Berrien Counties. (Wells, Belter, Lott). OHIO - Glioschrochilus quadrisignatus adults attacking sweet corn near Kenton, Hardin County. (Klingler, Holdsworth). MARYLAND - Adult Carpophilus spp. evident in tassels and silks of sweet corn at several places in Queen Annes County. (U. Md., Ent. Dept.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Increasing and causing conspicuous foliage injury to corn in all sections. (U. Md., Ent. Dept.).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Very few adults found in Webster and Northfield Townships, Washtenaw County. (Ring). INDIANA - "Summer" adults nearly 100 percent in aestivation in La Porte County. (Wilson).

A WIREWORM (Aeolus mellillus) - KANSAS - Adults noted on many corn plants in Phillips and Norton Counties; ranged 0-10 per plant. (Peters).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Severe on spring barley at Fielding, and damaging several hundred acres of spring barley in Bear River City area, Box Elder County. (Knowlton). COLORADO - Damaging sorghums in Weld and Phillips Counties. (Shafer, Urano). KANSAS - Present on whorls and around tassels on many corn plants statewide. (Peters). NEBRASKA - Very prominent in corn and sorghum in southeast, east and central counties. (Bergman). SOUTH DAKOTA - Infestations averaged 15 percent in Kingsbury and Codington Counties. Many tassels with only 2-3 aphids, others completely covered and deformed. (Hintz). IOWA - Ranged light to heavy (3-10 to 100+ per tassel) in 73 fields checked. Lady beetles and other predators present also. (Iowa Ins. Inf., July 18). WISCONSIN - Increase continues; most corn with at least trace population present. Highest on field corn in central area; many fields 100 percent infested with some instances of browning of upper leaf and tassel areas. Chrysopa oculata (golden-eye lacewing) adults numerous in several fields. (Wis. Ins. Sur.). ILLINOIS - Present in small numbers in many corn fields with occasional field heavy on up to 8 percent of plants. (Ill. Ins. Rpt.). INDIANA - Adults and nymphs present in virtually all fields in northern half of State; however, severe on less than 1 percent of plants. (Bram, Saugstad). OHIO - Most sweet corn observed in home gardens throughout southern section infested. Moderate to heavy, primarily on tassels. (Lyon).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Heavy on corn and sorghum in local areas of Mayes County. (Okla. Coop. Sur.).

SPIDER MITES - NEW MEXICO - Building up rapidly on corn in Estancia Valley, Torrance County. Most of lower leaves already dried; damage very evident. (N.M. Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - IDAHO - Outbreak reported on wheat in Twin Falls County. (Glenn). NORTH DAKOTA - Some buildup on grain reported over State; up to 5 per sweep on hard wheat at Kenmare. (Frye, Gage).

GRASS BUGS - UTAH - Continue damaging wheat in Whites Valley, Box Elder County. (Knowlton, July 13).



DELPHACID PLANTHOPPERS (*Sogatia* spp.) - FLORIDA - Adult *S. cubana* taken on red rice at South Bay, Rabbit Island, Palm Beach County, July 13 and *S. furcifera* complex taken from 4 different rice fields in same area July 13, 16, 17. (Robnett).

HISSIAN FLY (*Phytophaga destructor*) - KANSAS - Summary of 1964 survey follows:

District	Number of Samples	Percent Fields Infested	Percent Minimum	Plants Infested Maximum
Northeast	78	10	0	4
East Central	49	6	0	4
Southeast	81	0	0	0
North Central	81	14	0	14
Central	34	6	0	8
South Central	40	0	0	0
Northwest	8	50	0	12
West Central	4	25	0	4
Southwest	13	0	0	0

(Somsen, Peters).

WHEAT STEM SAWFLY (*Cephus cinctus*) - NORTH DAKOTA - Survey in Divide, Williams, Burke, Renville, Bottineau, Ward, McHenry and Mountrail Counties shows average of 14.6 percent of stems infested. (Frye, Gage).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Light and just appearing in spring-planted alfalfa in Graham County. (Ariz. Coop. Sur.). OKLAHOMA - Light (10-50 per 10 sweeps) in alfalfa checked in Alfalfa, Woods, Ellis, Woodward and Major Counties. Light in Choctaw County. (Okla. Coop. Sur.). ARKANSAS - Surveys negative on Northeast Branch Station, Keiser, and in Faulkner County. (Ark. Ins. Sur.). NEBRASKA - Averaged 200 per 10 sweeps in Hall County (Hill); averaged 12 per 10 sweeps in Gage County and 220 per 10 sweeps in Nance County (Bergman). SOUTH DAKOTA - Building up; ranged 100-350 per 100 sweeps in fields with trace numbers several weeks ago. (Hintz). WISCONSIN - Little change in Brodhead area; parasites still not evident. Averaged 6 per sweep south of Portage. (Wis. Ins. Sur.).

PEA APHID (*Acyrtosiphon pisum*) - MARYLAND - Heavy, over 140 per sweep, in 10-acre alfalfa field at Queenstown, Queen Annes County. (U. Md., Ent. Dept.). INDIANA - Adults and nymphs increasing on alfalfa in northern half of State. Averaged 20 per sweep in northwest, 70 per sweep (maximum over 300 per sweep in Marshall County) in north central, 70 per sweep in northeast, 66 per sweep in west central and 65 per sweep in east central sections. (Bram, Saugstad). WYOMING - Large populations on alfalfa in Fremont County; adults and nymphs ranged 4,000-8,000 per 100 sweeps. Adults and nymphs averaged 5,000 per 100 sweeps in Washakie County alfalfa. (Marks). COLORADO - Populations high on alfalfa in Weld, Larimer, Mesa, Montrose and Delta Counties, with considerable loss. Range 15,000-50,000 per 100 sweeps. Populations reduced in recently cut fields. Predators increasing in all areas. (Jenkins, Bulla). UTAH - Damaging second-crop alfalfa in number of Duchesne County fields. (Knowlton). WASHINGTON - Ranged 28-155 per sweep on alfalfa grown for hay. *Praon* sp. and *Aphidius* sp. (braconids) ranged 1-4 per sweep in Yakima and vicinity, Yakima County. (Halfhill, July 17). All stages of *A. pisum* on alfalfa grown for seed; averaged 30, maximum 128 per sweep, in Walla Walla, Walla Walla County. *Aphidius pulcher* (20 percent) and *Praon simulans* (80 percent) averaged 1 per sweep. (Halfhill).

APHIDS - IDAHO - Various species built up during past week on alfalfa from Hammett to King Hill. Infestations general throughout area; very few predators evident. Some parasitized individuals observed. (Edwards).

LYGUS BUGS (*Lygus* spp.) - IDAHO - Nymphs becoming very numerous in some unsprayed alfalfa seed fields in southwestern area. (Waters). ARIZONA - Increase continues in alfalfa in Yuma, Graham, Maricopa and Pinal Counties; controls necessary to protect seed crop. (Ariz. Coop. Sur.). NEW MEXICO - Nymphs heavy in seed alfalfa in southern Dona Ana County; treatments necessary. (N.M. Coop. Rpt.). WYOMING - Adults and nymphs averaged 275 per 100 sweeps in alfalfa fields of Fremont County and 200 per 100 sweeps in alfalfa in Washakie County. (Marks). OKLAHOMA - *L. lineolaris* (tarnished plant bug) generally light on alfalfa in northwest; heavy in Choctaw County. (Okla. Coop. Sur.). NEBRASKA - *L. lineolaris* averaged 8 per 10 sweeps in Gage County alfalfa. (Bergman). SOUTH DAKOTA - *Lygus* spp. and other plant bugs high throughout southern area alfalfa; ranged 200-500 per 100 sweeps. (Hintz).

PLANT BUGS (*Adelphocoris* spp.) - UTAH - Adults and nymphs of *A. superbus* (superb plant bug) averaged 12 per 25 sweeps in alfalfa at Cottonwood Canyon, Emery County. (Knowlton). NEBRASKA - *A. lineolatus* (alfalfa plant bug) averaged 6 per 10 sweeps in Gage County alfalfa and *A. rapidus* (rapid plant bug) averaged 4 per 10 sweeps in Gage and Nance Counties on alfalfa. (Bergman). OHIO - *A. rapidus* predominant species in several forage fields in south central section. Ranged 10-14 per 25 sweeps in alfalfa in Scioto County. (Lyon).

STINK BUGS - NEW MEXICO - Nymphs heavy on seed alfalfa in southern Dona Ana County; treatment necessary. (N.M. Coop. Rpt.). LOUISIANA - Nymphs present but low in most soybean fields. (Tynes et al., July 20).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - INDIANA - Adults per 10 sweeps on alfalfa averaged 5 in northwest and north central, 3 in east central and 5 in west central sections; averaged 2 per sweep (maximum 9 per sweep in Whitley County) in north-east section. (Bram, Saugstad). IDAHO - Still abundant throughout northern area but practically all in adult stage. (Manis).

POTATO LEAFHOPPER (*Empoasca fabae*) - OHIO - Many alfalfa plants throughout southern section showing yellow symptoms as result of "hopperburn." Nymphs and adults moderate in most fields. Heavy in blacklight traps in Columbus, Franklin County, collections. (Lyon). INDIANA - Adults and nymphs remain relatively low on alfalfa. Counts per sweep averaged 2 in northwest, 1.5 in north central, 1.5 in northeast, 3 in west central and 9 in east central. (Bram, Saugstad). WISCONSIN - Generally high in many alfalfa fields in State; yellowing becoming pronounced. (Wis. Ins. Sur.). DELAWARE - Very heavy in some fields in western Sussex County. (MacCreary, Crossan).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - WASHINGTON - All stages observed on pasture grass-legume mixtures; 2,000-3,400 taken in light trap per night; ranged 200-300 per 100 square feet in pasture vacuum sweepings at Othello, Franklin County, and at Warden and Winchester, Grant County. (Hagel).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - LOUISIANA - Outbreak in East Carroll and West Carroll Parishes; up to 1 per foot of row on soybeans with up to 20 percent girdling in some fields. (Tynes et al., July 20).

THRIPS - NEW MEXICO - Heavy in seed alfalfa in Dona Ana County. (N.M. Coop. Rpt.). DELAWARE - Apparently reduced on soybeans and corn following rains. (MacCreary, Crossan). MARYLAND - All stages evident in red clover fields in bloom in Talbot and Queen Annes Counties. (U. Md., Ent. Dept.).

ALFALFA WEEVIL (*Hypera postica*) - UTAH - Larvae damaging 2 alfalfa fields at Fielding, Box Elder County. (Knowlton). WYOMING - Larvae ranged 450-600 per 100 sweeps in alfalfa fields of Fremont County. Ranged 800-1,200 per 100 sweeps in alfalfa in Washakie County; slight damage to terminal growth noted. (Marks). COLORADO - Adults and second-generation larvae appearing on alfalfa in Larimer and Weld Counties. (Jenkins). VIRGINIA - Few adults found in field in Rockbridge County; no larvae found in fields in Appomattox, Campbell, Augusta or Rockbridge Counties. (Woodside).

A JAPANESE WEEVIL (Calomycterus setarius) - MASSACHUSETTS - Possibly this species attacking alfalfa in Amherst area. (Wave).

A WEEVIL (Epicaerus formidosus) - FLORIDA - Heavy on 50 acres of peanuts at Reddick, Marion County. (Roberson, Adkins).

JAPANESE BEETLE (Popillia japonica) - INDIANA - Caused light injury to soybeans near Shoals, Martin County. (Cleveland, July 21).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Averaged 50 per 100 sweeps at Jeanerette and zero per 100 sweeps at Leonville and Church Point on soybeans. (Tynes et al., July 20)

MEXICAN BEAN BEETLE (Epilachna varivestis) - KANSAS - Late larvae, pupae and adults damaging soybeans and garden beans in Doniphan County. (Eshbaugh).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Numbers below normal on soybeans on Eastern Shore. (U. Md., Ent. Dept.).

BLISTER BEETLES (Epicauta spp.) - IOWA - Epicauta sp. and E. fabricii (ash-gray blister beetle) cutting blossoms and eating leaves of soybeans in Mahaska County; controls used. (Iowa Ins. Inf., July 18). NEBRASKA - Epicauta sp. averaged 3 per 10 sweeps in Merrick County alfalfa. (Bergman).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Fairly common on soybeans in most areas. (MacCreary, Crossan). MARYLAND - Larvae light to moderate on soybeans in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). SOUTH DAKOTA - Generally averaged 3 per 10 sweeps in alfalfa. (Hintz). LOUISIANA - Low on soybeans. (Tynes et al., July 20).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Increase continues in nearly all areas on alfalfa; larvae range 20-60 per 100 sweeps. (Ariz. Coop. Sur.). UTAH - Light in Emery, Carbon and Duchesne Counties on alfalfa. (Knowlton, July 18).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light in alfalfa in Yuma County and western Maricopa County. (Ariz. Coop. Sur.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - LOUISIANA - Low on soybeans. (Tynes et al., July 20).

GRANULATE CUTWORM (Feltia subterranea) - GEORGIA - Caused moderate defoliation of peanuts in Decatur County. (Crownover, Galbreath).

STRIPED CUTWORM (Euxoa tessellata) - IDHAO - Adults appearing in moderate numbers in light trap collections in Twin Falls during past 2 weeks. (Gibson).

WEBWORMS (Loxostege spp.) - MISSOURI - Numerous reports of webbing on various crops, especially soybeans. (Wkly. Rpt. Fr. Grs.). L. similalis (garden webworm) caused heavy damage in fields of late planted soybeans in northwest; destroyed field of late-planted corn. (Houser, Thomas, Wood). KANSAS - Webbing by Loxostege sp. noted on soybeans in Doniphan County. (Eshbaugh). CALIFORNIA - L. sticticalis (beet webworm) adults light on alfalfa in Kerman, Fresno County. (Cal. Coop. Rpt.).

A LEAF ROLLER MOTH (Synnoma lynosyrana) - NEVADA - Larvae heavy on Chrysothamnus Greenei in Delmar Flat and Pahroc Valley areas, Lincoln County. (Bechtel, Martinelli, Zoller).

SAGEBRUSH DEFOLIATOR (Aroga websteri) - NEVADA - Caused light to medium damage to Artemisia tridentata in McIntyre Summit area of Hot Creek Range, Nye County. (Bechtel, Martinelli, Zoller).

AN ALFALFA SEED CHALCID (Bruchophagus roddi) - IDAHO - Numbers very low on all fields checked; first emergence of second generation observed July 22 at Parma. (Waters). OKLAHOMA - Adults appearing in alfalfa in Ellis and Alfalfa Counties. (Okla. Coop. Sur.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - IDAHO - Very numerous in an occasional alfalfa seed field in Parma area. (Waters).

CHINCH BUGS (Blissus leucopterus ssp.) - LOUISIANA - Up to 200 per square foot on St. Augustine grass in southern area. (Tynes et al., July 20). ALABAMA - Observed on St. Augustine grass lawns in Dothan, Houston County. (Roney). NEW JERSEY - Increasing in several counties. (Ins.-Dis. Newsltr.).

HAIRY CHINCH BUG (Blissus leucopterus hirtus) - NEW YORK - Damaged lawns in New Hartford, Oneida County, during past week; reports of previous years usually from western and Niagara regions only. (N.Y. Wkly. Rpt., July 20).

BILLBUGS (Sphenophorus spp.) WASHINGTON - S. cicatristriatus causing considerable lawn damage at Pasco, Benton County. (Brannon, July 17). IDAHO - Larvae of S. parvulus (bluegrass billbug) damaged several lawns in Lewiston. (Kambitsch).

A MARGARODID SCALE - GEORGIA - Causing some damage to centipede lawns in Dougherty County. (Crownover).

#### FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - MARYLAND - Second-brood larvae continue entering fruit in Hancock apple orchards, Washington County. (U. Md., Ent. Dept.). MICHIGAN - General, widespread emergence of second brood started in southern and central Lower Peninsula counties July 20. (Siefert, Gilmore, Belter). MISSOURI - Little or no activity reported; but sudden attack expected if not controlled. (Wkly. Rpt. Fr. Grs.). KANSAS - All stages in unsprayed orchards; buildup can occur before harvest. Controls urged. (Eshbaugh, July 16). UTAH - Heavy flight noted July 13-22. (Davis). WASHINGTON - First brood mature; new brood beginning. Light to moderate; higher populations anticipated in neglected apple orchards at Moxee City and Yakima, Yakima County. (Howell).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Emergence continues; apparently peaked in early July in Oceana County. Total of 165 adults emerged from 25 trees July 3-10 and 93 adults emerged July 10-15. Fewer numbers recorded from infested trees in Grand Traverse and Charlevoix Counties. (Woolley). INDIANA - Emergence from infested wood in insectary nearly stopped; emergence of this and Sanninoidea exitiosa (peach tree borer) in field continues in Vincennes area, Knox County. (Cleveland, July 21).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Very little or no injury on apricots in Mesa County; harvest near completion. (Bulla).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MARYLAND - Some entries into peach terminals noted in Hancock, Washington County. (U. Md., Ent. Dept.). NORTH CAROLINA - Infested peach twigs in Lincoln County. (Choate, Robertson).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - First-brood pupation 71 percent and 20 percent emerged in western area July 17. (N.Y. Wkly. Rpt.).

LEAF ROLLER MOTHS - MISSOURI - Reports of 2 instances of unidentified species, but not Argyrotaenia velutinana (red-banded leaf roller), in stem end of freshly harvested peaches near Kansas City. (Wkly. Rpt. Fr. Grs.).

CARPENTERWORM (Prionoxystus robiniae) - WASHINGTON - Attacking winter-injured cherry trees in Yakima, Yakima County. (Ballard, Brannon).

AMERICAN PLUM BORER (Euzophera semifuneralis) - COLORADO - Collected under canker scabs on peaches in Mesa County. (Quist, Jenkins).

BROAD-NECKED ROOT BORER (Prionus laticollis) - RHODE ISLAND - Adults collected in Johnson, Smithfield and Gloucester, Providence County. (King, Mathewson).

PLUM CURCULIO (Conotrachelus nenuphar) - KANSAS - Second-generation larvae noted in unsprayed peaches in Doniphan County; most larvae at least one-half grown. (Eshbaugh, July 16).

APPLE MAGGOT (Rhagoletis pomonella) - MINNESOTA - Very high populations in trap orchards indicate peak emergence; continued protection urged in all areas. (Minn. Ins. Rpt.). WISCONSIN - Adults appearing with greater frequency in ammonia bait traps in Madison area; 5 flies taken in 1 location July 13-18; six in another Madison location July 17-21. (Wis. Ins. Sur.). OHIO - Adults continue on sticky board traps in large numbers in neglected apple orchards in Ashland County. (Lyon). MICHIGAN - Adults continue active in unsprayed apple orchards; 224 flies trapped on 2 sticky boards July 13-22 in Oakland County orchard; 62 flies taken on 2 Macomb County sticky board traps during same period. (Siefert, Rapp, Conrad). CONNECTICUT - Emergence continues to increase; should peak before July 31. Adults easily found on unsprayed trees; maximum protection needed. (Savos, July 22). RHODE ISLAND - Sticky boards yielded one adult July 17-24. (Mathewson).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - WISCONSIN - Specimens caught in cherry orchard in Door County determined this species by R. H. Foote. (Wis. Ins. Sur.).

A PLATYSTOMATID FLY (Rivellia sp.) - OHIO - Major fly collected from sticky board traps in commercial apple orchard near Pedro, Lawrence County. (Lyon).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Buildup continues on pears, mainly DeAnjou variety, in Jackson County. (Berry). KANSAS - Slight increase in Doniphan County; no bronzing of foliage. (Eshbaugh, July 16). MISSOURI - Counts in Kansas City area show slightly more than one per leaf. About same in other areas. Distinctly threatening if current hot, dry weather continues. (Wkly. Rpt. Fr. Grs.). CONNECTICUT - Increasing rapidly at New Haven and Storrs; moving from centers of trees to outer leaves. (Savos, July 22).

SPIDER MITES - WASHINGTON - All stages of T. mcdanieli on apples moderate; but heavy in neglected, frost-damaged orchards in Yakima, Yakima County. (Howell). OREGON - Eotetranychus carpini borealis problem on DeAnjou pears in Jackson County in areas where it was not previously a problem. (Berry). COLORADO - Tetranychus spp. moving into pear and apple orchards in Mesa County; foliage injury noticeable. (Bulla). ALABAMA - Medium on pecan orchards in Mobile area, especially on older, canopied orchards. (Eden).

EUROPEAN RED MITE (Panonychus ulmi) - MISSOURI - Controls satisfactory in most orchards; many eggs noted on orchards in central and southeast areas. (Wkly. Rpt. Fr. Grs.). MICHIGAN - Populations, largely nymphs, building up rapidly in many apple and plum orchards in southeast and southwest fruit areas. Some bronzing in Berrien County. (Siefert, Conrad, Belter). MARYLAND - Increase continues in some apple orchards in Hancock area, Washington County. (U. Md., Ent. Dept.). DELAWARE - Increasing in some orchards. (MacCreary, Crossan). NEW YORK - Some increase noted in Orleans County. (N.Y. Wkly. Rpt., July 20). CONNECTICUT - Increasing rapidly at New Haven and Storrs. Moving from centers of trees and now easily found on outer leaves. (Savos, July 22).

APPLE RUST MITE (Aculus schlechtendali) - COLORADO - Causing foliage discoloration on Delta County apples. (Quist, Jenkins).

APPLE APHID (Aphis pomi) - CONNECTICUT - Low statewide; should no longer be a problem. (Savos, July 22).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Building up in apple orchards near Santa Fe, Santa Fe County. (N.M. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Apparently under control in Orleans County. (N.Y. Wkly. Rpt., July 20). OREGON - Building up on pears in Jackson County. (Berry, July 18).

A LEAFHOPPER (Empoasca filamenta) - WASHINGTON - Ranged 2,500-4,000 per night in light trap in apple orchard at White Swan, Yakima County; no damage reported. (Hagel).

SAN JOSE SCALE (Aspidiotus perniciosus) - IOWA - Killed apple tree in Scott County. (Iowa Ins. Inf., July 18).

STINK BUGS - MISSOURI - Early season damage now apparent; damage probably also caused by Lygus spp. Caused 5-10 percent reduction in saleable peaches. (Wkly. Rpt. Fr. Grs.).

PEAR-SLUG (Caliroa cerasi) - IOWA - Larvae about three-quarters grown in Guttenberg, Clayton County. (Iowa Ins. Inf., July 18).

A PERSIMMON PSYLLID (Trioza diospyri) - FLORIDA - Fourth instars scattered and moderate on Tanenashi persimmon at Plant City. (Custead, July 16).

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Damaged grapes in Noble, Payne and Pontotoc Counties. (Okla. Coop. Sur.). MISSOURI - Ripening fruit, especially peaches, injured in most part of State. (Wkly. Rpt. Fr. Grs.).

GRAPE ROOT BORER (Vitacea polistiformis) - MISSOURI - Adult activity increased rapidly. (Wkly. Rpt. Fr. Grs.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Dooryard planting of grapes heavily damaged in Maricopa County; medium in commercial vineyard. (Ariz. Coop. Sur.). CALIFORNIA - No live specimens reported in Kernan, Fresno County, nor in Livermore, Alameda County. Second treatment of dooryard vines started in Livermore. General in Escondido Valley, San Diego County; in all commercial vinyards in Ramona, Witch Creek and Santa Ysabel district along State Route 78. Biological control in effect in San Diego County. Late fourth instars observed and adult flights occurring. No pupae seen. (Cal. Coop. Rpt.).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Late instars severely defoliating several shoots of Lake Emerald grape at Gainesville, Alachua County. (Mead). ALABAMA - Spotted infestations on grapes in central area. (Barwood et al.).

GRAPE BERRY MOTH (Paralobesia viteana) - ALABAMA - Spotted infestations on grapes in central area. (Barwood et al.).

A CECIDOMYIID MIDGE (Cecidomyia viticola) - IOWA - Noted in Woodbury County on grape leaves. (Iowa Ins. Inf., July 18).

JAPANESE BEETLE (Popillia japonica) - NEW JERSEY - Serious problem on blueberries especially in areas adjacent to pasture. (Ins.-Dis. Newsltr.).

BLUEBERRY MAGGOT (Rhagoletis mendax) - NEW JERSEY - Moderate adult numbers continue in traps. (Ins.-Dis. Newsltr.).

CURRANT APHID (Capitophorus ribis) - MARYLAND - Heavy in garden planting of currants at Ridgely, Caroline County. (U. Md., Ent. Dept., July 16).

A FRUIT FLY - UTAH - Larvae infested some black currants in Utah County. (Knowlton, July 18).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Light on pecan orchards in Mobile area. (Eden).

APHIDS - GEORGIA - Monellia sp. heavy on pecans in Dougherty and Mitchell Counties. (Teddars).

PECAN SPITTLEBUG (Clastoptera achatina) - ALABAMA - Nymphs, apparently this species, quite heavy on Lee County pecan orchard. (Stone, Buttram).

WALNUT HUSK FLY (Rhagoletis suavis) - OHIO - First adult of season collected on sticky board trap in Portage County July 17. (Still).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - New, light generation appearing in Mobile, Lee, Tallapoosa and Chambers Counties on pecans and persimmons. (Wallace, Simms, Burns, Fairley, Bolton, Barwood).

HICKORY SHUCKWORM (Laspeyresia caryana) - GEORGIA - Light on pecans in Randolph County. (Osborn). ALABAMA - Early infestations reported in Bulloch County. (Stone, Buttram).

PECAN LEAFROLL MITE (Aceria caryae) - NORTH CAROLINA - Infested pecan leaves in Nash County. (Woodard, Robertson).

A PECAN SPIDER MITE (Eotetranychus hicoriae) - GEORGIA - Causing scorching of pecan leaves in Dougherty County. (Teddars).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Medium on citrus in Reedley, Fresno County. Leucopis griseola (a chamaemyiid fly) also medium. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Treatments continue necessary for new growth of citrus in Yuma County. (Ariz. Coop. Sur.). CALIFORNIA - Nymphs medium on orange trees in Sanger, Fresno County. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Marked, sterile male taken at mouth of Johnson Canyon at junction of Otay Riverbed. Site 3 miles northeast of Tijuana Airport, Baja California, Mexico, and represents deepest penetration into California of this species. Specimen released in Mexico June 23-24. Total of 22 marked, sterile flies taken since releases began. Trapping for "wild" flies negative. (Cal. Coop. Rpt.).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) - CALIFORNIA - Adults heavy on citrus trees in Selma, Fresno County. (Cal. Coop. Rpt.).

#### TRUCK CROP INSECTS

POTATO APHID (Macrosiphum euphorbiae) - RHODE ISLAND - Buildup noted in all potato-growing areas; most growers spraying. (Mathewson, Kerr). MARYLAND - Light to medium on commercial tomatoes in Worcester County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light to moderate on tomatoes and peppers in Worcester County. (U. Md., Ent. Dept.). COLORADO - Increase continues in early and late-planting of potatoes in Weld County. Extremely high where insecticides not used properly. Winged forms increasing in early areas. (Berry).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - All stages range trace to very high on potatoes in Weld County; some fields show 100 percent damage. (Berry, Urano). WYOMING - None found in survey of potato fields and tomato plants in Fremont and Washakie Counties. (Marks).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - IOWA - Abundant in lawns and gardens. (Iowa Ins. Inf., July 18). NORTH DAKOTA - Ranged 7-10 per sweep on potatoes in lower and middle portions of Red River Valley. (Schulz).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Quite heavy in 25-acre field in New Castle County; 5 per sweeps. (MacCreary, Crossan).

FLEA BEETLES - VERMONT - Reported on potatoes. (MacCollom, July 20). LOUISIANA - Moderate on eggplant in East Baton Rouge Parish. (Tynes et al., July 20). NEW YORK - Large, black species causing some concern but no serious damage in Livingston County. (N.Y. Wkly. Rpt., July 20).

TORTOISE BEETLES - LOUISIANA - Moderate on eggplant in East Baton Rouge Parish and light on sweetpotatoes in St. Landry Parish. (Tynes et al., July 20).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - Adults very numerous in Madison-Oneida County area. Numerous in Wayne County cabbage fields. Increasing in Orleans County and extremely numerous in Niagara County. (N.Y. Wkly. Rpt., July 20). MARYLAND - Light on cabbage at Sudlersville, Queen Annes County. (U. Md., Ent. Dept.). WISCONSIN - Considerable feeding on cabbage and broccoli noted in scattered locations. (Wis. Ins. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - MICHIGAN - Light, but extremely early flight occurred in southwest area. Larvae ranged up to fourth instar on cabbage in Berrien County July 22. Single adult taken in Kalamazoo County blacklight trap week ending July 20. (Wells, Newman, Bailey).

DIAMONDBACK MOTH (Plutella maculipennis) - NEW YORK - Increasing in Orleans County. (N.Y. Wkly. Rpt., July 20).

HARLEQUIN BUG (Murgantia histrionica) - ALABAMA - All stages heavy on cabbage in Semmes July 16. (McQueen et al.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Numerous in all fields examined in Baldwin and Mobile Counties. (McQueen et al.). MARYLAND - Heavy on garden lima beans at Sudlersville, Queen Annes County. (U. Md., Ent. Dept.). CONNECTICUT - Easily found in many home garden beans. (Savos). MICHIGAN - Larvae heavy in some Huron and Lapeer County fields. (Rapes, Dorr). NEW MEXICO - Skeletonizing bean foliage in home gardens in Santa Fe area, Santa Fe County. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Numerous on snap and dry beans in Wayne County. Few adults noted on beans in Livingston County. (N.Y. Wkly. Rpt., July 20).

BEAN APHID (Aphis fabae) - OREGON - Heavy colonies on bush beans in Willamette Valley July 13 now causing harvesting difficulties. (Crowell, Stephenson).

ASPARAGUS BEETLES (Crioceris spp.) - MARYLAND - Adults and larvae abundant on wild asparagus at Snow Hill, Worcester County. (U. Md., Ent. Dept.).

BEEF WEBWORM (Loxostege sticticalis) - COLORADO - Moths increasing in light trap stations; no eggs found in fields in Weld County and Arkansas Valley. Second generation could develop. (Jenkins). WYOMING - Larvae averaged 3 per 100 sweeps in sugar beet fields in Fremont and Washakie Counties. (Marks).



ARMYWORMS - COLORADO - Prodenia ornithogalli (yellow-striped armyworm) and Spodoptera exigua (beet armyworm) causing injury to beets in Fruita and Loma areas, Mesa County; controls applied where serious. (Bulla).

LYGUS BUGS (Lygus spp.) - WYOMING - Adults and nymphs averaged 54 per 100 sweeps in sugar beet fields of Fremont and Washakie Counties. (Marks).

STRIPED FLEA BEETLE (Phyllotreta striolata) - WYOMING - Adults averaged 12 per 100 sweeps in sugar beet fields of Fremont and Washakie Counties. (Marks).

SQUASH BUG (Anasa tristis) - ALABAMA - Rather heavy on squash, cucumbers and gourds in Lee County. (Barwood, et al.). Numerous in all fields examined in Mobile and Baldwin Counties. (McQueen et al.).

SQUASH BEETLE (Epilachna borealis) - ALABAMA - Occurred on Zucchini squash in Mobile County. (Simms, Bolton, Seibels).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata undecimpunctata) - OREGON - Heavy on most vegetable crops in western area; new generation emerged this month. (Crowell).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - ALABAMA - Rather heavy on squash, cucumbers and gourds in Lee County. (Barwood et al.).

MELONWORM (Diaphania hyalinata) - ALABAMA - Rather heavy on squash, cucumbers and gourds in Lee County. (Barwood et al.).

STRAWBERRY ROOTWORM (Paria fragariae) - NORTH CAROLINA - Adults damaged strawberry leaves in Lincoln County. (Choate, Robertson).

STRAWBERRY LEAF ROLLERS - DELAWARE - Adults, larvae and pupae of at least 2 species numerous in 4-acre field in western Sussex County. (MacCreary, Crossan).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Attacked strawberries in Livingston Parish. (Tynes et al., July 20).

CELERY LOOPER (Anagrapha falcifera) - IDAHO - Adults appearing consistently in light traps at Twin Falls during past few weeks; no large hatches occurred. (Gibson).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - LOUISIANA - Averaged 1 adult per 100 sweeps on sweetpotatoes at Leonville and Scott. (Tynes et al., July 20).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - One adult per 100 sweeps on sweetpotatoes in Arnaudville area. (Tynes, July 20).

PALE-STRIPED FLEA BEETLE (Systema blanda) - LOUISIANA - Averaged 1 adult per 100 sweeps in sweetpotatoes at Leonville and Scott. (Tynes et al., July 20).

SOUTHERN FIRE ANT (Solenopsis xyloni) - CALIFORNIA - Adults heavy and damaging rhubarb planting in Tracy, San Joaquin County. (Cal. Coop. Rpt.).

A MINT FLEA BEETLE (Longitarsus waterhousei) - IDAHO - Adults, probably this species, averaged 76 per 10 sweeps in field near Wilder; ranged 32-100+. Treatments underway. (Waters).

ORANGE TORTRIX (Argyrotaenia citrana) - OREGON - Infesting blackberries and raspberries in Willamette Valley; larvae remain in fruit when harvested; difficult to remove during processing. (Stephenson).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Caused noticeable injury to snap and lima beans on several Eastern Shore farms. Present on tomatoes and peppers at Sudlersville, Queen Annes County. (U. Md., Ent. Dept.). WISCONSIN - Colonies noticeable on commercial potatoes in Waupaca and Waushara Counties; few fields of commercial potatoes in latter county show "hopperburn" and young snap beans in area with fairly high numbers. (Wis. Ins. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Final curly top survey in tomato fields of north Salinas, Pajarro and Santa Clara Valleys showed no field with significant curly top. Tomatoes in Los Banos and Little Panoche districts revealed less than 1 percent infection. Sugar beets in Antelope Valley, Los Angeles County, show symptoms of curly top in 60-100 percent of individual fields. Beet fields in Palo Verde Valley apparently sprayed; counts considerably lower than those made earlier. (Cal. Coop. Rpt.). WYOMING - Curly top found in several sugar beet fields in Washakie County; only 1 field seriously infected. Averaged less than 0.25 per square foot. (Marks).

LEAHOPPERS - LOUISIANA - "Sharpshooter" species heavy on okra in East Baton Rouge Parish. (Tynes et al., July 20). NEW YORK - Numerous on snap and dry beans in Wayne County; few noted on beans in Livingston County. (N.Y. Wkly. Rpt., July 20). MINNESOTA - Very conspicuous on vegetable crops in Anoka County; yellows also noted. (Minn. Ins. Rpt.).

APHIDS - NEW YORK - Unspecified species numerous on snap and dry beans and cabbages in Wayne County. Continue numerous on tomatoes and cabbage in Niagara County. (N.Y. Wkly. Rpt., July 20).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Very heavy on peas and tomatoes in several vegetable gardens at Semmes; 4-12 adult per tomato plant in garden July 16. (McQueen et al.).

SPIDER MITES (Tetranychus spp.) - NORTH CAROLINA - Infested eggplants in Durham County. (Wilson, Robertson). NEW JERSEY - T. telarius (two-spotted spider mite) heavy on some raspberries. (Ins.-Dis. Newsltr.). RHODE ISLAND - T. telarius heavy on bean foliage in Cranston, Providence County. (Mathewson). OKLAHOMA - Damaging tomatoes in Osage, Noble, Pawnee, Tulsa and Mayes Counties. (Okla. Coop. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - Larvae infested corn, beans and potatoes in garden at Glendale, Prince Georges County. (U. Md., Ent. Dept.).

CUTWORMS - IDAHO - Larvae, probably Agrotis sp., infesting hops in southwestern area. Pupation started and damage should subside within a week. Same species also serious on 30-acre field of sugar beets. (Scott). CALIFORNIA - Proxenus mindara extremely heavy on strawberries in Salinas, Monterey County. (D. Scott).

GARDEN WEBWORM (Loxostege similalis) - ALABAMA - Adults common in many gardens in Semmes July 16. (McQueen et al.).

BROWN GARDEN SNAIL (Helix aspersa) - OREGON - Well established infestations noted in home gardens along coast in Clatsop County. (Crowell).

#### TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Generally present and expected to increase on tobacco in southern sections as harvest gets underway. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - MARYLAND - Scattered, light infestations noted on tobacco in St. Marys County. (U. Md., Ent. Dept.).

**HORNWORMS** (*Protoparce* spp.) - MARYLAND - Only light numbers noted on tobacco in St. Marys County to date. (U. Md., Ent. Dept.).

**GREEN PEACH APHID** (*Myzus persicae*) - MARYLAND - Light to moderate but building up on tobacco in Anne Arundel and St. Marys Counties. (U. Md., Ent. Dept.).

### COTTON INSECTS

**BOLL WEEVIL** (*Anthonomus grandis*) - NORTH CAROLINA - Puncturing large percentage of squares in several Robeson County fields. (Jones). SOUTH CAROLINA - Damage in unprotected fields continues to rise as expected. Damage being held at minimum where effective control program being used. Number of punctured squares expected to rise significantly during next 10 days as migration begins. Normal weevil movement again expected to begin about July 24 in lower Coastal Plain counties and will occur in counties east and north of this area during following 7-10 days. (Cott. Ltr., July 20). Numbers increasing rapidly in untreated fields. Infestations increasing due to start of general migration from infested fields and is expected to increase rapidly to end of July. (Taft et al., July 23). TENNESSEE - Increasing in western area as first-generation weevils emerge. Populations low but not all fields in southern tier of counties infested. Spot infestations within fields very common rather than fields being generally infested. This about same situation as occurred at same time in 1963. Square counts averaged 4 percent for those fields found infested compared with 3 percent for this time in 1963. Conditions ideal for weevil buildup. Very little control applied for boll weevil alone. (Locke). GEORGIA - Counts made in 18 fields in northwest, north and northeast. Percent punctured squares ranged 0-38, averaged 6. Most cotton in area blooming and setting bolls. (Johnson). ALABAMA - Weevil infestations and square infestations range light to very light in 16 northern and upper central counties; weevil counts moderate to heavy in 16 counties south of this area. Spotted high "hatch outs" occurring in many areas. Control in these areas difficult because of excessive rain. Cotton plants becoming taller than normal. Where egg laying is high and poor controls resulting, extremely high weevil and square counts anticipated for remainder of season. Isolated full-grown larvae have been reported in Madison and other northern counties. (McQueen). MISSISSIPPI - Only few fields checked in delta counties outside experimental plots. Where weevils already present in field, infestation increasing. Still many fields in delta area with no weevils present. Of 16 fields checked, infestations found in 8 fields with average of 10.6 percent punctured squares. (Pfrimmer et al.). LOUISIANA - Infestations increasing rapidly where rain has occurred; especially in northeast. Punctured squares averaged 10 percent in 240 fields in Morehouse Parish. (Newsom et al., July 20). OKLAHOMA - Percent counts by county were as follows: Cotton (southwest) 3, Tillman (southwest) 3, Choctaw (southeast) 2, and Bryan (south central) 3. No weevils found in Major County (northwest). (Okla. Coop. Sur.). TEXAS - Activity remains very light in McLennan and Falls Counties; infestation averaged 1.0 percent punctured squares in 19 treated fields and 2.7 percent in 17 untreated fields, with overall average of 1.3 percent. (Cowan et al.).

**BOLLWORMS** (*Heliothis* spp.) - SOUTH CAROLINA - Building up in cotton fields in many counties. Total of 357 moths taken to date in light trap in Pee Dee Station near Florence compared with 671 during same period in 1963. (Cott. Ltr., July 20). Some light infestations noted in Florence area; ranged 0-1 percent in treated plots, none reported in untreated fields. (Taft et al.). TENNESSEE - Continue light over western area. Egg counts in infested fields ranged 1-7 per 100 terminals, averaged 2 per 100 terminals. (Locke). GEORGIA - Egg counts ranged 0-6, averaged 3, per 100 terminals, and larvae ranged 0-4, averaged 2, per 100 terminals. (Johnson). ALABAMA - Larval counts generally light, 0-10 per 100 terminals, over most of State. Fields being watched for moth flights and egg laying. (McQueen). MISSISSIPPI - Moth flight, as indicated by light trap catch, dropped again in delta counties. Very few eggs found in terminals, but larvae found down in plant in many fields. Injured squares found in 13 of 16 fields checked; averaged 2.8 percent. (Pfrimmer et al.). Appearing in many cuts of

cotton. (Bennett, Young, July 22). LOUISIANA - Egg laying increased sharply in Acadia Parish; moths appearing in fields all over State. (Newsom et al., July 20). ARKANSAS - Number of moths taken in light traps decreased. MISSOURI - Of 1,061 fields inspected in bootheel area, 159 found infested. Eggs averaged 0-7 per 100 terminals in fields; larvae 0-3 per 100 terminals in 41 fields. (Harendorf, Jones). OKLAHOMA - Counts ranged 1-7 percent in Jackson, Tillman and Cotton Counties (southwest), 8 percent in Choctaw County (southeast), 18 percent in Major County (northwest) and 4 percent in Bryan County (south central). (Okla. Coop. Sur.). TEXAS - Infestations remain about same as previous week in McLennan and Falls Counties, with very few fields requiring treatment. Eggs averaged 8.7 and larvae 2.1 in 18 treated fields; egg averaged 6.0 and larvae 2.0 per 100 terminals in 14 untreated fields. Square injury averaged 2.6 percent in 19 treated fields and 2.7 percent in 17 untreated fields; boll injury averaged 2.7 in 196 treated and 3.0 percent in 17 untreated fields. (Cowan et al.). NEW MEXICO - Populations mostly light in Dona Ana County; larvae found in most fields checked in southern part of county, with all larval stages present. Eggs spotted in fields. Controls beginning in Artesia area. (N.M. Coop. Rpt.). ARIZONA - Continued increase noted throughout State. Heavy infestations occurring in scattered areas of Maricopa, Pinal and Pima Counties. Light infestations found in Yuma and Graham Counties. (Ariz. Coop. Sur.).

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Larvae in cotton blooms continue generally light in Eddy County fields. Highest count averaged 4 larvae per 1,000 blooms inspected. Occasional larva found in Dona Ana County cotton fields. (N.M. Coop. Rpt.).

CABBAGE LOOPER (*Trichoplusia ni*) - SOUTH CAROLINA - Appearing in some widely scattered counties. No general buildup reported. (Cott. Ltr., July 20). Fairly large number of diseased and dead larvae noted in few fields in Florence area. (Taft et al.). ARIZONA - Light populations causing leaf damage in some fields in Graham, Pinal and Maricopa Counties; averaged 3-5 per 100 sweeps in infested fields. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (*Estigmene acrea*) - ARIZONA - Populations light in Graham County and areas of Maricopa County. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) - ARIZONA - Light infestations becoming general in cotton areas of Yuma County, with scattered infestations found in Pinal County. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (*Platynota stultana*) - ARIZONA - Larvae light in small number of fields in Pinal and Maricopa Counties. No economic damage reported. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (*Psallus seriatus*) - ARIZONA - Small populations found in Pinal, Pima and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Averaged 2 per 100 terminals in 38 fields in McLennan and Falls Counties. (Cowan et al.). OKLAHOMA - One or more present on 36 percent of terminals checked in Major County. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Scattered, heavy populations causing economic damage in parts of Pinal, Maricopa and Yuma Counties. Light infestations apparently prevail in most areas. (Ariz. Coop. Sur.). NEW MEXICO - Generally light in Dona Ana County cotton fields. (N.M. Coop. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - TENNESSEE - Infestations continue light and general on cotton in western area; some light damage noted on very small squares. (Locke). LOUISIANA - Infestations declined in most fields. (Newsom et al.).

PLANT BUGS - MISSOURI - Adults and nymphs of several species ranged 0-35 per 100 plants in 74 percent of 1,061 fields scouted in bootheel area. (Harrendorf, Jones). TEXAS - Found in 28 fields in McLennan and Falls Counties; averaged 0.6 per 100 terminals. (Cowan et al.).

APHIDS - SOUTH CAROLINA - Some light infestations noted in Florence area. (Taft et al.). GEORGIA - Infestations light on cotton in northwest, north and northeast areas. (Johnson). MISSISSIPPI - Light in several fields in delta counties. (Pfrimmer et al.). LOUISIANA - Heavy in few fields in Pointe Coupee Parish. (Newsom et al., July 20).

SPIDER MITES - SOUTH CAROLINA - Continue to increase in unprotected fields and those fields where miticides not included in regular insecticide formulations. Most infestations presently confined to spots or small areas. (Cott. Ltr., July 20. TENNESSEE - Controls applied in most areas in western part of State with good results. Mites on increase behind insecticide application in southern portion of area. (Locke). ALABAMA - Have not become a major problem during past 4 weeks of high rainfall and cloudy weather. (McQueen). MISSISSIPPI - Continue a problem in some parts of delta counties. (Pfrimmer et al.). LOUISIANA - Light in Caddo, Tensas and Morehouse Parishes. (Newsom et al., July 20). MISSOURI - Spot infestations of *Tetranychus atlanticus* (strawberry spider mite) present in 380 of 1,061 fields scouted. Total of 740 acres in 120 fields was treated. (Harrendorf, Jones). TEXAS - Light infestation found in one field in Waco area. (Cowan et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - LOUISIANA - Third-generation larvae active in southern part of State. (Tynes et al., July 20). VIRGINIA - Damage severe on 40-acre plantation in New Kent County; activity about normal in young pine plantation in Mecklenburg County. Active on loblolly and shortleaf pines (individual trees to complete infestation of 10 acres) in several plantations in Franklin and Henry Counties. Damage considerably less than normal in loblolly plantations in Portsmouth district. (Va. For. Pest Sur. Rpt., June Sum.).

A PITCH BLISTER MOTH (*Petrova albicapitana*) - IDAHO - Infestation of lodgepole pine Christmas tree plantings general in Rathdrum, Kootenai County. (Williams).

PINE TUSSOCK MOTH (*Dasychira plagiata*) - WISCONSIN - Approximately 1,400 moths taken in blacklight trap in Douglas County July 14; peak occurred night of July 19 when 8,000 taken; counts declining since that date. First eggs in area found July 12 and numerous July 15. Most oviposition completed by July 23. Larvae apparently completed life cycle on tamarack at one location, nearest jack pine being 40 feet distant from infestation. (Wis. Ins. Sur.).

DOUGLAS-FIR TUSSOCK MOTH (*Hemerocampa pseudotsugata*) - IDAHO - Numerous reports of infestations in fir and spruce from Moscow north to Sandpoint. Larvae reaching full growth; heavy damage occurring on individual trees, particularly in ornamental plantings. (Manis, Stanahan).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - VIRGINIA - Aerial survey conducted July 1 in parts of Powhatan, Cumberland, Prince Edward, Buckingham, Charlotte, Nottoway, Amelia, Chesterfield and Goochland Counties, where activity obviously severe in past. Renewed activity noted in Powhatan and Prince Edward Counties with occasional scattered spots noted on private land in Cumberland County; activity less and negligible elsewhere. Continued surveillance planned in these critical counties. Activity increasing noticeably in Powhatan and Goochland Counties where numerous shortleaf and Virginia pines in spots up to 0.25 acre recently killed; active in scattered spots of loblolly pine (1-20 trees per spot) in Chesterfield, King William and Hanover Counties; activity becoming quite serious in Macon area of Powhatan County. Activity increasing as evidenced by killing of shortleaf and Virginia pines in 5 spots up to 1 acre in size in Amelia County and killing of 3 loblolly pines in single spot in Accomack County. Damage, which occurred late in summer of 1963 and ceased abruptly, noted in Mathews, Northumberland and Caroline Counties; most damage in 45-55 year-old natural loblolly pines. Few overwintering beetles noted June 4 in 1963 fall-attacked trees just turning brown in Mathews County tract. (Va. For. Pest Sur. Rpt., June Sum.).

TURPENTINE BEETLES (*Dendroctonus* spp.) - VIRGINIA - Infested 3-4 loblolly pines in Southampton County with no damage noted and noted killing several loblolly pines in 1 spot each in New Kent and King William Counties. Infested shortleaf pine on 0.1 acre in Albemarle County and single trees in 5 spots in Halifax County. Attacked single Virginia pines in Scott County and several trees in 2 spots in Virginia Beach. (Va. For. Pest Sur. Rpt., June Sum.).

ENGRAVER BEETLES (*Ips* spp.) - VIRGINIA - Infesting Virginia pine in 3 spots up to 0.1 acre in Albemarle County; one spot of 5 trees in Louisa County; killing shortleaf pine on 0.5 acre in Dickenson County and active in 2 spots (15-30 trees) in Halifax County. *I. avulsus* killing 4 young loblolly pines in single stand in Prince George County. (Va. For. Pest Sur. Rpt., June Sum.).

WHITE-PINE WEEVIL (*Pissodes strobi*) - VIRGINIA - Severe on white pines and blue spruce at a location in Luray, Page County. (Tarpley, Gray, July 16). Damaged 6 trees in a Norway spruce plantation in Albemarle County; infested 0.1 acre of young white pine in Rappahannock County; damage noted in numerous young stands of white pine (scattered individual trees) in Montgomery and Henry

Counties; attacking white pine in Shenandoah County (minor damage noted in 3 spots); noted on 2 trees in Augusta County. (Va. For. Pest Sur. Rpt., June Sum.).

PALES WEEVIL (Hylobius pales) - VIRGINIA - Feeding caused mortality on one 38-acre plantation in Chesterfield County and one 30-acre plantation in Charles City County. (Va. For. Pest Sur. Rpt., June Sum.).

SPRUCE GALL APHIDS (Chermes spp.) - NEW YORK - Adults of C. abietis (eastern spruce gall aphid) and C. cooleyi (Cooley spruce gall aphid) emerging. (N.Y. Wkly. Rpt., July 20). NORTH CAROLINA - Chermes sp. infesting spruce at a Buncombe County location. (Palmer, Robertson). OHIO - Winged forms of C. abietis appearing on Norway spruce in Summit County, northeast. (Kelly).

PINE BARK APHID (Pineus strobi) - VIRGINIA - Infesting young white pines at a location in Forest, Bedford County. (Tarpley, Boone). Noted on single white pine in Charles City County. (Va. For. Pest Sur. Rpt., June Sum.).

BALSAM TWIG APHID (Mindarus abietinus) - CALIFORNIA - Nymphs and adults heavy on white fir in Fort Bidwell, Modoc County. (Cal. Coop. Rpt.).

SPRUCE BUD SCALE (Physokermes piceae) - CALIFORNIA - Adults heavy on Colorado blue spruce locally in Fremont, Alameda County. (Cal. Coop. Rpt.).

A SPITTLE BUG - NEVADA - Nymphal populations range light to medium on Juniperus spp. in Sawmill Canyon-Adaven area of Nye County and in the Highland Range west of Pioche, Lincoln County. (Bechtel, Marinelli, Zoller).

CONIFER SAWFLIES - MINNESOTA - Remaining first-generation larvae of Diprion similis (introduced pine sawfly) mostly in fourth and fifth stages, with cocoons common; no second-generation adults noted. Larvae of Neodiprion lecontei (red-headed pine sawfly) mostly in first and second stages in northern Aitkin County, with few eggs still to hatch; larvae mostly third stage in southern part of range. (Minn. Ins. Rpt.). IOWA - N. pinetum (white-pine sawfly) infested white pines on Winnebago Council Boy Scout reservation north of Marble Rock. (Iowa Ins. Inf., July 18). VIRGINIA - N. taedae taedae suspected of defoliating loblolly pine in 2 areas of 2-4 acres in Westmoreland County; larvae infested loblolly pine at Sandy Point June 5. N. pratti pratti larvae about full grown June 4 in Walker Mountain infestation area of Wythe County; defoliation light and scattered. (Va. For. Pest Sur. Rpt., June Sum.).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Attacking trees in East Baton Rouge Parish. (Tynes et al., July 20). ARKANSAS - Activity increasing. (Ark. Ins. Sur.). MISSOURI - Young larvae infested persimmon trees in Boone County July 19. (Houser, Thomas, Wood). OHIO - First adult of season taken in black-light trap near Reynoldsburg, Licking County. (Spilker). WISCONSIN - Webs containing second-stage larvae becoming noticeable on various trees and shrubs in Dodge, Columbia and Outagamie Counties. (Wis. Ins. Sur.).

CALIFORNIA TENT CATERPILLAR (Malacosoma californicum) - CALIFORNIA - Probably this species heavy on California black oak in San Sevaime, San Bernardino County. (Cal. Coop. Rpt.).

WALNUT CATERPILLAR (Datana integerrima) - NEBRASKA - Infesting black walnut in Saline County. (Bergman). OHIO - First colonies of season noted at Cincinnati, Hamilton County. (Rings).

PINK-STRIPED OAKWORM (Anisota virginiensis) - MINNESOTA - Early and middle instars present in northern Pine County; light damage on oaks apparent. (Minn. Ins. Rpt.).

SOLITARY OAK LEAF MINER (Cameraria hamadryadella) - NEW YORK - Injury to leaves of white and red oaks locally extensive in Schuyler County. (N.Y. Wkly. Rpt., July 20).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Adults abundant in infested area through early July. Males taken in trap at Poughkeepsie in sharply increased numbers compared with 1963. Most females had not yet completed one egg mass on July 12. (N.Y. Wkly. Rpt., July 20). MICHIGAN - Last traps being set in area north of Lansing, Ingham County. Check for male moths to begin soon. (Ring, Carlson).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - MINNESOTA - Larvae mostly pupated, with some late instars still defoliating scattered aspen, willow and elm. (Minn. Ins. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - LOUISIANA - Damaging elms locally in Shreveport area. (Tynes et al., July 20). OKLAHOMA - Continues moderate to heavy in most areas. (Okla. Coop. Sur.). SOUTH CAROLINA - Caused severe damage in McCormick County; pupae numerous. (Nettles et al., July 21). NORTH CAROLINA - Reported in Wayne County. (Goforth, Robertson). PENNSYLVANIA - Buildup heavy on Chinese and American elms in Dauphin County area. (Sleesman, July 10). NEW YORK - Adults became active during past week. (N.Y. Wkly. Rpt., July 20).

LOCUST LEAF MINER (Xenochalepus dorsalis) - OHIO - Adults heavy on black locust in city park at Wooster, Wayne County; 10-30 percent leaf skeletonizing occurred. Trees browning severely. (Lyon).

COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) - NORTH DAKOTA - Leaf feeding becoming general on poplar in shelter belt, nursery and other plantings over State. (Frye, Gage).

TWIG PRUNER (Elaphidion villosum) - WISCONSIN - Heavy infestations noted in Rusk, Sawyer, Washburn and parts of Douglas Counties. Larvae still active in twigs on July 22. (Wis. Ins. Sur.).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - NORTH CAROLINA - Feeding heavily on willow and Darlington oak in Orange County. (Greene, Robertson).

POPLAR-AND-WILLOW BORER (Sternochetus lapathi) - NORTH DAKOTA - Moderate damage to young poplar observed in shelterbelts and in cutting blocks in nursery at Oakes, Dickey County. (Frye, Gage).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - NEW YORK - Frequently reported from widely scattered locations over State; caused leaf drop. Aphids had not emerged as of July 15. (N.Y. Wkly. Rpt.).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Nymphs and adults heavy on cork elm in Hilt, Siskiyou County. (Cal. Coop. Rpt.).

COTTONTON MAPLE SCALE (Pulvinaria innumerabilis) - WASHINGTON - Abundant on silver maple; about one-third hatched at Pullman, Whitman County. (Telford, July 17).

LEAFHOPPERS - PENNSYLVANIA - Caused considerable damage to Norway maples in Erie County; controls needed. (Wolff, July 6).

WALKINGSTICK (Diapheromera femorata) - WISCONSIN - Nymphs mostly third stage in Marinette County July 13, although few fourth stage present; observations comparable July 21 near Plainfield, Waushara County. Of first 100 nymphs collected in northeastern location, 60 percent were females. Defoliation in area light. Unmated females collected in Marinette County on June 4 had begun egg laying July 21 in laboratory. (Wis. Ins. Sur.).

ERIOPHYID MITES - MINNESOTA - Heavy in some nurseries; killing terminals of shade tree stock, mainly ash. (Minn. Ins. Rpt.).



BAGWORM (Thyridopteryx ephemeriformis) - MARYLAND - Heavy on evergreens at several locations in Prince Georges County. (U. Md., Ent. Dept.). NEW JERSEY - Present on arborvitae, white-cedar and birch. (Ins.-Dis. Newsltr.). GEORGIA - Moderate and general on arborvitae over Jasper County. (Milner, July 17). General on arborvitae, juniper and cedar in Atlanta area. (Ridley). ALABAMA - Continues serious on coniferous shrubs and trees in Lee, Wilcox and other counties. (Hardy, Barwood). OKLAHOMA - Infestations remain moderate to heavy on many ornamentals throughout State. (Okla. Coop. Sur.). ARKANSAS - More severe than in past years; severe on some deciduous trees in Fayetteville area, Washington County. (Ark. Ins. Sur.). MISSOURI - Troublesome on ornamentals. (Wkly. Rpt. Fr. Grs., July 22). NEBRASKA - Damaging evergreens in Lancaster County; larvae about one-third grown. (Bergman).

MIMOSA WEBWORM (Homadaula albizziae) - INDIANA - Caused severe injury to Moraine honeylocust in Vincennes, Knox County. (Cleveland, July 21). NEBRASKA - Causing extensive damage to honeylocust in Lancaster County. (Bergman).

AZALEA LEAF MINER (Gracilaria azaleella) - CALIFORNIA - Heavy on azaleas in Oroville, Butte County. (Cal. Coop. Rpt.).

JAPANESE BEETLE (Popillia japonica) - VERMONT - Adults noted on hollyhocks. (MacCollom, July 20). NEW YORK - Extremely scarce in central Hudson River area. (N.Y. Wkly. Rpt., July 20). NEW JERSEY - Adults quite heavy on ornamentals in several areas. (Ins.-Dis. Newsltr.). INDIANA - Severely injured wild grape and smartweed near Shoals, Martin County. (Cleveland, July 21).

HOLLYHOCK WEEVIL (Apion longirostre) - NEW YORK - Causing considerable damage to hollyhock in Chenango County. (N.Y. Wkly. Rpt., July 20).

A FALSE POWDER-POST BEETLE (Apatides fortis) - ARIZONA - Damaging some ornamentals in backyards of many homes in Phoenix, Maricopa County. (Ariz. Coop. Sur.).

APHIDS - VERMONT - Woolly aphids troublesome on many ornamentals. (MacCollom, July 20). FLORIDA - Aphis nerii (oleander aphid) moderate on leaves of oleander at Pompano Beach, Broward County, July 15. (Clinton). CALIFORNIA - Aphis ceanothi medium on wild ceanothus plants in National Forest at Etna, Siskiyou County. Pterocomma smithiae heavy on willows in Garden Grove, Orange County. (Cal. Coop. Rpt.). OREGON - Probably Drepanaphis acerifoliae (painted maple aphid) heavy on silver maples in Medford, Jackson County, and causing heavy leaf drop. (Larson).

COCCIDS - PENNSYLVANIA - Chrysomphalus obscurus (obscure scale) active on oak in Lancaster County; heavy on 24 trees. (Negley, Quackenbush). Heavy second hatch of Unaspis euonymi (euonymus scale) occurred on euonymus in Dauphin County July 21. (Sleesman). Eriococcus azaleae (azalea bark scale) crawlers active on azalea in Cumberland County. (Sleesman, July 9). MARYLAND - Lepidosaphes ulmi (oystershell scale) infesting boxwood planting at Rockville, Montgomery County. E. azaleae injuring azaleas on property at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.). VIRGINIA - U. euonymi heavy on euonymus in Buena Vista, Rockbridge County. (Rowell, July 17). FLORIDA - Pulvinaria psidii (green shield scale) scattered and moderate on stems and leaves of Ixora coccinea at Tampa, Hillsborough County, July 14 (Fuller); Pseudoaulonia paeoniae scattered and ranged light to severe on stems and bark of camellia and azalea at Tampa July 8 (Hale); Toumeyella sp. general and moderate on needles of pine in Winter Garden, Orange County, July 8 (Griffith); Coccus viridis (green scale) locally moderate on leaves of capejasmine at Lomona, Hillsborough County, July 9 (Simmons); Ceroplastes ceriferus nymphs lightly scattered on stem of camellia at Maitland, Seminole County, July 10 (Youtsey); all stages of Præcocaspis diversa general and moderate on leaves of Cuban colubrina (Colubrina cubensis) at Homestead, Dade County, July 15 (Knowles, Young). OHIO - Neolecanium cornuparvum (magnolia scale) heavy on large magnolia at Wooster, Wayne County. (Neiswander). Aspidiotus liquidambaris light on leaves of sweetgum in Hamilton County. (Cooley). NORTH DAKOTA - Lecanium fletcheri (Fletcher scale) heavy on arborvitae

in Mandan area, Morton County. (Frye, Gage). CALIFORNIA - Pseudococcus citri (citrus mealybug) medium on veronica nursery stock in Marysville, Yuba County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - PENNSYLVANIA - Adults and nymphs feeding on boxwood in Montgomery County (Cole, July 13); feeding on foliage of unspecified plants in Fayette County (Udine, July 17).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - CALIFORNIA - Light on Ficus sp. at Riverside, Riverside County. (Cal. Coop. Rpt.).

A GALL MIDGE (Dasynura gleditschiae) - IDAHO - Infestation noted at Rupert, Minidoka County. This is first report of this pest outside the Boise Valley area, and constitutes a new county record. (Smith).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Adults medium on azaleas in Oroville, Butte County. (Cal. Coop. Rpt.).

RUST MITES - CALIFORNIA - Oxypleurites carinatus and O. aesculifoliae ranged light to heavy on horsechestnut (Aesculus hippocastanum) in San Rafael, Marin County, and in Hillsborough and Burlingame, San Mateo County. Report of O. carinatus on horsechestnut at Burlingame, as carried in CEIR 14(29):812, constitutes a new State record. (Cal. Coop. Rpt.).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - MARYLAND - Aedes sollicitans (salt-marsh mosquito) biting heavy in Cambridge area, Dorchester County. (U. Md., Ent. Dept.). RHODE ISLAND - A. triseriatus noted breeding in Kingston, Washington County. (Sorensen, Mathewson). FLORIDA - During first week of July, largest light trap catches of female A. taeniorhynchus per trap night occurred at Ruskin, Hillsborough County; total catch July 3 was 3,904 and on July 7 catch was 1,584; trap at Sanibel, Lee County, contained 1,040 females July 3, but only 146 on July 7. Largest catches of freshwater species (294 females on July 7) occurred at Fort Myers, Lee County. (Fla. State Board of Health). Although annoying in some areas of Sarasota County this season, mosquitoes have not been the nuisance as in some past years. (Williams). MINNESOTA - Total of 1,283 larval collections made week ending July 18 in Metropolitan Mosquito Control District; 81 percent contained Aedes vexans, 10 percent Culex restuans and 3 percent contained C. tarsalis. Total of 7,149 females taken in light traps during same period, of which 5,820 were A. vexans, 843 were Mansonia perturbans and 112 were C. tarsalis. In 48 evening bite collections, 375 specimens were taken, of which 308 were A. vexans, 25 were M. perturbans and 19 were A. excrucians. In 113 daytime bite collections, 625 of the 773 females caught were A. vexans; A. trivittatus, A. cinereus, A. triseriatus, A. fitchii and A. excrucians were present in numbers ranging 33 to 11. Rains July 9 and 11 resulted in relatively heavy brood of mosquitoes. Light trap catches and annoyance expected to increase as these mosquitoes disperse from breeding sites. (Minn. Ins. Rpt.).

HORN FLY (Haematobia irritans) - GEORGIA - Averaged more than 200 per animal in diary herd in Stephens County. (Roberts). OKLAHOMA - Populations decreasing in Noble, Osage, Payne and Kay Counties, north central. Counts moderate to heavy in Mayes (northeast), McIntosh and Hughes (east central) and Choctaw (southeast) Counties. (Okla. Coop. Sur.). OHIO - Most abundant fly species on unsprayed beef cattle in southern section; ranged 100-300 per animal. Most located over back, withers and belly. (Lyon). NEBRASKA - Ranged 25-250 per animal in Gage, Merrick and Nance Counties. (Bergman). UTAH - Moderately numerous on cattle in Randolph-Woodruff area of Rich County. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Large numbers reported on diary cattle in Ellis County (northwest). (Okla. Coop. Sur.). NEBRASKA - Numerous on resting areas in feedlot in Gage County. (Bergman).

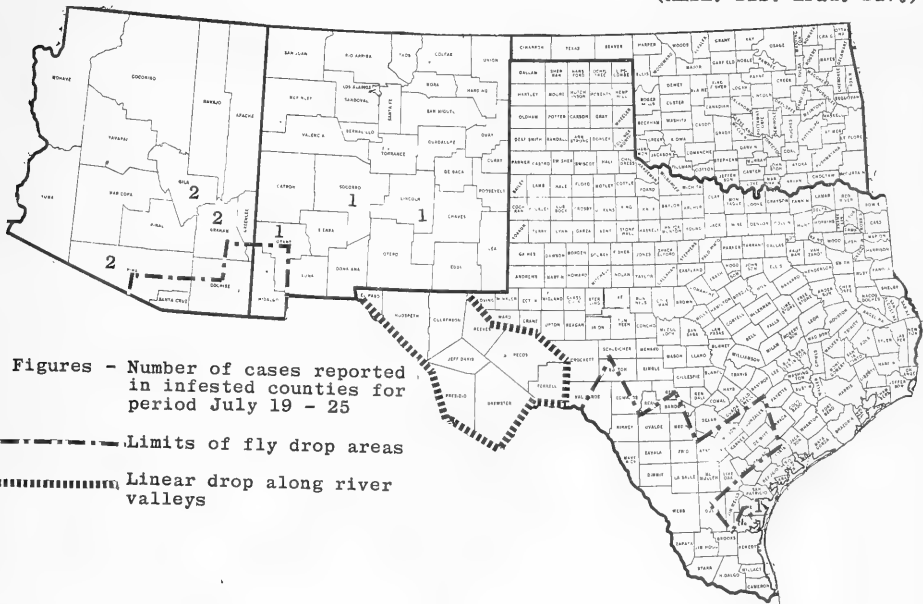
STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period July 19-25, one screw-worm infestation was confirmed in Nueces County, TEXAS; 3 cases were reported in NEW MEXICO, one each in Grant, Socorro and Lincoln Counties. ARIZONA reported 6 cases. Two each from Pima, Gila and Graham Counties. All cases reported from outside of fly-release area. The Republic of Mexico reported 93 cases from the States of Sonora (10), Durango (17), Coahuila (3), Chihuahua (33), Nuevo Leon (8), Tamaulipas (9), San Luis Potosi (3) and Veracruz (1). Total of 117,273,850 sterile flies was released: 29,251,050 in Texas, 2,138,000 in New Mexico, 4,858,000 in Arizona and 81,026,800 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	2,289	27,339	52	2,070	4,409.1 :100	1,320.7 :100
1963	91	2,230	77	4,347	118.18 :100	52.2 :100
1964	4	101	47	3,982	8.5 :100	2.5 :100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in number of screw-worm cases.  
(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period July 19 - 25

----- Limits of fly drop areas

..... Linear drop along river valleys

TABANIDS - OKLAHOMA - Averaged 2 per head on livestock in Noble County, north central; Tabanus atratus (black horse fly) and T. sulcifrons principal species. T. sulcifrons heavy on cattle in Choctaw County, southeast. (Okla. Coop. Sur.). UTAH - Horse flies very numerous and annoying to horses and moderately annoying to cattle and man in Woodruff-Randolph area and areas around Bear Lake in Rich County. Some deer fly annoyance also reported in these areas. Horse fly and deer fly populations at peak in meadow areas of Duchesne and Uintah Counties; seriously annoying livestock in many localities. (Knowlton).

FACE FLY (Musca autumnalis) - GEORGIA - Found for first time in Stephens County. (Roberts). MICHIGAN - Relatively low on livestock in Lower Peninsula. (Dowdy).

HOUSE FLY (Musca domestica) - NEBRASKA - Heavy populations troublesome in farmyards in vicinities of feedlots. (Bergman).

COMMON CATTLE GRUB (Hypoderma lineatum) - ALABAMA - Past season worst year for larval damage ever experienced at one packing plant in Montgomery, Montgomery County; during 90-day period ending April 1, up to 40 percent of cattle processed showed some larval damage. (Fulton). Egg laying now in progress on cattle. (Wilson).

SHEEP BOT FLY (Oestrus ovis) - MARYLAND - Especially troublesome to sheep and lambs in Frederick County. (Md. Ins. Notes).

A BOT FLY (Cuterebra sp.) - MARYLAND - Larva taken from muscle of dog at Glen Bernie, Anne Arundel County, July 15. (U. Md., Ent. Dept.).

AN ASSASSIN BUG (Melanolestes picipes) - OHIO - Reported to have bitten several residents of Caledonia, Marion County; 10 specimens collected at a farm house. (Lyon).

FLEAS - CONNECTICUT - Troublesome in homes in Scotland, Rockville, Coventry, Chester and Saybrook. (Savos). RHODE ISLAND - House infestations of Ctenocephalides spp. reported in South Kingstown, Washington County, and in Johnston, Providence County. (Veilleux, Mathewson). CALIFORNIA - Ctenocephalides felis (cat flea) medium and extremely annoying to occupants of residence in El Centro, Imperial County. Monopsyllus ciliatus taken from weasel (Mustela sp.) in Crescent City, Del Norte County. (Cal. Coop. Rpt.).

BETHYLID WASPS - NORTH CAROLINA - Stung occupants of home in Wayne County July 13 and customers in store in Person County July 17. Det. by D. A. Mount. (Wellons, Reams).

BLACK WIDOW SPIDER (Latrodectus mactans) - NEW MEXICO - Adults and young found in debris around homes in Las Cruces area, Dona Ana County. Causing considerable concern to homeowners. (N.M. Coop. Rpt.). UTAH - Caused concern in basement of apartment house in Salt Lake City, Salt Lake County. (Knowlton).

CHIGGERS - ALABAMA - Eutrombicula alfreddugesi becoming annoying to humans over central area of State. (Barwood). OKLAHOMA - E. alfreddugesi heavy in lawns in Choctaw County, southeast. (Okla. Coop. Sur.). MICHIGAN - Small nymphs of Trombicula sp. infesting hikers and causing annoyance in Wayne and Washtenaw Counties. (Newman).

DOG FOLLICLE MITE (Demodex canis) - OKLAHOMA - Causing problems in dogs in Payne County, north central. (Okla. Coop. Sur.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - MINNESOTA - Inquiries concerning this pest in homes indicate an unusual abundance this year. (Minn. Ins. Rpt.).

WISCONSIN - General problem to householders in widely scattered areas of State. (Wis. Ins. Sur.). MICHIGAN - Adults annoying in homes generally over Lower Peninsula. (James, Martin, Lott, Belter, Kidd, Comstock, Sieting). OHIO - Large numbers invading homes and other buildings throughout northeast area; annoying to homeowners. (Gilbertson). PENNSYLVANIA - Adults a nuisance in homes in new development in Dauphin County. (Sleesman, July 17). DELAWARE - Populations far heavier and invading more homes than in many years. (MacCreary, Crossan). NEW JERSEY - Moving into homes in several areas of State. (Ins.-Dis. Newsltr.). RHODE ISLAND - Household infestations reported in Lincoln, Riverside and Johnston, Providence County. (Veilleux).

LONG-HORNED BEETLE (Derobrachus geminatus) - ARIZONA - Emergence light, but continues a nuisance to homeowners in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

FALSE CHINCH BUGS (Nysius spp.) - IDAHO - N. ericae populations general in buildings on Mountain Home Air Force Base. (Hanigan). CALIFORNIA - Medium numbers of N. raphanus causing nuisance in residence in San Bernardino, San Bernardino County. (Cal. Coop. Rpt.).

EARWIGS - CONNECTICUT - Continue most frequently reported pest plaguing homeowners in all parts of State. (Savos). NEW JERSEY - Heavy in houses in Passaic County. (Ins.-Dis. Newsltr.). UTAH - Annoyance by Forficula auricularia (European earwig) increasing in several northern and central area communities. (Knowlton).

CRICKETS - CONNECTICUT - Appearing in many homes over State. (Savos). NORTH DAKOTA - Gryllus spp. continue a problem in and around homes in southeast area. (Frye, Gage).

#### STORED PRODUCT-INSECTS

A DERMESTID (Trogoderma glabrum) - MICHIGAN - Damaged grain in storage bins in Shiawassee County. Corn has been stored in these bins for 10 years. (Wells, Ring, Wilt). SOUTH DAKOTA - Adults extremely heavy in stored oats in Brookings County. (Hintz).

CIGARETTE BEETLE (Lasioderma serricorne) - IOWA - Infested soybean meal in Allamakee County. (Iowa Ins. Inf., July 18).

#### BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults of several species, per 100 sweeps, averaged 30 in alfalfa, 10 in sugar beets and beans and 26 in corn; larvae per 100 sweeps averaged 22 in alfalfa, 10 in sugar beets and beans and 15 in corn; all counts made in Fremont and Washakie Counties. (Marks). NORTH DAKOTA - Moderate numbers present in alfalfa, corn and small grains. (Frye, Gage). OHIO - Hippodamia convergens (convergent lady beetle) and Adalia bipunctata (two-spotted lady beetle) larvae and adults abundant in most alfalfa in southern section; averaged 30 per 25 sweeps. Aphids being held at noneconomic levels in several fields. (Lyon).

A GORSE WEEVIL (Apion ulicis) - WASHINGTON - Total of 765 released to control gorse near Friday Harbor, San Juan County. (Baker, July 17).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults per 100 sweeps averaged 21 in alfalfa, 8 in sugar beets, 6 in beans and 21 in corn in Washakie County. (Marks). NORTH DAKOTA - Few noted in alfalfa checked. (Frye, Gage).

LACEWINGS - NORTH DAKOTA - Moderate numbers noted in alfalfa, corn and small grains. (Frye, Gage). WISCONSIN - Larvae unusually abundant this season. (Wis. Ins. Sur.).

CICADA KILLER (Sphecius speciosus) - MISSOURI - Common and numerous in most parts of State. (Wkly. Rpt., Fr. Grs., July 22).

#### MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Small numbers of adults found in all areas of State; abnormally low for time of year. (Mathewson). VIRGINIA - Much less common in Augusta-Rockbridge County area than for several past years. Apparently extremely dry weather in summer of 1963 caused high mortality of young larvae. (Woodside). MICHIGAN - Adults found in 111 traps in Battle Creek area, in 5 traps located in rural Monroe County along Michigan-Ohio State line, in 4 traps within Benton Harbor and St. Joseph area of Berrien County, and in 3 traps in Detroit and 3 traps in Port Huron areas. None found in traps located in other areas. (Ring, Carlson, Kendigh).

ASIATIC GARDEN BEETLE (Maladera castanea) - RHODE ISLAND - Adults collected in Providence (Providence County) and in Kingston (Washington County), but no evidence of being numerous. (Mathewson, Sorensen).

A SCARAB (Strategus antaeus) - FLORIDA - Taken from soil at Winter Haven, Polk County, July 13. (West).

SOUTHERN PINE SAWYER (Monochamus titillator) - ALABAMA - Very active in cut pine logs and tops in central part of State. (Barwood).

AN ANTHOPHORID BEE (Diadasia enavata) - IDAHO - Adults nesting in dirt road in Idaho Sand Dunes area near Saint Anthony, Fremont County. Hundreds of burrows evident; those undisturbed had mud shields over entrances. Bees flew about site in great numbers and were easily captured with sweep net; bringing in pollen for storage in cells; egg laying also in progress. (Westcott).

WASPS - CONNECTICUT - Ground nesting species active in many areas. (Savos).

#### CORRECTIONS

CEIR 14(29):797 - FALL WEBWORM (Hyphantria cunea) - ALABAMA - Delete "Heavy in Mobile County."

CEIR 14(29):818 - AN ALYDID BUG (Alydus sp.) - GEORGIA - Last line should be changed to read: "... where reported coming from fields of serecia lespedeza. (Jordan)."

CEIR 14(30):834 - TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Delete note. Buildup should have read "on pears."

CEIR 14(30):854 - LIGHT TRAP COLLECTIONS - GEORGIA, Tifton - add date 7/2-8.

ADDITIONAL NOTES

INDIANA - CARPENTERWORM (Prionoxystus robiniae) larvae causing considerable damage to oaks in Scott County (southeast) and BLACK VINE WEEVIL (Brachyrhinus sulcatus) infesting Taxus spp. in numerous nurseries in northwest section. Adults of STRAWBERRY ROOT WEEVIL (B. ovatus) invaded home in Lake County. COTTONY MAPLE SCALE (Pulvinaria innumerabilis) generally infesting maple throughout State; predation by TWICE-STABBED LADY BEETLE (Chilocorus stigma) heavy. (Favinger, Clark). Adult FACE FLY (Musca autumnalis) populations increasing slightly on cattle in northern half of State but continue low. Averaged 3 per face (maximum of 15 in Porter County) in northwest section, 2 in north central, 3 in northeast, 2 in west central and 4 (maximum of 12 in Clinton County) in central section. Adult HORN FLY (Haematobia irritans) populations averaged 100 per head (maximum of 400 in Porter County) in northwest, 50 in north central and northeast, 100 (maximum of 300 in White and Clinton Counties) in west central, central and east central sections. (Bram, Saugstad). JAPANESE BEETLE (Popillia japonica) adults causing considerable concern to homeowners in Logansport, Cass County. (Lehker). Second generation ARMYWORM (Pseudaletia unipuncta) larvae, probably fourth instar, infesting scattered corn fields in east central, central and west central sections of State. Up to 10 percent of plants infested in Madison County field (central). (Bram, Matthew). Larvae of EUROPEAN CORN BORER (Ostrinia nubilalis) infesting 11 percent of field corn in northwest section, 24 percent (maximum of 72 percent in Marshall County field) in north central, 28 percent (maximum of 64 percent in Lagrange County field) in northeast, 24 percent in west central and central sections and 10 percent in east central. (Bram, Saugstad).

MASSACHUSETTS - ARMYWORMS extremely abundant in many parts of Plymouth County; causing concern to homeowners by climbing on walls of houses near newly cut hay fields. CRANBERRY FRUITWORM (Acrobasis vaccinii) oviposition delayed by late set and cool nights in southeastern cranberry bogs. BLUEBERRY MAGGOT (Rhagoletis mendax) adult emergence at peak activity on blueberries; more prevalent than in 1963 in southeast. GYPSY MOTH (Porthetria dispar) males coming to blacklight traps in numbers at East Wareham, Plymouth County, although no gross feeding injury noted in area. (Tomlinson).

COLORADO - PEAR SLUG (Caliroa cerasi) causing damage to ornamentals in Larimer County. (Jenkins). RED ELM BARK WEEVIL (Magdalis armicollis) heavy and causing damage in Denver. (Thatcher).

MARYLAND - POTATO TUBERWORM (Gnorimoschema operculella) heavy in stored potatoes at Queenstown, Queen Annes County. (U. Md., Ent. Dept.).









HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 702nd meeting of the Hawaiian Entomological Society held June 8, 1964.

One specimen of an EPHYDRID FLY (Donaceus nigronotatus Cresson) was collected by D. E. Hardy at Hanakapiai Valley, Kauai, in April 1964. Determination was made by W. W. Wirth. There are specimens in the U.S. National Museum collection from Iolekoa Valley, Oahu, collected by L. W. Quate in July 1958, and from John Rogers Airport, Oahu, collected by E. J. Ford, Jr., in May 1958. (D. E. Hardy).

Specimens of a CHIRONOMID MIDGE (Telmatogeton abnormis (Terry)) were collected from rocks in stream in Hanakapiai Valley, Kauai. This is the ancestral form of fresh-water Telmatogeton, according to W. W. Wirth. (D. E. Hardy).

A FALSE CHINCH BUG (Nysius caledoniae Distant), a new immigrant lygaeid bug (CEIR 14(24):629), was reported seriously damaging vanda buds and blossoms at Kapoho, Puna, Island of Hawaii, on May 6, 1964. Approximately 80 percent of the flowers on a 0.25-acre planting were affected. Investigation disclosed that the bugs were being blown directly on the orchids from a heavy stand of sourbush (Pluchea odorata) and possibly Erigeron sp., also common in the area. There were no indications of breeding on vandas. Other plantings in the Puna district were not affected. On May 28, damage had greatly subsided and was attributed largely to removal of wild weed hosts and weekly insecticidal applications. This is the first record of economic damage by this pest and the first record for the island of Hawaii. Determined by P. Ashlock. (C. J. Davis).

ANTHOCORID BUGS - Orius persequens (White), predaceous on thrips and other soft bodied insects, was recently recovered from Ficus retusa (Chinese banyan) heavily infested with Gynaikothrips ficorum (Cuban-laurel thrips). The thrips infested material was collected from Awaiolimu Road in Pauoa. Recovery of O. persequens was made each time thrips material was collected. Various nymphal stages and full-grown adults were observed. Shipments of Montanodiella moraguesi Puton were received from N. L. H. Krauss, currently in Manila, Philippine Republic. Two releases, one at Pauoa and one in Manoa, have been made. This predator was introduced for the control of Cuban-laurel thrips. (J. Kim, C. J. Davis).

Larvae of a NOCTUID MOTH (Achaea janata (L.)) ranged light to medium in number and heavily damaged castor-bean on a 40-acre tract at Kekaha, Kauai. This is the first major outbreak in more than 10 years. (C. J. Davis, S. Au).

AN OLETHREUTID MOTH (Cryptophlebia ombrodelta (Lower)) - On May 8, a larva was intercepted in the stem end of an immature coconut from Oahu in mail destined for out of State. This constitutes a new host record for this species in Hawaii. (E. Shiroma, J. Nichols).

BLACK THREAD SCALE (Ischnaspis longirostris (Signoret)) was recently found on leaves of litchi (Litchi chinensis) collected at Hilo, island of Hawaii. This constitutes a new island record and a new host record for this scale insect in the State. (E. Shiroma, S. Nakahara, W. Chun).

A pupa of MANGO WEEVIL (Sternochetus mangiferae (F.)) was taken from a ripe mango (Mangifera indica) from Kaimuki, Oahu, on May 30, 1964. Examination revealed a hollowed out chamber filled with frass and containing the pupa. The seed was clean and no puncture marks of exit or entrance could be found on the seed coat. The larva evidently developed when the fruit was too mature and could not penetrate the seed coat. This is the second reported incidence of this weevil having developed in the flesh. (E. Shiroma, E. Ziegler).

A small infestation of a ROOT APHID (Rhopalosiphum rufiabdominalis (Sasaki)) was observed on pineapple in Poamoho, Oahu, in April 1964. A limited number of young fruits was heavily colonized. Roots of pineapple and of several species of grass grown nearby showed no signs of infestation. The infestation had completely disappeared shortly after discovery. This is the first aphid infestation recorded on pineapple in Hawaii or elsewhere. Determined by L. M. Russell. (K. Sakimura).

DIAMONDBACK MOTH (Plutella maculipennis (Curtis)) has constantly caused severe injury to alyssum in a yard in the Diamond Head area, Oahu, during recent months. Determined by J. W. Beardsley. (K. Sakimura).



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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations  
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## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

FALL ARMYWORM continues of concern in several Southern and Midwestern States. (p. 899).

GRASSHOPPER populations unusually high in areas of Wisconsin; treatments underway and damage to crops becoming more noticeable. Scattered but high numbers present in alfalfa in Minnesota and spraying underway in some areas to prevent movement into corn and soybeans. Grasshopper situation more serious generally in Utah than in 1963. (p. 897). ARMYWORM infestations declining in Wisconsin, Illinois and Rhode Island; continues a problem in Vermont, Connecticut, Ohio and Iowa. (pp. 898-899). First-generation EUROPEAN CORN BORER reduced to half that present in 1963; moth emergence and egg laying for second brood underway in several corn-growing States. (p. 899-900). CORN ROOTWORMS (*Diabrotica* spp.) continue active and damaging in several areas. (p. 901). CORN LEAF APHID numbers high in Nebraska and Colorado and colony size increasing on corn in Minnesota and Wisconsin. (pp. 901-902). SPOTTED ALFALFA APHID increasing in New Mexico and Arizona and some high counts reported in Kansas. PEA APHID damaging alfalfa in areas of Colorado and Utah. (p. 903).

SPIDER MITES a problem in some areas; EUROPEAN RED MITE and TWO-SPOTTED SPIDER MITE in Utah and Michigan, and unspecified species in Minnesota. (p. 906).

MEXICAN BEAN BEETLE larvae heavy on beans in areas of Michigan; considerable aerial spraying underway. (p. 910).

Male PINK BOLLWORM moth taken in sex trap in Pinal County, Arizona, is first positive find in area this summer. (p. 912).

ELM LEAF BEETLE continues damaging in several States west of Mississippi River and in Maryland. (p. 915). MIMOSA WEBWORM heavy in several States. (p. 916). FACE FLY increased noticeably in Wisconsin and heavy in Pennsylvania; troublesome in Nebraska. (p. 917). HORN FLY troublesome in some localities. Several other FLY species annoying man and livestock in several areas. (pp. 919-920).

DETECTION

AN ERIOPHYID MITE (*Cecidophyopsis psilaspis*) reported for first time in Oregon. (p. 917). New county records were WESTERN CORN ROOTWORM (*Diabrotica virgifera*) in Hardin and Tama Counties, Iowa (p. 901); and ELM LEAF BEETLE (*Galerucella xanthomelaena*) in Leavenworth County, Kansas (p. 915).

CORRECTIONS

See page 921.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 918).

Interceptions of Special Interest. (pp. 925-926).

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Reports in this issue are for the week ending July 31, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JULY 27

Hot, sultry weather continued its grip over the southern half of the Nation. Cool air dominated parts of the Pacific Northwest and the Northeast. Scattered thundershowers provided light amounts of rain to many locations and generous amounts to a few spots.

**TEMPERATURE:** Temperatures averaged above normal from the Rocky Mountains to the Appalachians. They averaged slightly above normal on the western slope of the Rocky Mountains, across Utah, Nevada, and the interior valleys of California. The week was cooler than usual in the Far Northwest, the southwestern deserts, and along the Atlantic and gulf coasts. The hot, humid weather continued over most of the Nation from the Rocky Mountains to the Appalachians. Temperatures at Fort Smith, Arkansas, exceeded 100° on every day of the week ending August 2. Maximum temperatures at Wichita Falls, Texas, averaged over 103° for the entire month of July. It was the third hot week in Nebraska and Iowa and the ninth week in Oklahoma with temperatures reaching 100° or higher. Some cooler air invaded the northern Great Plains on the 28th. The cold front advanced to Iowa by the 30th. It produced slightly cooler temperatures as far south as Missouri and Kentucky at midweek. When the cool Canadian air reached Pennsylvania, it sent the mercury to the 40's and 50's on Friday and Saturday mornings. A few locations in New England registered minima in the 30's. Hot, humid weather returned to the Central and Southeast. Temperatures reached 100° or higher over the weekend as far north as Miles City, Montana, and La Crosse, Wisconsin.

**PRECIPITATION:** Rainfall was unevenly distributed. Wide areas from the Pacific Ocean to New England received less than 0.50 inch of rain but scattered spots received more than 2.00 inches. Some areas in California, Nevada, and Utah received no rain. Some heavy thunderstorms occurred in the humid air over the Southwestern Deserts. Tucson, Arizona, received 1.06 inches on Thursday and 2.05 inches on Saturday. Less generous showers fell at Tucson on other days. Over 6 inches fell at Dyersburg, Tennessee, in a few hours and Humboldt, Iowa, received 8.58 inches on Thursday and Friday. Extensive thunderstorm activity produced lighter amounts over most other areas. The lack of rain and the continued high temperatures increased the fire hazard in Nevada. (Summary supplied by U.S. Weather Bureau).

WEATHER BUREAU'S 30-DAY OUTLOOK

AUGUST 1964

The Weather Bureau's 30-day outlook for August calls for temperatures to average above seasonal normals from the Rocky Mountains to the Appalachians with greatest departures from the Central Plains to the Great Lakes. Below normal averages are predicted along the Gulf and south Atlantic Coasts and in the Northwest. In unspecified areas near normal temperatures are anticipated. Precipitation is expected to be subnormal in an extensive area stretching from the Central Plains to the Northeast. Above normal rainfall is predicted for the Gulf and south Atlantic Coasts as well as for the southern Plateau and the Northwest. Elsewhere, near normal amounts are in prospect.

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

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WISCONSIN - Unusually high populations reported from Bayfield, Buffalo, Sawyer, Sauk, Washburn, Door, Waushara, Shawano, Juneau, Grant, Sheboygan and Fond du Lac Counties. Some treatment underway in eastern Waushara County; damage becoming more noticeable in many areas. Alfalfa in sandier areas stripped along field margins; edge rows of some corn fields 33 percent defoliated; feeding on corn silks noted. Little change in development observed. Populations variable in southwest; counts as high as 60-100 per yard in some fields and as low as 2-3 per yard in Lafayette, Green and Grant Counties. Dissosteira carolina (Carolina grasshopper) appears unusually common along roadsides. (Wis. Ins. Sur.).

MINNESOTA - Surveys in Chisago, Isanti and Anoka Counties showed populations of 2-45 per square yard (average 15) in alfalfa; damage very evident in high count fields. In southeast district, scattered but high numbers found in alfalfa in Goodhue, Wabasha, Winona, Olmsted and Steele Counties; ranged up to 90 per square yard. In southwest, south central and central districts, high counts found in roadside and field margins; some spraying to prevent movement into corn and soybeans underway in southwest. Adults of Melanoplus bivittatus (two-striped grasshopper) and M. differentialis (differential grasshopper) present in these districts; M. femurrubrum (red-legged grasshopper) dominant and most in fourth instar. Movement into corn and soybeans increased; will continue as roadside and field margin foliage dries and grasshoppers reach full growth. Controls should not be delayed. (Minn. Ins. Rpt.).

NORTH DAKOTA - Rangeland survey in McKenzie and Dunn Counties showed 338,000 acres lightly infested; no threatening areas found. Counts ranged noneconomic to 10 per square yard; averaged 4. (Brandvick). In Slope and Williams Counties, 111,000 acres lightly infested, with 4-12 per square yard (average 3-7). (Scholl). Counts in field of flax near Napoleon, Logan County, averaged 15 per square yard in margin and 8 within field; M. bivittatus dominant species. (Frye, Gage).

IOWA - Spraying underway in north central area. (Iowa Ins. Inf., July 27).

NEBRASKA - Late-stage nymphs and adults moving from field margins into row crops in scattered locations. M. bivittatus, M. differentialis, M. femurrubrum and M. sanguinipes present. (Bergman).

MISSOURI - Melanoplus spp. range 5-10 per square yard in alfalfa, soybeans and corn in southwest. (Houser, Thomas, Wood).

TEXAS - Melanoplus spp., Phliobostroma quadrimaculatum, Ageneotettix deorum and Aulocara elliotti dominant species in light to moderate infestations present on variety of range plants in Childress and Collingsworth Counties; ranged 4-10 per square yard. (Texas Coop. Rpt.).

UTAH - Situation more serious for State generally than at same time in 1963. Control underway to protect farms in areas about Fillmore, Delta, Flowell and west of Kanosh in Millard County and around and north of Fountain Green in Sanpete County; small outbreaks noted on Cedar Mountain, Iron County, and on Beaver Mountain, Beaver County; large outbreak exists in Fairfield area, Utah County, largely on range lands; outbreak on Levan Ridge, Juab County, severe and extensive. (Burnett, Knowlton). Grasshoppers damaging cantaloup and alfalfa in Box Elder County. (Knowlton, Allred). Grasshoppers ranged 40-60 per square yard 12 miles west of Snowville, Box Elder County; 95 percent M. sanguinipes (migratory grasshopper) in alfalfa and largely winged. Range greener than normal and delaying movement to corps. Barley and alfalfa damaged in Hansel Valley. Outbreak extensive but spotted in cultivated areas of Box Elder County. (Knowlton, Finch). Grasshopper movement continues from range to farm and home areas of North Ogden, Weber County. (Knowlton).

IDAHO - M. sanguinipes averaged 2 per crested wheat grass stem along approximately 10 miles of roadside plantings at junction of Black Canyon and Highway 80. (Portman).

NEVADA - Aulocara elliotti, D. carolina, M. bivittatus, M. femurrubrum, M. sanguinipes, Oedaleonotus enigma and Trimerotropis spp. ranged 10-20 per square yard along roadsides and 5-10 per square yard in brush and grass rangeland in Paradise Valley, Humboldt County. (Cooney).

CALIFORNIA - Cannula pellucida (clear-winged grasshopper) and Oedaleonotus sp. heavy on native grasses in Hoopa, Humboldt County. In Long Valley, Modoc-Lassen County area, approximately 1,500 acres of seeded rangeland treated with low dosage July 23-25; C. pellucida dominant species with 200-300 per square yard, mostly nymphs. Treatment gave good results. (G. Harmon).

ARMYWORM (*Pseudaletia unipuncta*) - MINNESOTA - Problem appears over for this season. Barley being harvested in northwest. (Minn. Ins. Rpt.). WISCONSIN - Observations in more heavily infested area of western Walworth and eastern Rock Counties showed sharp decline in infestation. Few larvae remained in corn. Although potential threat to adjacent corn fields still exists in few instances, larvae observed more than 80 percent parasitized. Infestation in corn in northern Dane County averaged 6 per linear foot with larvae generally in good condition. Foxtail grasses thick and feeding on corn appeared incidental. Clipped heads ranged 1-80 percent in field of oats in milk stage in Rock County; highest area of damage in field adjacent to field of corn and dead larvae common on rachis of oat plants. Reports from scattered areas indicate overall light infestation, although localized outbreaks occurred. Infestations in corn and grain reported from Outagamie, Shawano, Door, Green Lake (as high as 30 per square feet in lodged oats), Jackson (some treatment of corn in Alma Center area), and high numbers in grassy fields in Sauk County. (Wis. Ins. Sur.). MICHIGAN - Scattered infestations reported in Monroe, Sanilac and Presque Isle Counties on Sudan, lodged oats and corn. (James, Sowerby, Sieting). IOWA - Larvae nearly full grown in Floyd County; 10-12 larvae noted under clumps of straw and in other shaded situations on diverted acres. Area sprayed as barrier to prevent migration to field across road; in same area second application necessary. Other fields in neighborhood infested. Cocoons of *Apanteles* sp. (a braconid) also present in large numbers. *P. unipuncta* larvae present in new seeding and in diverted acres in Hamilton County. Severe infestation reported near Radcliffe, Hardin County. (Iowa Ins. Inf., July 27). ILLINOIS - Rapidly disappearing from most northern area corn fields. Most larvae becoming full grown and pupating. Definite signs of feeding noted in many fields, but no larvae found; however, large larvae still present in occasional fields. Heaviest infestation observed, 2 larvae per square foot on ground and 25 per 100 corn plants. All grass in this field stripped of leaves and only midrib of corn leaves below ear remained. Silks removed from 4 percent of ears. (Ill. Ins. Rpt.). OHIO - Reports increased in Ashland, Delaware, Fulton, Huron, Knox, Medina, Putnam, Richland, Seneca and Wayne Counties. Second-generation larvae heavy and seriously damaging field corn, small grains and forage. Infested 3 fields in Putnam County. (Holdsworth). Damaging corn, wheat, oats, alfalfa and clover in several fields in Wayne County. (Barry, Rings). Infesting corn in Fulton County. (Holdsworth).

PENNSYLVANIA - This and other armyworm species stripped Sudan grass in Wyoming County. (Udine). NEW YORK - Often noted in silks of Hudson Valley corn. Only one infestation reported in Suffolk County; present in sweet corn and probably began in early July. Caused very little serious damage in Madison County; most fields show some damage but not sufficient to warrant control. (N.Y. Wkly. Rpt., July 27). CONNECTICUT - Continues dominant problem; damaged grains and grasses in all counties, being most severe in New London, Windham, Tolland and Litchfield Counties. Excellent controls being obtained by use of chemicals and barriers. Generally, infestations have run their course in 5-6 days in infested fields; however, this complicated by presence of larvae in all stages. Constant inspection of weeds and grasses at borders of infested fields still necessary. Infestations should subside in about 7 days. (Savos, July 29). RHODE ISLAND - Armyworms, predominantly this species, appear to have subsided; probably 50 properties involved. Infested mainly forage corn with very little sweet corn involved and only one instance of oats and one instance of millet reported. (Mathewson, Veilleux, King, Hannah). VERMONT - Has spread to new areas; controls applied to at least 6,000 acres. Summary by county as follows: Addison - heavy on 25-30 farms; most control has been aerial spraying. Bennington - present throughout county but no heavy buildup in any area. Caledonia - present but no buildup requiring treatment. Chittenden - widespread but serious on very few farms; some controls applied to corn and grassland; most serious in Charlotte and Winooski Valley. Essex - no buildup. Franklin - widespread with controls underway; most prevalent in second-cutting oats and corn. Grand Isle - None reported. Lamoiile - serious outbreaks reported in Hyde Park, Johnson, Jeffersonville and Stowe; several farms treated, but buildup heavy. Orange - present in middle valley and Randolph sections; 300 acres treated in Tunbridge, Strafford and

Randolph July 24-25. Rutland - heavy in northern area. Washington - early infestations previous week at low levels in river valleys but now widespread; reinfestations indicated in Waitsfield section. Windham - damage spotty and mostly in valleys; controls applied to approximately 500 acres of corn. Windsor - corn in White River Junction area treated July 27; this first severe outbreak in county, although larvae noted in most towns in river valleys. (MacCollom, July 27).

FALL ARMYWORM (*Laphygma frugiperda*) - GEORGIA - Light to heavy on Coastal Bermuda grass in middle south central and southwest counties; heavy on lawns in Atlanta area; light to moderate on peanuts in south central and southwest counties (Johnson). Heavy on Coastal Bermuda grass in Calhoun County (Barnes, July 20). Moderate to heavy on sorghum and late corn in Upson and Spalding Counties. (Tippins). Moderate to heavy on peanut foliage. (French, Johnson). LOUISIANA - Damaging millet in East Feliciana and pastures in East Feliciana and Tangipahoa Parishes. (Tynes et al, July 29). ALABAMA - High infestations continue to be reported in millet, Coastal Bermuda grass, permanent pastures and late corn in many southern and central counties. Counts in isolated grass crops in Lee County ranged 8-10 larvae per square foot. Controls being applied on newly established grass sods along highways in Tuscaloosa County. (Owens et al.). MISSISSIPPI - Present on lawns over State. Infestations began in southern part of State approximately 3 weeks ago and present statewide. Close check should be made of pasture and forage crops. (Bennett, Young, July 28). TEXAS - Appearing on grasses and lawns in Burleson County. (Randolph). OKLAHOMA - Damaged field of late sorghum in Grant County (north central). (Okla. Coop. Sur.). KANSAS - Damage obvious on 50 percent of corn in Stafford County, south central; 75-80 percent of damaged plants contained second to fifth-stage larvae. Seven acre field of late corn in Riley County (northeast) severely damaged; heavy leaf feeding (no tassels present). Infestation varies 20-100 percent in spots. Second stage to full-grown larvae present; as many as 6 second to fourth stage larvae per plant. (Burkhardt). MISSOURI - Damage heavy in late-planted corn in Cooper County (central), with average of 45 stalks per 100 infested with 1-4 larvae per stalk; and in Dade and Green Counties (southwest), with average of 25 stalks per 100 infested. (Houser, Thomas, Wood). ILLINOIS - Heavy in many southern area corn fields. (Ill. Ins. Rpt.). OHIO - Larvae infesting upper leaves and tassels of corn in Hancock County. (Holdsworth). VIRGINIA - Severe on 20-acre field of late corn planted for ensilage in Loudoun County. (Brown). NORTH CAROLINA - Damaging field of Coastal Bermuda grass in Pender County and field of millet in Pamlico County. (Mount). SOUTH CAROLINA - Of considerable concern on lawns in Horry County; severely damaged hybrid Bermuda grass on football field. Probably this species, infesting beef cattle pastureland at Daniel Island, Charleston County. (Nettles et al., July, 28). MARYLAND - Infestations general in late corn in all sections; highest infestation observed 30 percent. (U. Md., Ent. Dept.). DELAWARE - Light on corn in Sussex County. (MacCreary, Crossan). NEW YORK - Occasional moths appeared in light trap in Hudson Valley July 20. (N.Y. Wkly. Rpt.).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - ARKANSAS - Heavy in corn in roasting-ear stage in Lee County (east central); 80-85 percent of stalks showed feeding signs. Broken tassels quite common; some lodging present. Approximately 50 percent of second generation in pupal stage. (Ark. Ins. Sur.). MISSOURI - All stages found in central and west central areas; infestations ranged 5-20 percent of stalks in individual fields. Infestations in southwest ranged 1-5 percent of stalks infested. Second generation pupating and emerging in southeast. (Keaster). NEBRASKA - Pupation well underway in northeast with most adult emergence expected first week of August. Population approximately 50 percent pupae and 50 percent fifth instar, with some fourth instars present. Infestation high in corn. (Bergman, Roselle). Infestations 50 percent in Cuming County with 56 borers per 100 plants and 21 percent in Hall County with 19 borers per 100 plants. Moth emergence underway. (Hill). IOWA - Annual first-brood survey completed. State averages for 87 fields as follows: 31.9 percent infested with 1.2 borers per infested plant and 52 borers per 100 plants. This compares with 90 fields checked in 1963, with 23.2 percent infested with 1.2 borers per infested

plant and 34 borers per 100 plants. (Iowa Ins. Inf., July 27). MINNESOTA - Emergence and egg laying by second generation underway in southern counties. Percent development by district as follows: Southwest - 11 third, 19 fourth and 67 fifth instars and 3 pupae; south central - 24 fourth, 47 fifth instars, 19 pupae and 10 emerged; southeast - 17 fifth instars, 67 pupae and 16 emerged; west central - 20 second, 49 third, 24 fourth, 7 fifth instars and 7 pupae; northwest - 10 first, 50 second, 30 third, 10 fourth instars and no fifth instars nor pupae. (Minn. Ins. Sur.). WISCONSIN - Emergence well underway. Dissections near Poynette, Columbia County, showed 30 percent fifth stage, 50 percent pupae and 20 percent pupal cases. Moth flights accentuated in some areas; 8 percent of corn plants tasseling out contained freshly laid egg masses at Spring Green and eggs in black-head stage and freshly hatched in Rock County. Eggs present in Green Lake County; first-stage larvae noted at location in Iowa County. (Wis. Ins. Sur.). MICHIGAN - Egg laying underway for second brood over entire corn-growing area of Lower Peninsula; blacklight adult collections increased markedly. (Newman, Snow). ILLINOIS - First-generation survey complete; populations reduced to one-half 1963 population. (Ill. Ins. Rpt.). INDIANA - Larvae very low on corn and of little concern throughout southern half of State. Infestations averaged less than 10 percent of field corn in southwest, south central, southeast, west central and central sections. (Bram, Saugstad). MARYLAND - Second-generation emergence well advanced in Frederick County. Steady adult numbers continue to appear in blacklight trap at Centreville, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Adults taken in blacklight trap at Bridgeville, Sussex County, July 21-27. (MacCreary, Crossan). NEW YORK - Few moths emerging from cages in Hudson Valley since July 15; no moths or indications of second brood noted in fields. Light on early sweet corn in Niagara County; most treated; severe in whorls and tassels of some field corn; up to 30 percent of stalks infested in some instances. (N.Y. Wkly. Rpt., July 27).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - KANSAS - First generation infesting 5-15 percent of corn in Stafford County, south central; 5 percent fifth stage, 45 percent pupae and 50 percent empty pupal cases. (Burkhardt).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - Infestations have been light, but increasing with more treatment being required. (Tynes et al., July 29).

CORN EARWORM (*Heliothis zea*) - NEW YORK - No moths taken in Poughkeepsie trap since July 15. (N.Y. Wkly. Rpt., July 27). RHODE ISLAND - Common on forage corn in Kingston, Washington County. Cocoons of *Apanteles* sp. (a braconid) found associated with infestation. (Sorensen, Mathewson). MARYLAND - Ear infestations increasing in all sections; highest observed was 25 percent in Queen Annes County. (U. Md., Ent. Dept.). GEORGIA - Light to moderate on soybeans in south central and southwest areas (Johnson); moderate to heavy on peanut foliage (French, Johnson). OKLAHOMA - Heavy in corn in Mayes County (northeast). (Okla. Coop. Sur.). ARKANSAS - Present in 2 of 16 fields checked in Lonoke County; highest count 2 per 30 feet of row. (Ark. Ins. Sur.). INDIANA - Larvae generally very low on corn throughout State; second-stage larvae noted in Switzerland County, southeast. (Bram, Saugstad). WISCONSIN - Incidental larvae (second to fifth stage) noted in early planted sweet and field corn in Rock and Sauk Counties. Populations very low; major flight not expected until day-degree accumulations reach approximately 2,300. (Wis. Ins. Sur.). MINNESOTA - Few larvae noted in field corn in southwest, south central and central districts; populations very low. (Minn. Ins. Rpt.). UTAH - Moths appearing at rate of 1-2 per night in blacklight traps at Ogden, Weber County, and at Salem, Utah County. (Knowlton). Infested 15-20 percent of earliest sweet corn in Davis County. (Dorst, Knowlton). NEW MEXICO - Larvae found in 80-90 percent of corn ears grown for ensilage in Artesia area, Eddy County. (N.M. Coop. Rpt.). IDAHO - Pupation general in Indian Hill-Hammet area, Elmore County; however, infestations light and spotted in this newly developed 4,000-acre farm area. (Portman).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - Damaged fields reported in southwest and central districts; heaviest in Nobles and Jackson Counties. Lodging ranged 50-75 percent in some fields, with *D. virgifera* (western corn rootworm) comprising more than 90 percent of individuals present. Apparently this species increased in importance in southwest. *D. longicornis* (northern corn rootworm) and *D. virgifera* adults emerging, but second and third stage larvae still feeding on roots, especially in central district. (Minn. Ins. Rpt.). NEBRASKA - Adults active throughout State and emergence appears to have passed peak; emergence will continue for some time with numbers decreasing. *D. virgifera* appears to be dominant with *D. longicornis* and *D. undecimpunctata howardi* (southern corn rootworm) present in some fields. *D. virgifera* adults estimated at 50-75 per corn plant in field in Dixon County which had severe root damage and was treated this spring. (Bergman). ARIZONA - Larvae damaged corn in Cochise County and in Snowflake area of Navajo County. Adults appearing and damaging silks and tassels. (Ariz. Coop. Sur.).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - WYOMING - Large adult numbers noted in corn in Goshen County; averaged 15 per plant in most heavily infested field. (Marks). COLORADO - Adults ranged from trace to heavy on corn in Prospect Valley, Weld County; averaged 5-6 per plant. (Urano). Adult populations required control on corn in Yuma County; 5-10 per plant causing damage. (LeQuey, Jenkins). KANSAS - Adults reported abundant on corn in Greeley County, west central. (Knutson). MISSOURI - Adults collected July 23 and July 28, respectively, in Grundy and Livingston Counties, northwest. These are new county records. (Houser, Thomas, Wood). IOWA - Reported for first time from Hardin and Tama Counties. Infesting corn in Taylor and Warren Counties; present on ears and some in leaf axils. (Iowa Ins. Inf., July 27).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - OHIO - Adults feeding on corn silks causing concern in Seneca County. (Gamble). Adults infesting corn silks in Van Wert County (Holtkamp); averaged 40 per silk in 65-acre field in Pickaway County (Hamrick); infesting silks in Hardin County (Freeman). Some larvae still present at Hoytville, Wood County. (Polivka). INDIANA - Adults average less than 3 per corn plant in southern half of State; averaged 6-7 per plant in Adams County, northeast. (Bram, Saugstad, Matthew). WISCONSIN - Counts per stalk, by county, as follows: Iowa 0-4, Lafayette 0-1, Green 0-3, Dane 0-2, Columbia 0-2, Rock 0-4. Silk feeding noticeable, although much of feeding is on pollen collected in axils. (Wis. Ins. Sur.). IOWA - Abundant on field of silking corn near Monticello, Jones County. (Iowa Ins. Inf., July 27)

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - IOWA - Caused severe root damage to late-planted corn following alfalfa east of Ankeny. Also noted in experimental corn plot in Warren County. (Iowa Ins. Inf., July 27). COLORADO - Few adults noted on corn in Yuma County. (LeQuey, Jenkins).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Numbers on corn continue above normal in all sections. (U. Md., Ent. Dept.).

CEREAL LEAF BEETLE (*Oulema melanopa*) - MICHIGAN - "Summer" adults difficult to find in research areas of Berrien County where high numbers present earlier. Hot weather and treatments considered responsible for scarcity. Diligent search revealed small numbers of quiescent beetles at bases of corn leaves, under loose bark on trees, in crevices of logs, at bases of grass clumps and under debris on ground. (Ruppel, Castro, Turner).

CORN LEAF APHID (*Rhopalosiphum maidis*) - CALIFORNIA - Medium on Johnson grass in Reedley, Fresno County. (Cal. Coop. Rpt.). NEVADA - Light on wheat in Diamond Valley, Eureka County. (Earnist). IDAHO - Distributed throughout corn fields in southwest; populations low and scattered in most fields. Beginning to colonize and increase in few fields. Predators, particularly lady beetles and lacewings, present. (Portman, Scott). UTAH - Damaging barley in Bear River-Corinne area, Box Elder County. (Knowlton). COLORADO - Trace to very high numbers on corn

in Mesa County; 10-20 colonies per plant; controls applied. (Bulla). Being held in check by lady beetles in Eaton, Gill and LaSalle areas, Weld County. (Urano). Colonies ranged 1-5 per 10 sorghum plants in Weld, Morgan, Washington, Yuma, Phillips, Sedgwick, Logan and Kit Carson Counties. (Jenkins). WYOMING - Colonies on tassels on individual corn plants relatively large in Goshen County. (Marks). NEBRASKA - Some high populations present in corn and milo in central, east and northeast areas. Some corn fields with 6 percent tassel damage in northeast areas. (Bergman). MISSOURI - Light on corn and milo in west central and southwest areas. (Houser, Thomas, Wood). MINNESOTA - Present in all fields in southern area; colony size increasing. Predator populations increasing. (Minn. Ins. Rpt.). WISCONSIN - Populations increasing rapidly on corn in many areas; extent of damage difficult to determine. Loss dependent on index of development and population; due in great part to barrenness. Colonies building up in silks and on ear tips. Predators, primarily lady beetle adults and larvae, becoming increasingly more common. Parasites and predators will probably keep most infestations under control. (Wis. Ins. Sur.). INDIANA - Generally present but no longer of consequence on corn in southern quarter of State. As high as 50 percent of plants in some fields infested in west central and central sections. (Bram, Saugstad). OHIO - Infested several fields in Montgomery County; infestation approximately 7 percent in one field. (Rings). RHODE ISLAND - Common on forage corn in Kingston, Washington County. (Sorensen, Mathewson). MARYLAND - Light numbers evident on corn at several locations on Eastern Shore. (U. Md., Ent. Dept.). ALABAMA - About 15 acres of late corn in 100-acre bottom land field in Marengo County had very high infestation in buds; infestation lighter in remainder of field. (Miller).

AN APHID (Rhopalosiphum padi) - CALIFORNIA - Heavy on corn plantings in Reedley, Fresno County. (Cal. Coop. Rpt.).

CHINCH BUG (Blissus leucopterus) - INDIANA - High nymphal populations destroyed 2 fields of millet in Newton County, northwest. Fields planted immediately after wheat harvest. (Gould, Bram). MISSOURI - Light on grain sorghum in Barton County, southwest. (Houser, Thomas, Wood). OKLAHOMA - Moderate in corn and sorghum in Mayes County (northeast). (Okla. Coop. Sur.). TEXAS - Ranged 8-25 per stalk on grain sorghum in local areas of Burleson and Brazos Counties. (Randolph).

A FALSE CHINCH BUG (Nysius sp.) - TEXAS - Very heavy numbers reported on grain sorghum in Hill County. (Hoerman).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Low numbers present in 16 fields checked in Lonoke County; averaged 8.5 adults and 2.1 nymphs per 100 sweeps compared with 5.2 adults and less than 1 nymph previous week. (Ark. Ins. Sur.).

THRIPS - IDAHO - Silvering undersides of lower leaves of corn in fields throughout area south of Nampa, Canyon County. (Portman). OKLAHOMA - Frankliniella spp. populations continue high in Caddo County peanuts; 4-5 per terminal. (Okla. Coop. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Heavy populations caused considerable damage to grain sorghum in Brazoria County. (Randolph). Reports from high plains area indicate only light infestations, with no buildup yet noted. (Texas Coop. Rpt.).

WHEAT STEM SAWFLY (Cephus cinctus) - OHIO - Infestation of oats ranged 2-3 percent in Darke County. (Holdsworth). Considerable infestation present in wheat in Ottawa County. (Ruff).

SPIDER MITES (Tetranychus spp.) - WYOMING - Large populations present on corn leaves in Goshen County; treatment underway in many fields. (Marks). COLORADO Light to moderate on corn in Mesa County; very noticeable on third, fourth and fifth leaves. (Bulla). Trace to heavy infestations noted on corn in Weld



County; some chemical controls applied. (Urano). Populations low on corn in Yuma, Phillips, Sedgwick and Logan Counties. (Jenkins). TEXAS - Heavy on grain sorghum in localized areas of Brazos and Burleson Counties. (Randolph). ARKANSAS - Heavy in alfalfa in Crawford County (west central). (Ark. Ins. Sur.). MARYLAND - Building up and causing damage in several soybean fields in Queen Annes and Wicomico Counties. (U. Md., Ent. Dept.).

SAGEBRUSH DEFOLIATOR (*Aroga websteri*) - UTAH - Moderate on most sagebrush examined in Bridgeland-Duchesne-Indian Canyon area of Duchesne County and several areas in Rich, Cache and Salt Lake Counties. (Knowlton).

HAIRY CHINCH BUG (*Blissus leucopterus hirtus*) - NEW YORK - Beginning to damage lawns in Nassau County. (N.Y. Wkly. Rpt., July 27). PENNSYLVANIA - Damaging lawns in Clarion and Elk Counties. (Adams, July 24). NEW JERSEY - Probably this species active on turf in several areas. (Ins.-Dis. Newsltr.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Appears to be building up in number of fields checked in Eddy and Chaves Counties; honeydew heavy in some fields. (N.M. Coop. Rpt.). TEXAS - Light to moderate (20-100 per 10 sweeps) in Childress County area. (Meisch). OKLAHOMA - Ranged 1-190 per 10 sweeps in alfalfa in north central area, except one field in Grant County with 300 per 10 sweeps. Infestation moderate in Washita County (west central); light in Major (northwest), Garfield (north central) and Kingfisher (central) Counties. (Okla. Coop. Sur.). KANSAS - Ranged from less than 5 to over 700 per sweep in east central and southeast areas; heaviest infested field in Lyon County. As many as 20-30 per leaflet observed in heavier infested fields; much honeydew, mold and loss of leaves also noted in these fields. (Peters).

MISSOURI - Light to moderate (5-15 per sweep) on alfalfa in southwest. (Houser, Thomas, Wood). NEBRASKA - Counts per 10 sweeps, by county, averaged as follows: Butler 70, Hall 20, Howard 570, Polk 10 and Dakota and Dixon 22. (Manglitz, Kindler, Bergman). WISCONSIN - General decrease noted in most fields checked. Winged forms still being produced; range as high as 30 percent. There appears to be considerable competition among insect species in these fields which may account for much of dispersal and decline. (Wis. Ins. Sur.). ARIZONA - Increasing rapidly on spring planted alfalfa in Graham County; damage becoming more severe in some fields. Infestation light on older established fields, with some increase noted. (Ariz. Coop. Sur.).

PEA APHID (*Acyrtosiphon pisum*) - NEVADA - Heavy infestation on alfalfa in southern Mason Valley, Lyon County, declining rapidly; approximately 1,000 acres treated and predators and parasites reducing populations in about 50 percent of fields. (Batchelder). Averaged 100 per sweep in alfalfa in Diamond Valley, Eureka County. (Earnist). UTAH - Damaged large areas of alfalfa in Cedar Valley, Iron County, and some alfalfa in Carbon County. (Sjoblom, Davis, Knowlton). COLORADO - Heavy on second and third-cutting alfalfa in Larimer, Weld, Morgan, Yuma, Sedgwick and Logan Counties; causing reduction in yield. Lady beetle populations very high; aphid populations dropping. (Jenkins). WYOMING - Adults and nymphs increasing in Goshen County alfalfa; averaged 2,500 per 100 sweeps. (Marks). NEW MEXICO - Light to moderate on alfalfa near Taos, Taos County. (N.M. Coop. Rpt.). INDIANA - Adults and nymphs relatively low on alfalfa in southern half of State; averaged 2 per sweep in southwest, south central, west central and central sections. Maximum number observed 20 per sweep in Dearborn County, southeast. (Bram, Saugstad). MARYLAND - Ranged 0-35 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.).

LYGUS BUGS (*Lygus* spp.) - NORTH DAKOTA - Some apparent buildup on alfalfa in southeast; ranged 1-3 per sweep. (Frye, Gage). WYOMING - Adults and nymphs averaged 245 per 100 sweeps in Goshen County alfalfa. (Marks). UTAH - Adults and nymphs numerous in seed alfalfa fields at Petersburg, Cache County. Ranged 20-90 per 10 sweeps on alfalfa for seed in areas west of Snowville, Box Elder County; 80 percent nymphs in some fields. (Knowlton). ARIZONA - Populations decreased or remained the same in Graham, Cochise, Pinal, Pima and Maricopa

Counties; slight increase noted in Yuma County. (Ariz. Coop. Sur.). NEVADA - Ranged 40-50 per sweep in alfalfa in Diamond Valley, Eureka County. (Earnist). CALIFORNIA - L. elisus and L. hesperus present in alfalfa in Reedley, Fresno County. (Cal. Coop. Rpt.). WASHINGTON - Up to 6 adults and nymphs of L. hesperus and L. elisus per sweep in reinfestation portion of alfalfa seed field near Mesa, Franklin County, July 24; increased to 13 per sweep (two-thirds nymphs) by July 28. Averaged 2 per sweep in opposite corner of same field. (Johansen; Eves).

TARNISHED PLANT BUG (Lygus lineolaris) - MARYLAND - Adults evident in alfalfa checked in Frederick County. (U. Md., Ent. Dept.). MISSOURI - This and other species ranged 2-18 per 10 sweeps in alfalfa checked in north central area. (Houser, Thomas, Wood). OKLAHOMA - This and Lygus spp. ranged 2-18 per 10 sweeps in alfalfa checked in north central area. (Okla. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - IDAHO - Has been extremely abundant in Clearwater County. (Fitzsimmons). INDIANA - Adults averaged less than 1 per 10 sweeps on alfalfa in west central, central, southwest and south central sections. Averaged 6 per 10 sweeps in southeast section, with maximum of 12 per 10 sweeps in Dearborn County. (Bram, Saugstad).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Adults increasing in regrowth alfalfa; range 3-30 per sweep. Nymphs as high as 50 per sweep in uncut alfalfa. MICHIGAN - Up to 25 adults per sweep taken in some Livingston County alfalfa. (Wis. Ins. Sur.). (Newman). INDIANA - Adults and nymphs continue low on alfalfa in southern half of State. Average counts per 20 sweeps were 10 in southwest, 5 in south central, 10 in southeast, 20 in west central and 6 in central sections. (Bram, Saugstad). ILLINOIS - Plentiful and causing some yellowing of alfalfa in northern area. (Ill. Ins. Rpt.). MISSOURI - Averaged 1-2 per sweep in alfalfa in west central and southwest areas. (Houser, Thomas, Wood). NEBRASKA - Averaged 7 per 10 sweeps in Dakota County. (Bergman). MARYLAND - Numbers declined somewhat on alfalfa in Frederick County. (U. Md., Ent. Dept.). VERMONT - Building up on legumes with yellowing apparent along roadsides. (MacCollom).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing on alfalfa throughout State; light damage evident in many fields. (Ariz. Coop. Sur.). TEXAS - Heavy on alfalfa in Wharton County. (Meisch). LOUISIANA - Percentage of girdled stalks of soybeans very high in East Carroll and Morehouse Parishes. Late-planted soybeans should be checked for nymphs and adults. (Tynes et al., July 29). ALABAMA - Adults light in lespedeza, seresia and along roadsides in Lee and Tallapoosa Counties. (McQueen).

GARDEN WEBWORM (Loxostege similalis) - IOWA - Damaging soybeans in Henry County. (Iowa Ins. Inf., July 27). MISSOURI - Light (0-1 per square foot) to heavy (1-5 per square foot with heavy webbing) in individual alfalfa fields in west central and southwest areas; 25-50 percent reduction of yield reported from Jasper County (southwest). (Houser, Thomas, Wood). ARKANSAS - Continues active in spots in localized areas with few spot infestations in soybeans; 53 larvae collected in 10 sweeps in alfalfa in Conway County, central area. (Nickerson). ARIZONA - Light numbers appearing in some alfalfa in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

WEBWORMS (Loxostege spp.) - KANSAS - Ranged 0-30 per 100 sweeps on alfalfa in east central and northeast areas; few observed on soybeans in same areas. (Peters). OKLAHOMA - Moderate, 100 per 10 sweeps, in alfalfa in Kingfisher County (central). Light, 1-10 per 10 sweeps in Major County (northwest) and north central counties. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larvae ranged 2-12 per 100 sweeps in alfalfa in Artesia area, Eddy County; adults common in fields. (N.M. Coop. Rpt.). INDIANA - Second and third-stage larvae averaged 3 per 10 sweeps on alfalfa in west central and central sections. (Bram). MARYLAND - Light on alfalfa in Frederick County. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - OKLAHOMA - Causing severe damage to cowpeas in Greer (southwest) and Caddo (west central) Counties. Borers moving to peanuts in Caddo County; 1 larva per plant present. Infestations apparently started in Johnson grass present in fields in both areas. (Okla. Coop. Sur.).

GRANULATE CUTWORM (*Feltia subterranea*) - ALABAMA - Infestations heavy and widespread in Barbour County peanuts; 3-5 larvae per hill. Full-grown larvae attacking leaves and nuts. Lighter infestations present throughout central area on several crops. (Hagler, Walton, Miller). GEORGIA - Ranged moderate to heavy on foliage of peanuts. (French, Johnson).

VARIEGATED CUTWORM (*Peridroma saucia*) - ARIZONA - Moderate to heavy and damaging alfalfa in Mesa-Chandler area, Maricopa County, particularly fields left uncut for remainder of summer. (Ariz. Coop. Sur.).

BEE T ARMYWORM (*Spodoptera exigua*) - GEORGIA - Ranged moderate to heavy on peanut foliage. (French, Johnson). ARIZONA - Small, localized populations damaging alfalfa in Yuma, Maricopa, Pinal and Graham Counties. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (*Plathypena scabra*) - ARKANSAS - Increasing slightly, with few small larvae appearing; numbers low in most instances. (Ark. Ins. Sur.). MARYLAND - Light to moderate on soybeans in Worcester County. (U. Md., Ent. Dept.).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - GEORGIA - Light to moderate on soybeans in south central and southwest areas. (Johnson).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Heavy in isolated areas of Bryan County (south central). (Okla. Coop. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - UTAH - Larvae light to moderate generally in Box Elder County alfalfa checked. (Knowlton). WYOMING - Remains low in Goshen County alfalfa; counts per 100 sweeps averaged 5 adults and 75 larvae. (Marks). NEW MEXICO - Possibly this species, averaged 0-1 per 25 sweeps in alfalfa checked in Taos County. (N.M. Coop. Rpt.). INDIANA - Single adult collected on alfalfa near Corydon, Harrison County, south central. This is second field found infested in county. (Saugstad). MARYLAND - Larvae ranged 0-5 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.).

WEEVILS - MICHIGAN - Heavy adult population of *Sitona* sp. injured border rows of soybeans following defoliation of nearby volunteer alfalfa in Ingham County. (Smith). FLORIDA - *Epicraerus formidolosus* moderate to severe on peanuts at Reddick, Marion County. (Adkins, Roberson, July 22).

BLISTER BEETLES (*Epicauta* spp.) - MARYLAND - Adults moderate and feeding on corn silks at Wye Mills, Queen Annes County; light numbers feeding on soybeans. (U. Md., Ent. Dept.). WISCONSIN - Adults of *E. pennsylvanica* (black blister beetle) common in alfalfa in southern counties; feeding on alfalfa flowers. (Wis. Ins. Sur.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - GEORGIA - Light to moderate on soybeans in south central and southwest areas. (Johnson).

JAPANESE BEETLE (*Popillia japonica*) - INDIANA - Adult populations apparently reached peak in Newton County, northwest. Adults averaged 58 per 100 feet of row in 2 fields of soybeans; damaged silks on average of 70 percent of plants in 6 selected fields of corn. (Gould, Bram). Adult infestation noted along railroad right-of-way in Noble County, northeast; feeding on weeds, but moving into adjacent corn. (Matthew).

SAP BEETLES - OREGON - Large numbers of Meligethes nigrescens appearing in Willamette Valley red clover fields; feeding on florets and causing them to turn brown; also damaging seed crops. (Larson). OHIO - Glischrochilus quadrisignatus infesting corn ears at Lebanon, Warren County. (Holdsworth).

A CLOVER SEED CHALCID (Burchophagus platyptera) - IDAHO - Adults numerous (up to 50 per sweep) in second-year red clover field north of Caldwell, Canyon County; numbers less in all other fields checked in northern part of county. (Waters).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - IDAHO - Becoming more numerous in most alfalfa and red clover seed fields in southwest; many growers including acaricides in regular spray program. (Waters). UTAH - Damage to corn appearing in Weber County. (Knowlton).

#### FRUIT INSECTS

EUROPEAN RED MITE (Panonychus ulmi) - VERMONT - Prevalent in some blocks statewide and causing bronzing. (MacCollom). CONNECTICUT - Building up rapidly in poorly sprayed trees. (Savos). NEW YORK - Continues most important pest in Monroe County. (N.Y. Wkly. Rpt., July 27). MICHIGAN - Populations continue very high in many commercial and research apple and plum orchards; counts continue as high as 30 mites and 60 eggs per leaf in Kalamazoo County research plots. (Pshea, Stroud). MISSOURI - Remains definite threat in southeast area, although adequately contained by most growers. Control good in central area, but viable eggs easily found; average 1-2 per leaf. (Wkly. Rpt. Fr. Grs., July 29). UTAH - Most serious infestations of past 10 years present on apple, peach and cherry in Orem and north Provo areas of Utah County. (Davis).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - UTAH - This species and T. mcdanieli built up rapidly in Utah and Davis County orchards during past 15 days. (Davis). COLORADO - Injuring foliage of apples and pears in Mesa County where controls failed. (Bulla). MICHIGAN - Populations high but spotted on susceptible hosts in fruit areas. (Pshea, Stroud). CONNECTICUT - Building up rapidly in poorly sprayed trees. (Savos). VERMONT - Prevalent in some blocks statewide; causing bronzing. (MacCollom).

SPIDER MITES - MARYLAND - Causing noticeable damage in apple orchard in Harford County. (U. Md., Ent. Dept.). ARKANSAS - Light in 20 percent of peach orchards in Howard County, southwest. Infestation heavy in orchard in Crawford County; some defoliation noted. (Ark. Ins. Sur.). MINNESOTA - A problem on apples due to recent hot, humid weather. (Minn. Ins. Rpt.). ARIZONA - Tetranychus spp. damaging apples in unsprayed orchard in Sedona area, Coconino County. Heavy hail in area damaged 80 percent of fruit. (Ariz. Coop. Sur.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - CALIFORNIA - Heavy on pear locally in Anza, Riverside County. (Cal. Coop. Rpt.).

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - Captures in bait traps increased markedly July 22 in eastern area, indicating second-brood flight underway; larval numbers large under tree bands; few pupae present. First-generation moths found for first time in cages at Geneva July 23; first emergence in field probably occurred 1-2 days earlier. First-brood emergence ended in cages in all parts of Monroe County July 6-10; this unusually early. (N.Y. Wkly. Rpt.). DELAWARE - Adults emerged from unsprayed apples in New Castle County on July 26. (MacCreary, Crossan). MARYLAND - Eggs continue to hatch and young larvae continue to enter unsprayed apples at Hancock, Washington County. (U. Md., Ent. Dept.). MICHIGAN - Peak emergence of summer-brood adults occurred in Kent County. Daily emergences at Graham Experiment Station during period July 21-29 were 4, 10, 10, 9, 10, 9, 11, 7, and 4. Entries by second-brood larvae expected week of August 1-7. (Gillmore). WISCONSIN - Adult flight of second brood began July 25-26 in Door County. (Wis. Ins. Sur.). MINNESOTA - Second-generation larvae observed in fruit at La Crescent, Houston County, on July 28. (Minn. Ins. Rpt.). MISSOURI -

Comparatively new entries noted on unsprayed apples in southeast. Larvae about one-third grown found in some apples in central area sprayed orchard. Although broods confused, this indicates pest still present and growers cautioned to remain on spray schedule. (Wkly. Rpt. Fr. Grs., July 29). UTAH - Moth flight heavy to blacklight trap at Logan July 19-23; some present in Ogden blacklight trap since July 6. (Davis. Knowlton).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - PENNSYLVANIA - More serious in south central area peaches than for several years. (Asquith, July 27). DELAWARE - Adult emergence from apple noted July 26 in New Castle County. (MacCreary, Crossan).

FALL WEBWORM (*Hyphantria cunea*) - NEW MEXICO - Some webbing noted in apple orchards in Santa Fe and Rio Arriba Counties. (N.M. Coop. Rpt.).

RED-HUMPED CATERPILLAR (*Schizura concinna*) - PENNSYLVANIA - Severely defoliating poorly sprayed apple trees in Washington County. (Udine, July 27).

UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) - MARYLAND - First larvae in 3 years found in deserted orchard at Hancock, Washington County. (U. Md., Ent. Dept.).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - NEW MEXICO - Light to moderate, spotted infestations found mostly on terminal growth and in centers of apple trees at Dixon and Embudo, Rio Arriba County. (N.M. Coop. Rpt.).

APPLE MAGGOT (*Rhagoletis pomonella*) - VERMONT - Emergence has peaked and now tapering off. Dry weather in southern counties resulted in much lower activity this season. (MacCollom). CONNECTICUT - Emergence peaked over most of State; however, secondary emergence peaks not unusual first 2 weeks of August. Apples should be protected. (Savos). NEW YORK - Adult emergence reached second peak July 14 in eastern area; decrease steady since that date. No distinct peak noted in western area, but emergence continued very heavy as of July 27. Emergence decreased considerably in Monroe County, but numbers still very significant; peak occurred in Brockport-Spencerport area July 12-13; males and females emerging in equal numbers; emergence heaviest in Hilton July 20-21; emergence quite heavy in Hamlin but no peak indicated. (N.Y. Wkly. Rpt., July 27). MARYLAND - Adults active in deserted Golden Delicious orchard at Hancock, Washington County. (U. Md., Ent. Dept.). MICHIGAN - Total of 41 flies taken on 2 sticky board traps in Macomb County and 26 flies on 2 traps in Oakland County week ending July 29. (Rapp, Green). MINNESOTA - Adults continue to emerge and maggot tunnelling observed in southeast. (Minn. Ins. Rpt.).

A FRUIT FLY (*Rhagoletis cingulata indifferens*) - CALIFORNIA - Second treatment application of season applied in Etna, Willow Creek, Weed and Dunsuir areas. This will complete treatment phase of 1964 program, unless new infestations or unforeseen developments occur. Fruit sampling and trapping will be continued. (Cal. Coop. Rpt.).

A PERIODICAL CICADA (*Magicicada septendecim*) - OHIO - Nymphs of Brood X causing serious decline in large section of apple orchard in Preble County. Nymphs found on roots 3-12 inches deep. This orchard damaged by oviposition in 1953. (Holdsworth).

HICKORY SHUCKWORM (*Laspeyresia caryana*) - ALABAMA - Isolated larval populations appearing in pecans in Lee, Bullock, Escambia and other pecan-growing counties. (Buttram, Bagby).

PECAN NUT CASEBEARER (*Acrobasis caryae*) - NEW MEXICO - Adults appeared in blacklight traps among pecan trees during period July 13-17; heaviest flight appeared about midperiod. (N.M. Coop. Rpt.).

A WEEVIL (Conotrachelus sp.) - GEORGIA - Heavy on several hundred acres of pecans in Dougherty and Mitchell Counties. (Teddars, July 23).

WALNUT HUSK FLY (Rhagoletis completa) - OREGON - Large numbers appearing in ammonium carbonate, sticky carton traps at Medford, Jackson County, where first found in 1963. None found in other areas to July 31. (Larson).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Late-stage larvae severe on leaves of Lake Emerald grape at Gainesville, Alachua County, July 22. (Mead).

GRAPE BERRY MOTH (Paralobesia viteana) - MISSOURI - Considerable potential for trouble still present in Rosati and Steelville areas. (Wkly. Rpt. Fr. Grs., July 29).

BLACK-HEADED FIREWORM (Rhopobota naevana) - OREGON - Second-brood larvae attacking cranberries in Coos County. (Every).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - This and Eotetranychus yumensis (Yuma spider mite) continue to damage tangerine trees in Yuma area; some controls necessary. (Ariz. Coop. Sur.).

CITRUS RUST MITE (Phyllocoptura oleivora) - FLORIDA - Scattered, light to moderate infestations noted on sweet orange nursery plants at Dover, Brandon and Wimauma, Hillsborough County, July 16 and 21. (Simmons).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Scattered and moderate on sweet orange nursery stock at Lake Wales, Polk County (July 27), and at Thonotassasa, Hillsborough County (July 17). (Keen, Herrman, Simmons).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increases in populations necessitated increases in control efforts in Yuma County. (Ariz. Coop. Sur.).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Single marked, sterile male taken 7 miles north of United States-Mexican border on southern edge of Chula Vista, San Diego County. This is farthest northward flight thus far recorded. This specimen released 4 weeks prior to capture in Tijuana area, Mexico. To July 31, total of 31 marked flies taken in State north of border. No wild flies taken in State as yet. (Cal. Coop. Rpt.).

#### TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - NORTH DAKOTA - Larvae of this species and Pieris rapae (imported cabbageworm) active on cole crops in most areas. (Frye, Gage). WISCONSIN - Buildup on commercial broccoli and brussel sprouts reported in Bayfield County; unusually high numbers noted in field of commercial cabbage in Columbia County. Probably T. ni, damaging snap and lima beans in Waushara County. (Wis. Ins. Sur.). PENNSYLVANIA - Light to moderate on cabbage in Erie County; pupation underway and some emergence noted. (Adams, July 22). MARYLAND - Moths appearing in blacklight trap at Berlin, Worcester County. Larvae light on commercial tomatoes in county. (U. Md., Ent. Dept.). VIRGINIA - Hot, dry weather previous to recent rains favorable for development. Damaged tomatoes, cucurbits and broccoli in plant beds on Eastern Shore. Weather during period July 19-26 should curtail development somewhat through distribution of virus disease. (Hofmaster). GEORGIA - This and Laphygma frugiperda (fall armyworm) moderate to heavy on sweetpotato foliage in south central area. (Ratcliffe). Moderate on same crop in Lee County. (Dupree).

PALE-STRIPED FLEA BEETLE (Systema blanda) - ALABAMA - Heavy on turnips, cabbage and other vegetable crops in Lee and Tallapoosa Counties. (McQueen).

MARGINED BLISTER BEETLE (Epicauta pestifera) - GEORGIA - Light to moderate on beans and tomatoes in Fulton County. (Woodliff, July 24). DELAWARE - Adults numerous and feeding on various vegetables and weeds in garden near Dover. (MacCreary, Crossan).

WIREWORMS - WASHINGTON - Larvae of Limonius canus (Pacific Coast wireworm) causing moderate damage to 5 acres of potatoes in 20-acre field at Royal City, Grant County; approximately 20 percent of tubers damaged. (Onsanger). NORTH CAROLINA - Melanotus communis feeding on watermelon at a location near Faison, Sampson County. Det. by D. A. Mount. (Futrell).

APHIDS - MARYLAND - Several species causing economic damage to watermelon, squash, lima beans, tomatoes and peppers on Eastern Shore. (U. Md., Ent. Dept.). VIRGINIA - Severe on watermelons at Toano, James City County; have stunted and killed numerous plants. (Bryant, July 22).

POTATO LEAFHOPPER (Empoasca fabae) - NORTH DAKOTA - Populations show some increase in Grand Forks area of Grand Forks County; 1 per sweep taken on potatoes. (Offerdahl). MARYLAND - Heavy on garden lima and snap beans in Talbot County. (U. Md., Ent. Dept.). DELAWARE - Causing considerable damage to lima beans near Harbeson, Sussex County. (MacCreary, Crossan). VERMONT - Problem on beans and potatoes in home gardens. (MacCollom, July 27).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Adults and nymphs heavy and widespread on susceptible hosts in Lower Peninsula; injury to sugar beets, potatoes and tomatoes greater than usual. (Janes, Wells).

HARLEQUIN BUG (Murgantia histrionica) - GEORGIA - Heavy on mustard and turnip in Clarke County. (Coleman).

THRIPS - PENNSYLVANIA - Several hundred per head of cabbage in several fields in York, Northampton, Lackawana and Luzerne Counties; cabbage unsaleable. (Gesell). CALIFORNIA - Frankliniella occidentalis (western flower thrips) nymphs medium on seed lettuce in Five Points, Fresno County. (Cal. Coop. Rpt.).

GRASSHOPPERS - MINNESOTA - Infestations of unspecified species economically important on vegetable crops at Newport and Hastings in Dakota and Washington County area. Mostly nymphs with few adults present. (Minn. Ins. Rpt.).

SPIDER MITES (Tetranychus spp.) - CALIFORNIA - T. atlanticus (strawberry spider mite) medium on cantaloup plantings in Mendota and T. telarius (two-spotted spider mite) heavy on eggplant in Reedley, Fresno County. (Cal. Coop. Rpt.).

TOMATO HORNWORM (Protoparce quinquemaculata) - UTAH - Damaging tomato foliage in field at Bear River City, Box Elder County, and at Hyde Park, Cache County. (Knowlton). NORTH DAKOTA - Larval damage to tomatoes observed in Fargo area, Cass County. (Post). RHODE ISLAND - Noted on tomato at Providence, Providence County, and at West Warwick, Kent County. (Veilleux).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Larvae heavy on 25 acres of potatoes near Snow Hill, Worcester County. (U. Md., Ent. Dept.). DELAWARE - Adults and larvae feeding on potatoes and tomatoes over State and on eggplant in Sussex County. (MacCreary, Crossan). WASHINGTON - Few second-generation adults and first-stage larvae noted in 28-acre field of potatoes at George, Grant County; numerous full-grown, first-generation larvae and pupae in soil. (Onsanger).

POTATO FLEA BEETLE (Epitrix cucumeris) - NORTH DAKOTA - Some increase noted in Grand Forks area, Grand Forks County; 2 per sweep taken on potatoes. (Offerdahl). WISCONSIN - First-generation adults numerous on potatoes in Grant County. (Wis. Ins. Sur.). PENNSYLVANIA - Second generation appearing in numbers in some potato fields in Erie County. Range 15-20 per sweep. (Adams, July 22).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Apterous populations continue to increase on early and late potato plantings in Mesa County. Early planted potatoes nearing maturity and winged aphids increasing rapidly. High alate numbers recorded on several early fields. (Berry).

POTATO APHID (Macrosiphum euphorbiae) - PENNSYLVANIA - Very heavy in some potato fields in Erie County. (Adams).

Aphids on Potatoes in Maine - For all counts during week July 27-August 1, by 3-leaf method on Katahdin potatoes at Presque Isle, there was average of 2.7 aphids per plant, with 66 percent of plants infested. Although overall numbers were 3.3 times as large as previous week, Myzus persicae (green peach aphid) was 7.7 times as numerous. Macrosiphum euphorbiae (potato aphid), Aphis nasturtii (buckthorn aphid) and Acyrtosiphon solani (foxglove aphid) were approximately twice as numerous as previous week. Total aphid numbers at this time in 1963 were 5 times as great as at present and virtually all plants were infested. At present, Macrosiphum euphorbiae and Myzus persicae predominate, followed by Aphis nasturtii and Acyrtosiphon solani. Trace numbers of dead, diseased aphids present during period. (Shands et al.).

POTATO PSYLLID (Paratrioza cockerelli) - WYOMING - Populations remain high in tomatoes and potatoes in Goshen County; adults per 100 sweeps averaged 4 in potatoes and 36 in tomatoes. (Marks). COLORADO - Numbers decreasing on potatoes in Weld County; few nymphs and adults observed in scattered fields. (Berry).

PEPPER MAGGOT (Zonosemata electa) - NORTH CAROLINA - Infested 25-40 acres of peppers in Warren and Franklin Counties, and 10 acres of peppers in Nash County. (Franklin).

SQUASH BUG (Anasa tristis) - NEVADA - Heavy on squash in Lovelock, Pershing County. (Rivers). OKLAHOMA - Heavy on squash in Bryan County, south central. (Okla. Coop. Sur.).

MELON APHID (Aphis gossypii) - DELAWARE - Sufficiently heavy on some commercial squash plantings to require treatment in Sussex County. (MacCreary, Crossan).

PICKLEWORM (Diaphania nitidalis) - GEORGIA - Moderate to heavy on squash in Gwinnett, Walton and Spalding Counties. (Vanderford).

A CABBAGE MAGGOT - PENNSYLVANIA - Causing 10-20 percent damage to cabbage in Lackawana, Luzerne, Northampton and Centre Counties; cabbage unsaleable. (Gesell). Also damaging in gardens in these areas. (Udine).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Larvae up to one inch long numerous in many navy bean fields in "thumb" area and as far west as Gratiot County; spraying reported; increasing adult numbers taken in blacklight traps in Lower Peninsula week ending July 27. (Wells, Janes, Kebler, Sowerby, Baker, Newman). DELAWARE - Causing moderate injury to lima beans in Dover and Bridgeville areas. (MacCreary, Crossan).

MEXICAN BEAN BEETLE (Epilachna varivestis) - RHODE ISLAND - Local infestation noted at Rumford, Providence County. Probably present statewide. (Sorensen, Mathewson). DELAWARE - Present in most lima bean fields. Larval injury severe in central Sussex County. (MacCreary, Crossan). MICHIGAN - Heavy larval infestations widespread on navy beans in "thumb" area, Saginaw Valley and as far west as Eaton County; considerable aerial spraying underway. (Janes, Wells, Kebler, Sowerby, Wanhoff). COLORADO - Larvae scattered in most bean fields in Weld County; none noted in Logan County. No serious damage observed. (Jenkins, Utano). UTAH - Damaging home garden beans in Salt Lake, Weber and Cache County localities. (Knowlton).



PEA APHID (Acyrtosiphon pisum) - IDAHO - Averaged over 100 per sweep (occasionally 500 per sweep) on peas checked in Clearwater County. Peas fast reaching maturity and heavy damage not expected. (Fitzsimmons).

COWPEA APHID (Aphis medicaginis) - FLORIDA - Severe on peas at Orlando, Orange County, July 21. (Mosteller).

BET WEBWORM (Loxostege sticticalis) - COLORADO - Increase in moth catches at Windsor light trap, Weld County, indicates another generation this season. Hatch should appear in about 7 days. (Urano). WYOMING - Larvae averaged 6 per 100 sweeps on sugar beets in Goshen County. (Marks). UTAH - Moderate numbers of adults appearing in blacklight traps at Ogden, Weber County. (Knowlton).

LYGUS BUGS (Lygus spp.) - WYOMING - Adults and nymphs per 100 sweeps averaged 46 on sugar beets, 38 on beans and 26 on potatoes in Goshen County. (Marks).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Adults averaged 1-2 per 100 sweeps on sweetpotato test plots in St. Landry, Lafayette and Acadia Parishes. (Tynes et al., July 29).

A MINT FLEA BEETLE (Longitarsus waterhousei) - OREGON - First adults of season noted in Umatilla County mint fields; no economic damage observed. (Bierman).

MITES - NEW YORK - Large numbers building up on lower leaves of raspberry plants in Nassau County. (N.Y. Wkly. Rpt., July 27).

#### TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Damaging populations developing in all sections of tobacco-growing area. Treatments underway. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults increasing on tobacco in all sections as harvesting is underway. (U. Md., Ent. Dept.).

GEORGIA - Light to moderate on tobacco in south central area. (Johnson).

TOMATO HORNWORM (Protoparce quinquemaculata) - WISCONSIN - Considerable feeding by nearly full-grown larvae on tobacco noted in northern Dane County. Combination of this feeding and storm damage ruined about one-third of leaves on some knee-high plantings. (Wis. Ins. Sur.).

HORNWORMS (Protoparce spp.) - MARYLAND - Numbers continue below normal on tobacco in all sections. (U. Md., Ent. Dept.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - MARYLAND - Light numbers found on tobacco in a bed in Prince Georges County. (U. Md., Ent. Dept.).

#### COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Activity remains very light in Falls and McLennan Counties. Infestations averaged 1.9 percent infested squares in 15 treated and 3.7 percent in 17 untreated fields. (Cowan et al.). Continues to infest late cotton in Rio Grande Valley and south Texas. Continues to increase in fields below Cap Rock with heaviest infestation in Afton area, Dickens County. Approximately 50 infested fields found in Crosby, Floyd and Dickens Counties above Cap Rock. Infestations near Allmon and McCoy areas of Floyd County several miles west of where infestations were found in that county last October. (Texas Coop. Rpt.). OKLAHOMA - Punctured square counts 4-5 percent in Greer and Jackson Counties, 1 percent in Major and Payne Counties. (Okla. Coop. Sur.). ARKANSAS - Beginning to build up. Of 7,193 fields scouted,

181 were at treatment level compared with 44 previous week. (Wkly. Cott. Ins. Rpt.). LOUISIANA - Increasing in areas receiving rain. Punctured squares averaged 9 percent in Morehouse and up to 25 percent in Madison Parishes. (Tynes et al.). MISSISSIPPI - Increasing in fields where weevils present since beginning of season and in areas of adequate moisture (south delta). Many fields still free of weevils. (Pfrimmer et al.). ALABAMA - Infestation counts continue to rise. Some counts as high as 85 percent where rainy weather has resulted in poor control. Average infestations 5-40 percent. Numerous young weevils observed and heavy egg laying in progress. (McQueen). GEORGIA - Square counts in 30 middle south central and southwestern cotton fields ranged from 10-95 percent with average of 48 percent. Migration expected soon as squares becoming scarce. Scout reports of 1,838 fields in 22 counties show 53 percent of fields with 1-10 percent infestation and only 4 percent of the fields with infestations above 50 percent. (Johnson). TENNESSEE - First-generation weevils at peak but infestations light. Square counts show 4 percent infestation but conditions ideal for buildup. Less than half of fields in southern counties show infestation. (Locke). SOUTH CAROLINA - Migration beginning in lower Coastal Plain counties. Infestation 5 percent in treated fields and 29 percent in untreated fields. (Cott. Ltr.). NORTH CAROLINA - Infestations increasing rapidly, rains hampering control. Counts 0-75 percent in northeastern counties, and 3-40 percent in south central counties. Infestation in fields with good control program 0-10 percent. (Robertson).

BOLLWORMS (*Heliothis* spp.) - CALIFORNIA - Field in Burrel-Five Points area, Fresno County, had count of 6 larvae per 25 plants; first to require treatment. (Ferris, July 22). Few larvae found in Kern County but natural factors holding population under control. (Black, July 22). ARIZONA - Increasing in Graham, Cochise, Pima, Pinal and Maricopa Counties. Extensive controls used in many areas. (Ariz. Coop. Sur.). NEW MEXICO - Becoming abundant in extreme southern Dona Ana County; necessary to treat number of fields in Artesia area, Eddy County. (N.M. Coop. Rpt.). TEXAS - Moderate to heavy infestations reported from Pecos, El Paso, Hudspeth and Martin Counties. Generally light in other western counties. Some damage in late-planted fields in Rio Grande Valley and southern areas. Generally light in remainder of State with local "hot spots" requiring control. (Texas Coop. Rpt.). OKLAHOMA - Counts 4-8 percent in southwest area, 5 percent in Major County and 0-8 in Payne County. (Okla. Coop. Sur.). MISSOURI - Larvae 1-16 and eggs 1-16 per 100 terminals in 21.7 percent of fields souped in bootheel area; 12 fields treated. (Harrendorf, Jones). ARKANSAS - Activity increased in all areas. Infestations in 44.5 percent of fields checked. Some insecticidal applications necessary. (Wkly. Cott. Ins. Rpt.). LOUISIANA - Infestations increasing and increased egg laying occurring in all parts of State. (Tynes et al.). MISSISSIPPI - Moth catch up slightly; very few eggs and small larvae. (Pfrimmer et al.). ALABAMA - Continue at low level; generally much lower than in 1963. (McQueen). GEORGIA - In fields checked, egg counts 4-30 per 100 terminals, average 15; larvae 3-5 per 100 terminals, average 11. (Johnson). TENNESSEE - Increasing but not a problem. Egg and larval counts 1-11 per 100 terminals, average 2. (Locke). SOUTH CAROLINA - Reports of damage increasing but no increase in moth flights at Pee Dee station. To date, 385 moths taken at station this year compared with 871 last year. (Cott. Ltr.). NORTH CAROLINA - Small larvae infesting fields generally in Scotland and western Robeson Counties. (Burnside).

PINK BOLLWORM (*Pectinophora gossypiella*) - ARIZONA - A male moth picked up in a sex trap in Pinal County. This is the first positive find in this area this summer. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (*Bacculatrix thurberiella*) - ARIZONA - Increased populations in Yuma, Pinal and Maricopa Counties. Early controls appear effective in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

COTTON LEAFWORM (*Alabama argillacea*) - LOUISIANA - Mature larvae in untreated cotton as far north as Alexandria area. (Tynes et al.).

IMPORTED CABBAGEWORM (*Pieris rapae*) - ALABAMA - Light infestation in Mobile County. (McQueen).

FALL ARMYWORM (*Laphygma frugiperda*) - ALABAMA - Observed feeding on squares in Henry and other counties where grass and other food destroyed. (McQueen).

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Light populations in Graham, Pinal and Maricopa Counties; little economic damage. (Ariz. Coop. Sur.). GEORGIA - Light to moderate infestations in south central and southwestern part of State. In most fields loopers infected with what is probably a polyhedral virus. (Johnson). SOUTH CAROLINA - Reports of damage confined to Coastal Plains. (Cott. Ltr.). NORTH CAROLINA - Killed by virus throughout State; however, heavy moth activity on cloudy days. (Robertson).

BEE T ARMYWORM (*Spodoptera exigua*) - GEORGIA - Scouts report light infestations in approximately 150 fields. (Jordan).

APHIDS - ARKANSAS - Declined during week; only 5 fields treated. (Wkly. Cott. Ins. Rpt.). LOUISIANA - Infestations heavier than normal for time of year. (Tynes et al.). MISSISSIPPI - Present in a number of fields. (Pfrimmer et al.). SOUTH CAROLINA - Present but now of little concern. (Cott. Ltr.). GEORGIA - *Aphis gossypii* light to moderate infestations in south central and southwestern areas. (Johnson).

SPIDER MITES - CALIFORNIA - In Firebaugh-Mendota area of Fresno County, miticides holding populations in check. Increasing in Caruthers-Kingsburg-Salem areas even in some treated fields. In eastern section of county, some increase but predators apparently holding populations below treatment levels. (Ferris, July 22). Infestations general in Kern County, but few fields have damaging populations. (Black, July 22). MISSOURI - Spot infestations in 31 percent of 962 fields checked in bootheel area; 186 acres treated. (Harrendorf, Jones). ARKANSAS - Continue to spread to new fields; about twice as many fields with medium to heavy populations as previous week. (Wkly. Cott. Ins. Rpt.). MISSISSIPPI - Continue to be problem in scattered parts of delta area. Heaviest in north and east central. (Pfrimmer et al.). ALABAMA - Present but no problem. (McQueen). GEORGIA - Light to moderate infestations in south central and southwestern areas. (Johnson). TENNESSEE - Problem in isolated instances where not controlled; rain and predators have greatly reduced infestations. (Locke). SOUTH CAROLINA - Populations partially suppressed in many fields by heavy rains. (Cott. Ltr.). NORTH CAROLINA - Generally decreased during past 2 weeks. (Robertson).

LYGUS BUGS (*Lygus* spp.) - CALIFORNIA - In Fresno County, counts variable in Firebaugh-Mendota area; 3-15 per 50 sweeps, with few nymphs; many fields treated. In Burrell-Five Points area, counts 5-15 per 50 sweeps; most fields treated once, some approaching treatment level again. (Ferris, July 22). Populations generally low in Kern County. (Black, July 22). ARIZONA - Populations continue to increase in most cotton-growing areas with counts in some fields as high as 80 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Mostly light populations found. Some damage in cotton fields adjacent to recently cut alfalfa. (N.M. Coop. Rpt.).

COTTON FLEAHOPPER (*Psallus seriatus*) - ARIZONA - Little increase noted in Pinal, Maricopa and Graham Counties; average counts continue 15 per 100 sweeps. (Ariz. Coop. Sur.). TEXAS - Light in South Plains and adjacent areas, moderate in Pecos and areas of Collingsworth County. (Tex. Coop. Rpt.).

STINK BUGS - ARIZONA - Localized, heavy infestations continue to damage squares and bolls in many fields in Maricopa, Pinal and Yuma Counties. (Ariz. Coop. Sur.).

PLANT BUGS - MISSOURI - Counts 0-86 per 100 terminals in 84 percent of 962 fields scouted in bootheel area. (Harrendorf, Jones). ARKANSAS - Activity about same as previous week but 30 fields at treatment level compared with 10. (Wkly. Cott. Ins. Rpt.). LOUISIANA - Declining, but light infestations persist in some untreated fields. (Tynes et al.). TENNESSEE - Damage evident in many fields, populations do not seem to be increasing but control needed in isolated fields. Heaviest infestations in Hardeman and Fayette Counties. (Locke).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Severely damaging ponderosa pines in a 40-acre stand in Indian Scotty Camp grounds, Klamath Mt. Forest, where 54 trees in groups of 1-12 were killed. Dead trees removed and treated with insecticide. (J. Rush, USFS).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ALABAMA - Considerable isolated infestations of 1-10 pines in Talladega, Clay, Tallapoosa and other counties. (McQueen). FLORIDA - Attacking first year turpentine faced longleaf and slash pines on Osceola National Forest. Serious losses by this beetle in same area two years ago. NORTH CAROLINA - Prevalent in and around log decks and logging areas on Croatan National Forest. Considerable loss to a white pine plantation on Pisgah District of the National Forests of State. Infesting lodgepole pine plantations in vicinity of Mt. Mitchell. TEXAS - Active in areas logged last year on Trinity Ranger District, Davy Crockett National Forest. Attacking trees in a seed-tree area and adjacent stands cut in fall of 1963 on Big Thicket Ranger District of Sam Houston National Forest. (South. For. Pest Rpt., July).

A BARK BEETLE (Pityophthorus sp.) - OREGON - Attacking tip branches of Douglas-fir in Marion County and causing die-back. (Pearson).

ENGRAVER BEETLES (Ips spp.) - GEORGIA - Heavy on young pines in White County. (Chambers).

WHITE-PINE WEEVIL (Pissodes strobi) - VIRGINIA - Infesting white pines locally in Carroll and Amherst Counties. (Kulman, Tabor, Tarpley, Wilkins, July 21, 23).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - CALIFORNIA - Heavy population damaging Douglas-fir in Stowe Reservoir area where about 200 acres treated in campground and recreational area in Modoc County July 29. (USFS; Cal. Coop. Rpt.).

BALSAM TWIG APHID (Mindarus abietinus) - UTAH - Heavily attacked fir trees at Monte Cristo, Rich County, 9,200 feet in elevation. (Knowlton).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - OHIO - Infesting Black Hills spruce in Cincinnati, July 20. (Holdsworth). MARYLAND - Heavy on several ornamental white pines at Laurel, Prince Georges County. (U. Md., Ent. Dept.).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - CONNECTICUT - Feeding heavily on many pines. (Savos). MICHIGAN - Serious defoliation of roadside jack pine in many parts of central district. (Minn. Ins. Rpt.).

BALSAM-FIR SAWFLIES (Neodiprion abietis complex) - CALIFORNIA - Some 3,200 acres of white fir treated late in June for sawfly and some tussock moth infestations in Knox Mountain area, Modoc County. Results of aerial treatment show about 98 percent kill. (USFS; Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MARYLAND - Widespread damage to elms continues. (U. Md., Ent. Dept.). ARKANSAS - Continues to increase in eastern area. Infestations heavy in western area for several years. Larvae of second generation in Arkansas County. (Ark. Ins. Sur.). OKLAHOMA - Continued moderate to heavy throughout most of State. (Okla. Coop. Sur.). KANSAS - Collected from elm in Leavenworth County. New county record. (Peters). Populations moderate to heavy on Chinese elms in Finney County. Heavy leaf skeletonizing. Little chemical treatment applied. (DePew). Heavy skeletonizing of elms in Crawford, Dickinson and Rice Counties. (Peters, Thompson). NEBRASKA - Heavy population causing defoliation in a two block area in McCook, Red Willow County. (Bergman). UTAH - Severely skeletonizing Siberian elms at Green River, Emery County. Occurred in spots in 1963 but quite general this year. (Knowlton). IDAHO - Severe injury to elms in many areas over southwestern part of State. One large elm at Mesa, Adams County, with 95 percent of foliage skeletonized. (Portman, Gittins).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - IOWA - Adults collected July 20 at West Liberty, Muscatine County; this is one month early and indicates possibility of 3 broods this season. Dutch elm disease confirmed in Denison, Crawford County; this makes 3 new counties confirmed infested in 1964 and a total of 51 counties with this problem. (Iowa Ins. Inf., July 27).

FALL WEBWORM (Hyphantria cunea) - DELAWARE - On various tree species along roadsides over State. (MacCreary, Crossan). MARYLAND - Infesting cherry tree at Wheaton, Montgomery County. (U. Md., Ent. Dept.). INDIANA - Extensive infestations on wild black cherry and apple in west central and central sections as well as southern quarter of State. (Bram, Saugstad). MISSOURI - Webs becoming larger and more numerous on walnut, persimmon, hickory and wild cherry in southwest and east central areas. (Houser, Thomas, Wood).

WESTERN OAK LOOPER (Lambdina fiscellaria somnaria) - OREGON - Again attacking oak in Willamette Valley but to a much lesser extent that last year. Defoliating small Douglas-firs growing under and among the oaks in Polk County. (Pearson).

GYPSY MOTH (Portheiria dispar) - NEW YORK - Outbreak at Gloversville worst ever noted in Fulton County. Approximately 2,500 female moths noted laying eggs on single, average size oak. Appropriate measures to be taken in attempt to contain infestations. (N.Y. Wkly. Rpt., July 27). MICHIGAN - About 3,000 traps inspected at regular intervals in tri-county area north of Lansing, but no adults taken. (Turner, Boyer).

COCCIDS - MARYLAND - Chrysomphalus obscurus (obscure scale) heavily infesting oaks on several properties in Montgomery and Prince Georges Counties; Kermes pubescens responsible for killing leaves of white oak in Montgomery County; C. obscurus (obscure scale) heavy on red maple at Wheaton, Montgomery County. (U. Md., Ent. Dept.). INDIANA - Heavy infestations of Aspidiotus perniciosus (San Jose scale) on pyracantha at Lafayette, Tippecanoe County. (Schuder). MICHIGAN - Nymphs and remaining dead scale masses of Pulvinaria innumerabilis (cottony maple scale) on many infested trees in Monroe and Branch Counties. (Janes).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - MINNESOTA - Still defoliating occasional elm and willow. Particularly noted on shade and ornamental trees in Carlton and Aitkin Counties. (Minn. Ins. Rpt.). NORTH DAKOTA - Some larval activity continues on elm in Bismarck area. (Frye, Gage). CALIFORNIA - Heavy populations occurred on elms in Benton, Mono County. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - MARYLAND - Damaging populations common on evergreens and several deciduous trees and shrubs in southern and eastern areas. (U. Md., Ent. Dept.). NORTH CAROLINA - Reported from Wake County several times recently. Severe locally in Columbus. (Jones). IOWA - Infesting arborvitae at Sloan, Woodbury County, and in Scott County. (Iowa Ins. Inf., July 27). OKLAHOMA - Moderate to heavy throughout most of State. (Okla. Coop. Sur.).

BAGWORMS - MISSISSIPPI - Heavy in many parts of State, and defoliating large cedar trees, junipers, arborvitae and other shrubs. (Bennett, Young). MISSOURI - Some trees completely defoliated in southwest. (Houser, Thomas, Wood).

MIMOSA WEBWORM (Homadaula albizziae) - MISSISSIPPI - Defoliating many mimosa trees. (Bennett, Young, July 28). ARKANSAS - Heavy feeding by second generation in northwest. (Ark. Ins. Sur.). INDIANA - Infestation quite conspicuous on honeylocust trees in Evansville, Vanderburgh County, north to Lafayette, Tippecanoe County. (Schuder). MARYLAND - Moderate to heavy on mimosa and honeylocust locally in Anne Arundel and Prince Georges Counties. (U. Md., Ent. Dept.).

SPRUCE BUDWORM (Choristoneura fumiferana) - WASHINGTON - Adults, egg masses and pupae on yew trees and shrubs. Heavy infestation, foliage eaten and webbed together at Puyallup, Pierce County. (Breakey).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - This species and Toxoptera aurantii (black citrus aphid) heavy on camellia in Point Loma, San Diego County. (Cal. Coop. Rpt.).

JAPANESE BEETLE (Popillia japonica) - NEW JERSEY - Adults heavy on ornamentals in many areas of State. (Ins.-Dis. Newsltr.).

WEEVILS - VIRGINIA - Adults of Pseudocneorhinus bifasciatus severe on azaleas and chrysanthemums locally at Richmond. (Willey). NEVADA - Brachyrhinus spp. adults heavy on lilac at Reno, Washoe County, and at Gardnerville, Douglas County. (Cooney, Martinelli).

APHIDS - FLORIDA - Myzocallis kahawaluokalani (crapemyrtle aphid) severe on leaves of crapemyrtle at Wimauma, Hillsborough County, July 20. (Simmons). NEVADA - Periphyllus negundinis (boxelder aphid) heavy on boxelder in Elko, Elko County. (Earnist).

CICADAS (Tibicen spp.) - ARIZONA - Large populations in Maricopa and Pinal Counties causing some concern to many homeowners. Some trees have been damaged by oviposition punctures. (Ariz. Coop. Sur.).

LACE BUGS - FLORIDA - Stephanitis pyrioides (azalea lace bug) moderate to severe on leaves of azalea at Tampa, Hillsborough County, July 24. (Fuller). Corythucha cydoniae (hawthorn lace bug) adults and nymphs very severe on leaves of pyracantha at Macclenny, Baker County, July 20. (Collins).

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Heavy on euonymus plants in Mountain View in Kiowa County. (Okla. Coop. Sur.). MARYLAND - Heavy on euonymus on properties in Montgomery and Caroline Counties. (U. Md., Ent. Dept.).

A SAWFLY (Atomacera decepta) - FLORIDA - Generally severe on leaves of mallow at Pine Hills, Orange County, July 23. (Griffith). Second known record of this species on Hibiscus sp. for State. (Fla. Coop. Sur.).

SPIDER MITES - UTAH - Damaging evergreens in Salt Lake City area. (Knowlton). ARIZONA - Heavy populations of Tetranychus spp. damaging ornamentals in many areas of Apache County. (Ariz. Coop. Sur.). OHIO - Eotetranychus multidigituli more abundant in northeast than usual at this time of year. Thornless honeylocust at Cleveland and Wooster with yellowish-brown foliage on tips of branches. On an occasional branch, leaflets falling because of mite injury. (Neiswander).

AN ERIOPHYID MITE (Cecidophyopsis psilaspis) - OREGON - Infesting tips of branches in a yew hedge in Portland. Tips turned yellow and were distorted. As far as is known this is the first record of this mite in Oregon. Det. by H. H. Keifer. (Larson).

#### INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - PENNSYLVANIA - Heavy on cattle in Chester County; controls ineffective. (Simons). INDIANA - Adult populations averaged less than 2 per face on cattle in southern half of State. Counts per face in some isolated infestations: Washington County 10, Clay County 5 and Greene County 7. (Bram, Saugstad, Dobson). WISCONSIN - Numbers increased noticeably and of concern particularly in Bayfield and Ashland Counties. Some blindness of cattle noted in latter county. Other counties reporting a buildup are Brown, Wood, Columbia, Chippewa, La Crosse, Langlade, Price, Rock, Shawano, Vilas, Trempealeau and Iron. (Wis. Ins. Sur.). MISSOURI - Average per face on cattle: 3.4 Boone County, 10.5 Randolph County. Populations vary considerably from herd to herd. (Houser, Thomas, Wood). NEBRASKA - Infestations troublesome in pastures of northeast. (Bergman). NORTH DAKOTA - Counts averaged 3-12 per animal in southeast and were lower than 1963. However, pink eye infections as high as 40 percent in calves, 20-30 percent in cows and 70-90 percent in bulls. (Noetzel).

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

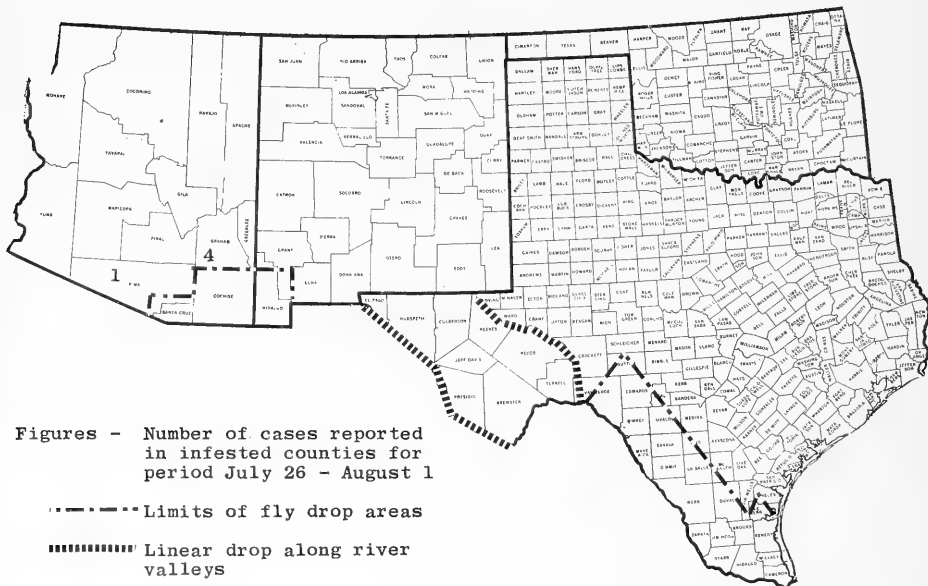
During the period July 26 - August 1, no screw-worm cases were reported in TEXAS or NEW MEXICO; 5 cases were reported in ARIZONA, 1 case in Pima County and 5 cases in Graham County. The Republic of Mexico reported 132 cases from the States of Chihuahua (55), Durango (16), Coahuila (1), Sonora (27), Tamaulipas (22), San Luis Potosi (2), Nuevo Leon (6), Vera Cruz (2) and Zacatecas (1). A total of 113,560,250 sterile flies was released: 27,242,250 in Texas; 2,342,000 in New Mexico; 4,180,000 in Arizona; and 79,796,000 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	2,361	29,700	55	2,125	4,292.7:100	1,397.6:100
1963	46	2,276	74	4,421	62.1:100	51.4:100
1964	0	106	56	4,098	0 :100	2.5:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases to cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period July 26 - August 1

--- Limits of fly drop areas

..... Linear drop along river valleys



MOSQUITOES - FLORIDA - In light trap counts of female mosquitoes at 43 locations on 2 nights in first half of July, Aedes taeniorhynchus had the highest at Sanibel, Lee County, where on July 10 the count was 9,632. The only count over 100 for A. sollicitans was 416 at Allenhurst, Brevard County, July 14. (Fla. St. Board Health). NORTH CAROLINA - A. sollicitans and A. taeniorhynchus increased rapidly along coast. One area of Pamlico County averaged 300 larvae per dip. (Ashton). TEXAS - Mosquito population during June in Jefferson County considerably in excess of previous year. A. sollicitans accounted for about 50 percent of all identifications in Port Arthur area and Psorophora confinis was the predominant species in Beaumont area. Culex salinarius much more numerous this year; a total of 432 taken in traps. Last year less than 40 taken during same period. Adults of Psorophora howardii and P. varipes present. (Jefferson Co. Mosq. Comm.). WISCONSIN - Not too annoying but few areas show increase. (Wis. Ins. Sur.). MINNESOTA - Metropolitan Mosquito Control District collected 189 larval samples week ending July 25. Aedes vexans found in 55 collections and Culex tarsalis in 27. Of 12,236 females captured in light traps, 10,886 were A. vexans and 408 Mansonia perturbans. Peak of trap collections was on July 22 and 23 and counts dropped off drastically. In both evening and daytime biting collections A. vexans was dominant. Only 7 Culex tarsalis were obtained in evening biting collections. (Minn. Ins. Rpt.). NORTH DAKOTA - A. dorsalis averaged 150 per animal on cattle. (Noetzel). UTAH - Mosquitoes annoying in Box Elder County, Fielding-Brigham City area, Lakota-Pickleville area of Rich County and Logan-Benson area of Cache County. (Knowlton).

HORN FLY (Haematobia irritans) - GEORGIA - Ranged 70-600 and, averaged 230 in one herd in Gwinnett County. (Vanderford). Averaged 223 per animal in untreated herd in Spalding County. (Roberts). INDIANA - Adult populations generally averaged 75-150 per head on cattle in southern half of State. Isolated infestations in Scott and Owen Counties in which populations exceeded 300 per head. (Bram, Saugstad, Dobson). WISCONSIN - Populations of some concern in Brown, Chippewa, Price, Calumet and Green Lake Counties. (Wis. Ins. Sur.). LOUISIANA - Light on cattle in East Feliciana, medium on cattle in West Carroll Parishes. (Tynes et al.). OKLAHOMA - Moderate to heavy on cattle in Choctaw, Garvin, Mayes, Cotton and Cleveland Counties. (Okla. Coop. Sur.). NEBRASKA - Numbers increased sharply, averaging 200-300 per animal in northeast. (Bergman). UTAH - Numerous on cattle in Snowville area of Box Elder County. (Knowlton).

TABANIDS - LOUISIANA - Horse flies medium on cattle in West Carroll Parish and light on cattle and horses in East Feliciana Parish. (Tynes et al.). NORTH DAKOTA - Populations of Tabanus lineola now 3-5 per animal on range cattle. (Noetzel). UTAH - Deer flies annoying to campers in areas of Cache County. Tabanids annoying livestock in Honeyville area of Box Elder County. (Knowlton).

HOUSE FLY (Musca domestica) - NORTH DAKOTA - Building up in numbers. An average of 15 per square yard in severe cases. (Noetzel). WISCONSIN - Second most annoying fly and rated as number one problem in 25 percent of cases. (Wis. Ins. Sur.). UTAH - Annoyance increasing in some Rich, Cache and Davis County localities. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Most common of fly species; 60 percent of reports noted this species as most annoying of flies. (Wis. Ins. Sur.). NORTH DAKOTA - An average of 7-33 per animal in southeast. A level of 10 plus per animal noted. This may be contributing to animal bunching. (Noetzel).

SNIPE FLIES (Symphoromyia spp.) - UTAH - Extremely annoying in Franklin Basin, one area of Logan Canyon in Cache County and troublesome at Monte Cristo camp grounds of Rich County. (Knowlton).

BLACK FLIES - NORTH DAKOTA - Biting counts of Simulium spp. ranged 15-25 per minute. Flies largely restricted to stream margins in eastern sections of State. (Noetzel). WISCONSIN - Undetermined species a problem in Calumet and Vilas Counties. (Wis. Ins. Sur.).

BLOW FLIES - UTAH - Numerous and annoying campers in Monte Cristo camp area, Rich County, at 9,200 feet elevation. (Knowlton).

CATTLE GRUBS (*Hypoderma* spp.) - WISCONSIN - Heel fly activity in Vilas, Chippewa and Wood Counties. (Wis. Ins. Sur.).

FLEAS (*Ctenocephalides* spp.) - NEW YORK - Becoming troublesome in Nassau County. (N.Y. Wkly. Rpt., July 27). CONNECTICUT - Annoying to returning vacationers owning pets. (Savos). RHODE ISLAND - House infestations in Wakefield area, Washington County. (Mathewson). VERMONT - Annoying to homeowners returning from vacation. (MacCollom).

A TICK (*Ixodes cookei*) - PENNSYLVANIA - Quite heavy on a woodchuck in Bradford County, July 27. Det. by R. J. Snetsinger. (Gesell).

WASPS - NORTH DAKOTA - Annoying to householders in Fargo area. (Dogger).

#### HOUSEHOLD AND STRUCTURAL INSECTS

STRAWBERRY ROOT WEEVIL (*Brachyrhinus ovatus*) - WASHINGTON - Adults pestiferous in home at Bellevue, King County. (Brannon, Backstrom). WISCONSIN - An outstanding pest to householders. Numerous requests from about 10 counties. (Wis. Ins. Sur.). IOWA - Troublesome to homeowners in Bremer, Fayette and Chickasaw Counties. (Iowa Ins. Inf., July 27). OHIO - Annoying residents of Summit and Wayne Counties by entering homes in large numbers. (Rader, Neiswander, George). VIRGINIA - Adults common in home in Luray, Page County (Tarpley, Gray, July 24) and in Leesburg, Loudoun County (Tarpley, Brown, July 21). PENNSYLVANIA - In homes and camps in numerous areas. (Udine, Ekess, July 25). NEW JERSEY - Entering homes in large numbers. (Ins.-Dis. Newsltr.). RHODE ISLAND - House infestation in Ashton, Providence County. (Mathewson).

ELM LEAF BEETLE (*Galerucella xanthomelaena*) - VIRGINIA - Adults invading homes and creating a nuisance in several areas of State, during July. (Tarpley, McDonald, Weddle, Jones, Lyne).

A BARK BEETLE (*Pseudopityophthorus pubipennis*) - CALIFORNIA - Heavy adult population in residence in Glenn, Glenn County. This situation quite frequently occurs where oak firewood is stored in house. (Cal. Coop. Rpt.).

NEGRO BUG (*Corimelaena pulicaria*) - DELAWARE - Invading farm home in large numbers from surrounding fields in Sussex County. (MacCreary, Crossan).

AMERICAN COCKROACH (*Periplaneta americana*) - SOUTH CAROLINA - Troublesome to homeowners at Clemson. (Nettles et al., July 28).

EUROPEAN EARWIG (*Forficula auricularia*) - RHODE ISLAND - Complaints continue statewide. (Mathewson, Hannah, King, Veilleux). PENNSYLVANIA - Numerous complaints of nuisance in homes in Northumberland County. (Simons). UTAH - More annoying in yards in number of Cache, Weber, Salt Lake and Utah County communities. (Knowlton).

A NOCTUID (*Litoprosopus futilis*) - FLORIDA - Larvae abundant on and in houses and dropping from oak and palm trees. Controls requested at Daytona Beach, Volusia County, July 24: (Hunt).

#### STORED-PRODUCT INSECTS

A DERMESTID (*Trogoderma glabrum*) - IOWA - Adults present in bin of shelled corn in Worth County. (Iowa Ins. Inf., July 27).

### BENEFICIAL INSECTS

LADY BEETLES - NEW YORK - Building up to large numbers, especially on unsprayed maples with large numbers of aphids. (N.Y. Wkly. Rpt., July 27). INDIANA - Predators, primarily Hippodamia convergens and Coleomegilla maculata fuscilabris effectively reducing populations of Rhopalosiphum maidis in all sections. (Bram, Saugstad). WISCONSIN - Many eggs, larvae and adults appearing in corn fields. (Wis. Ins. Sur.). WYOMING - Adults per 100 sweeps averaged 38 in alfalfa, 24 in sugar beets and beans and 24 in corn in Goshen County; larvae averaged 24 in alfalfa, 16 in sugar beets and beans and 12 in corn in same county. (Marks). NEW MEXICO - All stages of Hippodamia sp. found in Taos County alfalfa fields. Averaged 5-12 larvae and adults per 25 sweeps. (N.M. Coop. Rpt.).

PREDATORS - NEVADA - Damsel bugs, lady beetles, Collops spp. and minute pirate bugs heavy in Diamond Valley, Eureka County, alfalfa fields. (Earnist). KANSAS - Variable in alfalfa in southeast and east central areas. Abundant in many fields, including adults and larvae of lady beetles, lacewing larvae and adult flower bugs. In fields where heavy aphid populations present, predator counts low. (Peters). WISCONSIN - Lacewing eggs and larvae common in many corn fields in southern counties. Orius insidiosus (a flower bug) common on tassels and silks. (Wis. Ins. Sur.).

A GORSE WEEVIL (Apion ulicis) - OREGON - Full-grown larvae at release sites along coast in Coos and Lane Counties. Considerable spread evident. (Every).

DAMSEL BUGS (Nabis spp.) - NEW MEXICO - Averaged 3-4 adults per 25 sweeps in Taos County fields. (N.M. Coop. Rpt.). WYOMING - Adults per 100 sweeps in Goshen County averaged 32 in alfalfa, 10 in sugar beets, 16 in beans and 22 in corn. (Marks).

AN ALKALI BEE PARASITE (Zodion obliquefasciatus) - IDAHO - This conopid very numerous on one alkali bee bed in western Canyon County. As many as 588 freshly emerged adults collected from single individual in about 25 minutes. In previous years only one or two flies could be found per hour at same nesting site. (Waters).

### MISCELLANEOUS INSECTS

MUSHROOM MITE (Tyrophagus putrescentiae) - DELAWARE - Very numerous in horse feed in Kent County warehouse. Det. by J. Mellott. (MacCreary, Crossan).

JAPANESE BEETLE (Popillia japonica) - CALIFORNIA - Program trapping reached its maximum level with over 10,500 traps in service. Visual inspections high with an average of approximately 9,000 properties checked weekly. No evidence of beetle found. (Cal. Coop. Rpt.). RHODE ISLAND - Populations remain very low throughout State and only complaint of year to July 31 received from Exeter, Washington County. (Mathewson, Veilleux).

### CORRECTIONS

CEIR 14(30):849 and 850 - HORN FLY (Haematobia irritans) and FACE FLY (Musca autumnalis) - ALABAMA should be changed to read GEORGIA under both headings.







INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on May 31, 1964, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) (or probably that species) 5 times in cargoes of sour limes; at El Paso (1) and Brownsville (4), Texas.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 4 times in baggage; at Roma (2), Progreso (1) and Hidalgo (1), Texas.

CHILEAN GRAPE MITE (Brevipalpus chilensis Baker) on lemon in stores at Miami, Florida.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 11 times (1 time in crew baggage, 5 times in stores and 5 times in baggage); at Houston (1) and Galveston (1), Texas; Philadelphia, Pennsylvania (4); and Honolulu, Hawaii (5).

AN AVOCADO SEED WEEVIL (Conotrachelus aguacatae Barber) in baggage at El Paso, Texas.

A WIREWORM (Ctenicera sp.) with cargo of spirea roots at New York, New York.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) in banana in baggage at Honolulu, Hawaii.

YELLOW PEACH MOTH (Dichocrocis punctiferalis (Guen.)) (pest of a variety of hosts in Asia and Australia) in Pinus sp., once in baggage and once in cargo at Seattle, Washington.

A WEEVIL (Epicaerus sp.) (a potato pest in Mexico) in baggage at Eagle Pass, Texas.

A GELECHIID MOTH (Gnorimoschema sp., near or borsaniella Koehler) (larva is pest of pepper in Argentina) in pepper in crew baggage for a first record from Ecuador, at New York, New York.

A WALKINGSTICK (Phymata sp.) (species not in U.S. National Museum collection) on cut flowers at Brownsville, Texas.

LARGE WHITE BUTTERFLY (Pieris brassicae (L.)) in stores at Mobile, Alabama.

DURRA STALK BORER (Sesamia cretica (Led.)) (pest from Mediterranean area) in cargo of broomcorn at Baltimore, Maryland.

A FRUIT-TREE SPIDER MITE (Tetranychus viennensis Zacher) (pest of apple, peach and other fruit trees in Europe, Japan and Korea) on fruit in mail at Seattle, Washington, and in stores at Honolulu, Hawaii.

A TORTRICID MOTH (Tortrix excessana (Wlk.)) (or near this species) (a needle tying pest of pines) in apple cargo at Honolulu, Hawaii.

KHAPRA BEETLE (Trogoderma granarium Everts) (or possibly this species) 29 times in stores, ships' holds and infesting or contaminating cargoes of yarn, cotton piece goods, gum karaya, guar gum, used bagging, and rice; at Honolulu, Hawaii (1); Seattle, Washington (5); Portland, Oregon (2); San Diego, California (1); New Orleans, Louisiana (1); Miami, Florida (1); Savannah, Georgia (2); Charleston, South Carolina (2); Norfolk, Virginia (1); Baltimore, Maryland (4); Philadelphia, Pennsylvania (1); Detroit, Michigan (1); and New York, New York (3).

OAT NEMATODE (Heterodera avenae) 3 times from soil removed from used tractors at Seattle, Washington.

GOLDEN NEMATODE (Heterodera rostochiensis) 8 times; at San Francisco, California (3), from soil contaminated automobiles; Jacksonville, Florida (2), once with soil contaminated ship's cargo and once in ship's stores; Houston, Texas (1), with soil contaminated automobiles; San Pedro, California (1), with soil contaminated automobiles; and Seattle, Washington (1), with soil contaminated tractors.





UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS

VOL. 14 No. 33

August 14, 1964

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823  
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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

FALL ARMYWORM outbreaks occurring throughout Coastal Plains and lower Piedmont counties of South Carolina, and moderate to heavy populations present on several crops in southern Georgia. ARMYWORM outbreaks diminishing generally, but few high populations still reported. (pp. 930-931).

RED-LEGGED GRASSHOPPER adults noted as far north as Trempealeau County in Wisconsin. Movement of grasshoppers into corn and soybeans increasing in areas of Minnesota, and damage to crops increases in Utah as rangeland areas become drier; controls underway in latter State to protect crops. (pp. 929-930). Accelerated EUROPEAN CORN BORER pupation, emergence and egg laying occurring in Wisconsin; egg laying heavy on sweet corn in Peoria County, Illinois; second-generation moth flights heavy in southeast Missouri. (pp. 931-932). CORN ROOT-WORMS (*Diabrotica* spp.) remain troublesome in Midwest. (pp. 932-933). CORN LEAF APHID increasing on corn and sorghum in several areas. (p. 933). SPOTTED ALFALFA APHID reported increasing in Arizona, Colorado and Wisconsin, and heavy in areas of Oklahoma and Arkansas. (p. 934). GRANULATE CUTWORM damaging peanuts in Houston County, Alabama. (p. 936). Large numbers of BLACK BLISTER BEETLE appearing in alfalfa in Wisconsin and MARGINED BLISTER BEETLE more common in southern counties of State than in past years. (p. 937).

EUROPEAN RED MITE important in orchards in New York and New Jersey. (p. 937). CITRUS RUST MITE apparently increasing and causing heavy damage in Yuma County, Arizona. (p. 939).

CABBAGE LOOPER moth catches indicate possible damaging populations on late tomatoes and crucifers in Berlin area, Maryland. GREEN CLOVERWORM outbreak damaging field beans in Lower Peninsula of Michigan. (p. 941). TOMATO FRUIT-WORM egg counts sufficient to justify dusting in Utah; this is first year since 1949 and 1952 that general dusting of canning tomatoes will be necessary. (p. 943).

GREEN PEACH APHID building up and damaging tobacco in Anne Arundel and Calvert Counties, Maryland. (p. 944).

BOLL WEEVIL and BOLLWORMS generally low in cotton-growing areas. (pp. 945-946).

CANKERWORMS (several species) will probably cause heavy defoliation of hardwoods in Pennsylvania for 1-2 years more before outbreak declines. BAGWORM heavy and damaging in several States. (pp. 950-951).

DETECTION

New State records reported were a STINK BUG (*Banasa sordida*) in Missouri (p. 935); CALICO SCALE (*Lecanium cerasorum*) in Delaware (p. 950); a SPIDER MITE (*Eotetranychus matthyssei*) in Delaware (p. 950); HOLLYHOCK WEEVIL (*Apion longirostre*) in Nebraska (p. 951); and a SAPYGID WASP (*Sapyga louisii*) in Florida (p. 954). New county records included WESTERN CORN ROOTWORM (*Diabrotica virgifera*) from Butler County, Iowa (p. 933); and WHITE-FRINGED BEETLES (*Graphognathus* spp.) from Jackson County, Alabama; Gulf County, Florida; and Pike County, Georgia. (p. 954).

CORRECTIONS

See page 944.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 958).

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

WEATHER OF THE WEEK ENDING AUGUST 10

Hot, dry weather continued over the southern Great Plains for the seventh consecutive week. In contrast, parts of the Northeast enjoyed the coolest weather since early in June. Isolated showers fell in the Deep South. The first tropical storm of the season soaked a small portion of Texas.

**TEMPERATURES:** High temperatures continued over the southern Great Plains. The 3d and 6th were especially hot. Temperatures reached 100° or higher over a wide band from Roswell, New Mexico, to Huntington, West Virginia, on the 3d. On the 6th, the temperatures passed the 100° mark over most of Texas and Oklahoma and parts of Kansas, Arkansas, and Louisiana. The mercury soared to 115° in Kingman County, Kansas, on the 6th. Seven stations in Oklahoma registered 114° on that date. The hottest temperature in the State, 116°, occurred at Waurika. Searcy recorded the highest temperature in Arkansas, 111° on the 3d, the same date on which Perryville registered 109°, the highest temperature for the week in Missouri. Oklahoma experienced the hottest week in 8 years. Warm, humid air lay over the northern Great Plains and the Great Lakes region early in the week. Cool air moved across the area about midweek. Temperatures in Illinois moderated and by the weekend had dropped to below normal except in the extreme south. Gradual cooling ended the heat wave in Ohio after several stations in the west and south had registered 100° temperatures. Cool weather, which began in the Northeast late in July, continued during the week ending August 10. Pennsylvania recorded the coolest week since early June. On a few days the temperatures averaged 12° below normal. Weekly average temperatures in New England averaged 4° to 10° below normal at many stations. Frost occurred at a few spots in New England and afternoon maximum temperatures were mostly in the 60's and 70's. Cooler-than-normal temperatures prevailed along the Atlantic Coast. In Georgia, average temperatures continued below normal for the 6th consecutive week. Temperatures averaged slightly below normal over the Far Northwest and slightly above normal from California to the Rocky Mountains.

**PRECIPITATION:** Rains were of little importance over most areas from the Pacific Ocean to the Great Plains where wide areas received no rain or only light sprinkles. Widely scattered thundershowers produced 0.50 inch to an inch or more in some localities of the Western States but most places received less than 0.50 inch. Thunderstorms produced from 1.50 inches to 2.00 inches in the White Mountains of Arizona, more than 2.00 inches at a few stations in Sedgwick, Miami, and Douglas Counties in Kansas, and from 1.00 inch to 3.00 inches in the Oklahoma Panhandle. Tropical storm Abby dumped 4.00 inches to 6.00 inches in the Palacios-Victoria areas, Texas. Showers were more general over the eastern half of the Nation. Fewer stations received light sprinkles and more stations received an inch or more than in the West. Heavy rains fell over the Middle Atlantic States on Monday, August 3. Some stations in West Virginia, Maryland, Virginia, and North Carolina received over 1.00 inch and Phillipsburg, Pennsylvania, received 2.37 inches on that date. Weekly totals in Kentucky ranged up to 5.00 inches, being heaviest in the southeast. Precipitation exceeded 4.00 inches in some localities in Georgia and the Florida Panhandle received from 2.00 inches to 5.00 inches of rain.

Weather continued on p. 944.

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WISCONSIN - Melanoplus femurrubrum (red-legged grasshopper) adults as far north as Trempealeau County; approximately 50 percent adults in some southern counties. M. differentialis (differential grasshopper) adults appearing in sandy soil areas of Dane, Iowa, Sauk, Green and Rock Counties. M. bivittatus (two-striped grasshopper) females noted ovipositing in Oneida County. Grasshopper populations generally noted as high in parts of Grant, Lafayette and Green Counties, although some decrease apparent in Grant County and increase noted in Green County. Ranged 12-80 per square yard in southwest. Counts per square yard ranged 12-20 in Richland, 2-5 in La Crosse and 6-12 in Trempealeau Counties. Averaged 30 per square yard in many fields near Wisconsin River in Sauk and Iowa Counties; averaged 80 per square yard in area near Mazomanie, in western Dane County, with damage to crops. Treatments underway in parts of Columbia, Ashland and Oconto Counties. Nymphs about half grown in Marathon County. (Wis. Ins. Sur.). MINNESOTA - Movement into corn and soybeans increased. In drought areas, roadsides and alfalfa extremely brown with little feed for grasshoppers. Corn about only host green in area; feeding becoming very evident. Winged adults moving across highways in large numbers in some counties. Feeding on slow growing alfalfa very noticeable in northern Kandiyohi and Meeker Counties and in Stearns and Wright Counties. Hay removal forced grasshoppers into adjacent corn and soybeans in some southern counties. Spraying to prevent movement into corn and soybeans strongly recommended. (Minn. Ins. Rpt.). ILLINOIS - Melanoplus spp. nymphs in soybeans varied 0-80 (average 40) per 100 sweeps in northeast and 0-60 (average 10) in central districts. (Ill. Ins. Rpt.). IOWA - Grasshoppers stripped outer rows in fields of soybeans in Ida County. (Iowa Ins. Inf., Aug. 3).

NORTH DAKOTA - Adults averaged 6 per square yard in field margins on cropland in Oliver, Morton, Sioux, Grant and Adams Counties. Dominant species included M. femurrubrum, M. bivittatus, M. differentialis and M. packardii (Packard grasshopper). Infestations mostly noneconomic to light; some damage to alfalfa and small grain noted. (Brandvik). Averaged 2-4 per square yard in field margins and 2-5 within fields in Burleigh, McLean and Ward Counties. M. sanguinipes (migratory grasshopper), M. bivittatus and M. femurrubrum dominant. (Schöll). Populations noneconomic in Grand Forks, Nelson, Ramsey, Cavalier and Pembina Counties. Field counts averaged less than 1 per square yard, marginal counts approximately 2. Dominant species included M. bivittatus, M. sanguinipes and M. femurrubrum. (Frye, Gage). SOUTH DAKOTA - Light to threatening on rangeland in southwest Custer County; light on 35,560 acres of private land and forest land; no known control in area. Grass drying and grasshoppers moving to greener grass in lower areas; blister beetles and mites also common in area. Infestation light from Phillip (Haakon County) to Cottonwood (Jackson County). Infestation in Haakon County less than in 1963; 3 infestations present this year, whereas, joined into one large area in 1963. Infestation about same as in 1963 in Pennington County, but very spotted; counts ranged 1-7 per square yard. Grasshoppers averaged 5 per square yard in Cheyenne River area of Stanley County. (Burge, Zimmerman). Some extremely high populations noted in eastern part of State; many light to moderate counts noted on cropland. High count of 75 per square yard found in Davison County. Counts ranged 5-32 per square yard in other areas. (Hintz, Kantack, Nearman). KANSAS - Annual adult survey completed in eastern third of State; no economic populations found in margins or fields of alfalfa, corn, soybeans or wheat stubble checked. M. femurrubrum, M. sanguinipes, M. differentialis and M. bivittatus dominant species found. Trace to 75 percent of grasshoppers infested with trombidid mites, infestations being heaviest in southern half of area surveyed. (Peters). OKLAHOMA - Economic counts of 10-15 per square yard noted on approximately 35,000 acres of rangeland in Carter, Garvin, Jefferson, Johnston, Love and Murray Counties. M. bivittatus, M. occidentalis, M. differentialis, M. sanguinipes and M. packardii dominant species. Infestations moderate to heavy on rangeland in Mayes and Cleveland Counties and moderate in alfalfa in Payne and Choctaw Counties. (Okla. Coop. Sur.). MISSOURI - Melanoplus spp. light to moderate in most fields in northwest; populations high

in isolated spots. Controls applied in some fields. (Houser, Thomas, Wood). UTAH - Grasshopper damage to crops increases as adjacent rangeland areas become dryer; controls underway in several counties including Millard, Box Elder, Weber, Carbon, Salt Lake and Utah. M. sanguinipes dominant in farm and adjacent range areas; mating and egg laying common except at higher elevations. Grasshoppers damaging crested wheatgrass at Park Valley, Box Elder County; damaging alfalfa seed fields in Snowville-Cedar Spring area, with M. sanguinipes, M. packardii, and M. bivittatus dominant. Barley in Box Elder County sprayed for control in Hansel Valley. Continue serious in Juab County south of Nephi to Fountain Green in Sanpete County. (Knowlton). Adult populations economic on 100,000 acres of cropland and 145,000 acres of rangeland in eastern Box Elder County; 7,000 acres of crop and 10,000 acres of rangelands in Cache County; 10,000 acres of crop and 37,000 acres of rangelands in Tooele County. Controls underway in many infested areas, mainly for crop protection. Some controls applied on Indian lands, 50 miles south of Ouray, Uintah County. (Burnett, Knowlton). Unspecified species damaging rangeland 2 miles north of Roosevelt, Duchesne County; numerous in several cultivated fields in Ashley Valley, Uintah County; numerous on farms at American Fork, Utah County. (Knowlton). IDAHO - Heavy population of M. sanguinipes found in Blaine County approximately 0.5 mile north of Big Wood River in extensive stand of wild mustard; averaged more than 30 per square yard. Population mostly M. sanguinipes and mainly adults. (Manis).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Light in pastures and soybeans in St. Landry Parish and medium on pastures in East Feliciana Parish. (Tynes et al., Aug. 3). ALABAMA - Heavy infestation noted on Bermuda grass in Barbour County. An 8-acre field of millet and one large industrial lawn defoliated in Marshall County. (Walton, Murphy). GEORGIA - Moderate to heavy on Coastal Bermuda grass, peanuts, millet, grain sorghum and possibly other crops from southern part of State to Calhoun, Gordon County, in northern part of State. (Johnson). Heavy on millet and other crops in Jasper County. (Milner). Heavy and general in lawns in Atlanta area. (Blasingame). NORTH CAROLINA - Heavy on 25 acres of 2-foot high corn adjacent to taller corn previously infested in Franklin County. Only large larvae found on large corn, but larvae on younger corn were much smaller. (Mount, Falter). SOUTH CAROLINA - Outbreaks occurring throughout Coastal Plains and in lower tier of Piedmont counties, particularly Aiken, Beaufort, Fairfield, Lee and Newberry Counties. Infested 1,000 acres of well fertilized Bermuda grass in Hampton County; infested 35 acres in 2 fields of sorghum in Lee County, with 12 acres almost completely lost. Infestations noted in Sumter County; infesting 800 acres of beef cattle pasture in Hampton County and beef cattle pastures in Allendale County; infesting millet and sorghum in Fairfield, Newberry and Edgefield Counties. (Nettles et al., Aug. 4). MARYLAND - Whorl infestations continue in late corn in all sections. (U. Md., Ent. Dept.). NEW YORK - All larval stages found in knee-high corn at Poughkeepsie July 31. (N.Y. Wkly. Rpt.). KANSAS - Feeding on tassels and leaves of sweet corn in Doniphan County. (Eshbaugh). Also reported damaging corn and sorghum in other localities. (Gates, Peters). COLORADO - Larval damage noted in nearly all forage fields in Arkansas Valley. Larvae full grown and moving into soil to pupate. (Schweissing).

ARMYWORM (Pseudaletia unipuncta) - IOWA - Larvae ranged 5-10 per plant over entire field of late corn in Page County July 9; larvae half grown or smaller. Present on oats in Conrad area, Grundy County; treated and controlled. (Iowa Ins. Inf., Aug. 3). WISCONSIN - Numbers high in few fields in Oconto and Shawano Counties; some damage occurred. Some migration from dry grain fields occurred and heads of late grain noted clipped in Oconto, Shawano and Door Counties. Population peak passed; parasitism heavy. Outbreak generally not as severe as in western Walworth and eastern Rock Counties. (Wis. Ins. Sur.). MICHIGAN - Larvae damaging oats and corn in Menominee County; infesting oats in Iron and Marquette Counties. Parasitized larvae collected in Marquette and Shiawassee Counties. (Bowers, Kaven, Nyquist, Wilt). INDIANA - Larvae infesting field of sod near West Lafayette, Tippecanoe County; many larvae infested with polyhedrosis virus. (Schuder). OHIO - Second-generation larvae serious in several Ottawa County fields; 15-20 larvae per plant caused extensive foliage damage. (Ruff).





DELAWARE - Blacklight trap collections in Sussex County indicate adult flight continues. Infestations in corn range 20-35 percent in most areas of State. (Burbutis, Crossan). NEW YORK - Moth emergence continued in Hudson Valley; females noted. Hatching first noted July 30; first-stage larva found in 150 silks examined. Moths readily noted in field and 2 egg masses found in 100 early whorl plants examined July 31. (N.Y. Wkly. Rpt.).

CORN EARWORM (Heliothis zea) - MISSOURI - Heavy second-generation adult flights underway in southeast. (Houser, Thomas, Wood). OKLAHOMA - Larvae heavy (92 per 100 heads) on sorghum in Craig County; only 5 per 100 heads noted in Mayes County. (Okla. Coop. Sur.). ARKANSAS - Larvae averaged 12 per 10 sweeps of 15-inch net in Faulkner County. Present in 11 of 16 soybean fields checked in Lonoke County. (Ark. Ins. Sur.). LOUISIANA - Infestations low on soybeans. (Tynes et al., Aug. 3). MARYLAND - Ear infestations continue to increase. Moth numbers at season high in blacklight traps in Centreville and Berlin. (U. Md., Ent. Dept.). DELAWARE - Adults increased considerably past 2 weeks in Sussex County blacklight trap collections. (Burbutis, Crossan). NEW YORK - Inspection of 150 ear tips nearing harvest at Poughkeepsie yielded 7 larvae in third to fifth stage; moths taken in light trap on July 15. (N.Y. Wkly. Rpt.).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Continues to increase; infestations medium in St. John the Baptist Parish. (Tynes et al., Aug. 3).

STALK BORER (Papaipema nebris) - WISCONSIN - Infesting as high as 30 percent of plants in some fields in Lafayette County. (Wis. Ins. Sur.).

A FIERY SKIPPER (Hylephila phylaeus) - NEVADA - Populations and damage by this species and Crambus sperryellus (a sod webworm) medium on hybrid Bermuda grass lawns in Las Vegas, Clark County. (Zoller).

CORN ROOTWORMS (Diabrotica spp.) - MINNESOTA - Adults of D. longicornis (northern corn rootworm) and D. virgifera (western corn rootworm) emerging in high numbers in south central and northwest districts. Counts of 20+ per plant reported in southwest. Lodged and goosenecked fields reported in all southwest counties; damage severe in many instances. Dry weather prevented corn plants from reproducing new roots. In some fields, lodged plants browning and drying; dry weather undoubtedly intensified rootworm damage. D. virgifera dominant in southwest counties. (Minn. Ins. Rpt.). WISCONSIN - D. longicornis adults ranged 3-6 per stalk in Vernon and La Crosse Counties and 0-5 in Trempealeau County. Counts of 2-5 per stalk noted in many southwest area fields although infestations spotty and no beetles found in many fields. Considerable feeding on kernels noted in several early fields. D. undecimpunctata howardi adults predominated in few instances and averaged 1 per 10 plants in few counties to west. Survey along Mississippi River failed to reveal any D. virgifera. (Wis. Ins. Sur.). NEBRASKA - D. virgifera, D. longicornis and D. undecimpunctata howardi (southern corn rootworm) adults feeding in corn. Some egg deposition underway in all areas. Larvae still common in central and eastern areas. (Bergman).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - OHIO - Populations on corn silks lower than at this time in 1963. All but late corn may escape damage due to cutting off of silks (poor pollination). (Holdsworth). Larvae still in corn fields. (Poliyka). INDIANA - Adults increasing in scattered corn fields throughout central half of State. Maximum numbers observed were 6 per silk, with 100 percent of ears infested in one Fountain County field. Generally, 33 percent of fields examined showed 10 percent or more of plants infested. (Bram, Saugstad). ILLINOIS - Adults feeding on 0-25 percent (average 7.3 percent) of corn silks in central district; adults ranged 0-100 (average 25) per 100 silks. (Ill. Ins. Rpt.). SOUTH DAKOTA - Adults occasionally noted in south-east area fields, but readily found in east central area corn fields. Averaged 2-3 per plant in Kingsbury County. (Hintz, July 31).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - IOWA - Comprised 20-50 percent of adults present in field in Butler County; this is a new county record. Adults light in second-year corn in Hamilton County. Many present in field in Wright County; all feeding on pollen in leaf axils; no evidence of silk damage. Heavy in untreated second and third-year corn at Lake View, Sac County; few in first-year corn. Adults not yet dispersed in latter county. (Iowa Ins. Inf., Aug. 3). SOUTH DAKOTA - Adults apparently dispersing from corn in several areas. Averaged 12 per 100 sweeps in field of alfalfa with lush growth in McCook County; nearest corn half mile distant. Adults ranged from less than 1 to 40 (average 3-7) per plant in Miner and Sanborn Counties. (Hintz).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Heavy numbers caused conspicuous injury to field corn near Easton, Talbot County. (U. Md., Ent. Dept.).

CORN SAP BEETLE (*Carpophilus dimidiatus*) - NEBRASKA - Common and feeding in ears and stalks of corn previously damaged by other insects. (Bergman).

CEREAL LEAF BEETLE (*Oulema melanopa*) - INDIANA - Aestivating "summer" adults noted on volunteer corn in soybeans; presents some hazard in commercial distribution of pest. (Favinger). MICHIGAN - Fumigation of regulated commodities moving from quarantined area continues. (Turner).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEVADA - Light on oats in Diamond Valley, Eureka County. (Earnist). WYOMING - Large numbers present on tassels of corn in Niobrara, Weston, Crook, Campbell and Converse Counties. (Marks). COLORADO - Infesting 90-100 percent of all sorghum fields checked in Prowers, Bent, Otero, Crowley and Pueblo Counties. High infestation thought to inhibit emergence of sorghum heads. (Schweissing). SOUTH DAKOTA - General on corn and sorghum throughout State. (Hintz, July 31). Populations increased to heavy proportions on corn in some southeastern areas. (Hintz). WISCONSIN - Colonies continue to increase; controls necessary in Columbia County fields, where colonies building up in silks and tips of husks in many instances. (Wis. Ins. Sur.). MICHIGAN - Populations reported high on field corn in Huron and Barry Counties; predators also present. (Rapes, Steeby). IOWA - Building up on corn and sorghum. (Iowa Ins. Inf., Aug. 3). ILLINOIS - Light to moderate on 0-8 percent (average 5 percent) of corn plants in central district. (Ill. Ins. Rpt.). INDIANA - Adults and nymphs continue high on corn throughout central half of State. Half of fields examined showed 50 percent or more of plants with heavy populations. (Bram, Saugstad). OHIO - Poses problem in late planted corn in northern area. Populations heavy enough in 6 fields in Wayne County to require treatment; heavy in 3 other fields, but tassel emergence and pollen shed too advanced to make treatment practical. (Shambaugh, Barry). A problem in late planted corn in Ottawa County; infestation 65-79 percent in one field, with tassels not yet visible on most plants. (Ruff). Abundant in several fields in Van Wert and Wood Counties. (Polivka). MISSOURI - Ranged light to heavy in individual fields in west central and northwest areas. (Houser, Thomas, Wood). MARYLAND - Building up and becoming increasing problem in many corn fields on Eastern Shore; treatment considered in many fields. (U. Md., Ent. Dept.). DELAWARE - Common on corn in area of Kent County. (Barbutis, Crossan). NEW YORK - Winged forms abundant in Hudson Valley corn; heavy infestations building up. (N.Y. Wkly. Rpt., Aug. 3).

GRAIN APHIDS - NORTH DAKOTA - *Macrosiphum avenae* (English grain aphid) and *Schizaphis graminum* (greenbug) showed slight increase in numbers in Clyde area, Cavalier County; averaged 2 per sweep. (Frye, Gage).

CHINCH BUG (*Blissus leucopterus*) - INDIANA - High nymphal populations continue to destroy millet seedlings planted after wheat harvest in Newton County. (Gould). OKLAHOMA - Moderate to heavy on sorghum in Mayes and Nowata Counties. (Okla. Coop. Sur.).

CHINCH BUGS (*Blissus leucopterus* ssp.) - LOUISIANA - Damaging St. Augustine grass lawns throughout State. As many as 110 per square foot in East Baton Rouge Parish; light in St. John the Baptist Parish. (Tynes et al., Aug. 3).

CONCHUELA (Chlorochroa ligata) - NEW MEXICO - Heavy in grain sorghum in fields near Columbus, Luna County. Growers treating in area. (N.M. Coop. Rpt.).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Small numbers present in 16 rice fields checked in Lonoke County; adults averaged 4.4 and nymphs 1.4 per 100 sweeps, compared with 8.5 adults and 2.1 nymphs previous week. (Ark. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Heavy and causing noticeable damage to alfalfa in Laplata area, San Juan County. Lighter in alfalfa near Farmington, San Juan County, and at Chama, Rio Arriba County. (N.M. Coop. Rpt.). COLORADO - Varies erratically on alfalfa through Arkansas Valley; ranged 100-200 per 100 sweeps in fields recently cut to 5,000-7,000 per 100 sweeps in mature stands ready to cut. Predators, such as lady beetles, damsel bugs and lacewing larvae, numerous in all areas. (Schweissing). Tapering off in Weld County; high numbers of lady beetle adults and larvae keeping aphids under control.

(Urano). Populations low in third hay crops in Mesa County; 50 per 100 sweep Hippodamia convergens (convergent lady beetle), principal predator, ranged 40-100 per 100 sweeps. (Bulla). UTAH - Damaged young third-crop alfalfa at Minerville, Milford, Beaver and other localities in Beaver County. (Knowlton, Esplin). Seriously damaging much second-crop alfalfa in Uintah County; some injury also occurring to first crop left for seed. (Knowlton).

WYOMING - Averaged 275 per 100 sweeps in alfalfa in Niobrara, Weston, Crook and Campbell Counties and 425 in Converse County. (Marks). Counts per 10 sweeps in alfalfa averaged 26 at Devils Tower and 16 at Four Corners, Crook County; 105 at Ethete and 56 at Lander, Fremont County; 66 at Thermopolis, Hot Springs County; 22 at Buffalo, Johnson County; 26 at Big Horn and 23 at Story, Sheridan County; 55 at Farson, Sweetwater County; and 30 at Ten Sleep, Washakie County. (Fronk). SOUTH DAKOTA - Common in alfalfa but populations low; averaged 16 per 100 sweeps in east central area. (Hintz). INDIANA - Adults and nymphs generally low on alfalfa throughout central half of State; averaged 3 per sweep in western and central sections and 8 per sweep in east. Maximum population, 250 per sweep in Cass County. (Bram, Saugstad). MARYLAND - Populations increasing; up to 100 per sweep on alfalfa in Frederick County. Weather conditions favorable. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Continues to increase in alfalfa in areas of Graham County; moderate to heavy in some fields. (Ariz. Coop. Sur.). COLORADO - Increasing on alfalfa in all areas of Arkansas Valley; averaged 200 per 100 sweeps. Warm, dry weather favorable for further increase. Seedling alfalfa will be particularly susceptible if high populations continue to develop in late August and September. (Schweissing). Trace numbers (1-5 per 100 sweeps) noted in Fruita, Loma and Mack areas of Mesa County. (Bulla). OKLAHOMA - Heavy in alfalfa in Grady County; moderate in Tulsa, Payne, Blaine and Choctaw Counties. (Okla. Coop. Sur.). ARKANSAS - Numbers increased in Faulkner County; ranged 250-300 per 10 sweeps with 15-inch net. (Ark. Ins. Sur.). KANSAS - Ranged 0-100 per sweep in northeast area alfalfa. (Peters). NEBRASKA - Ranged 6-50 (average 13) per 10 sweeps in eastern area. (Bergman). SOUTH DAKOTA - Ranged 20-175 per 100 sweeps in Hanson, McCook and Davison Counties. (Hintz). WISCONSIN - Colonies of 40-50 per 10 sweeps noted in alfalfa in Mazomanie area and 8-10 per 10 sweeps in Spring Green area. Ranged 75-90 per sweep in fields near Brodhead. Definite increase occurred in regrowth alfalfa, although decrease in old, uncut fields evident. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults and nymphs ranged 4-15 per 25 sweeps in alfalfa in southern Dona Ana County. (N.M. Coop. Rpt.). ARIZONA - Light to moderate in alfalfa hay fields in Yuma, Graham and Maricopa Counties. Heavy in alfalfa seed fields in Yuma and Maricopa Counties; averaged 400 per 100 sweeps. (Ariz. Coop. Sur.). UTAH - Numerous in alfalfa throughout Ashley Valley, Uintah County; 70-80 percent nymphs. Some stripping of alfalfa seed conspicuous in Randlett-Ourray area where controls neglected. (Knowlton). WYOMING - Adults and nymphs averaged 188 per 100 sweeps in alfalfa in Niobrara, Weston, Crook, Campbell and Converse Counties. (Marks). Counts per 10 sweeps in alfalfa

averaged 21 at Devils Tower and 9 at Four Corners, Crook County; 10 at Ethete and 45 at Lander, Fremont County; 28 at Thermopolis, Hot Springs County; 10 at Buffalo, Johnson County; 12 at Big Horn and 2 at Story, Sheridan County; 10 at Farson, Sweetwater County; and 38 at Ten Sleep, Washakie County. (Fronk).

PLANT BUGS - WYOMING - Adelphocoris lineolatus (alfalfa plant bug) adults averaged 64 per 100 sweeps in alfalfa in Niobrara, Weston, Crook, Campbell and Converse Counties. (Marks). OKLAHOMA - Lygus lineolaris (tarnished plant bug) moderate to heavy (5-20 per 10 sweeps) on alfalfa in Tulsa, Muskogee and Choctaw Counties. (Okla. Coop. Sur.). FLORIDA - Total of 9 adults and 20 nymphs of L. lineolaris taken in 12-18 inch high alfalfa at Gainesville, Alachua County. (Mead). DELAWARE - L. lineolaris averaged 5 and A. lineolatus 8 per 10 sweeps on alfalfa in New Castle and Kent Counties. (Burbutis, Crossan). ILLINOIS - Few adults of L. lineolaris and A. rapidus (rapid plant bug) observed in soybeans in northeast and central districts. (Ill. Ins. Rpt.).

ALYDID BUGS (Alydus spp.) - MISSOURI - A. pilosus averaged 10 per 100 feet of row in soybean test plots in Boone County. Few A. eurinus also found in these plots. (Daugherty).

GREEN STINK BUG (Acrosternum hilare) - MISSOURI - Averaged 5 per 100 feet of row in soybeans in Boone County. (Daugherty).

A STINK BUG (Banasa sordida) - MISSOURI - Collected on soybeans in Boone County for a new State record. (Daugherty).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - Adults per 10 sweeps in alfalfa averaged 1 in west central and central sections and 6 in east central section. (Bram, Saugstad).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Nymphs causing conspicuous yellowing of several alfalfa fields in Frederick, Howard and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Adult and nymphal counts per 10 sweeps in alfalfa averaged 17 in west central, 24 in central and 35 in east central sections. (Bram, Saugstad). ILLINOIS - Adults varied 140-640 and nymphs 20-320 per 100 sweeps in soybeans in northeast; adults ranged 0-240 and nymphs 0-100 per 100 sweeps in same crop in central district. (Ill. Ins. Rpt.). WISCONSIN - Some decrease noted as dispersion continues. (Wis. Ins. Sur.). SOUTH DAKOTA - Adults and nymphs averaged 40 per 100 sweeps in McCook County alfalfa. (Hintz).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Averaged 1 per sweep on flax at Northwood, Grand Forks County. (Frye, Gage).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - FLORIDA - Total of 28 adults and 35 nymphs collected from 12-18 inch high alfalfa at Gainesville, Alachua County. (Mead).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increased in alfalfa in Yuma, Graham, Maricopa and Pinal Counties; ranged 100-150 per 100 sweeps. (Ariz. Coop. Sur.). LOUISIANA - Nymphs ranged 3-5 per 3 feet of row on soybeans; girdling young beans. (Tynes et al., Aug. 3). FLORIDA - Total of 4 adults taken in 12-18 inch high alfalfa at Gainesville, Alachua County. (Mead).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae increasing in alfalfa in Yuma and Maricopa Counties; averaged 80 per 100 sweeps. Some increase noted in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Mostly very light in alfalfa in northern counties; ranged light to moderate in southern counties. (N.M. Coop. Rpt.). WISCONSIN - Large numbers of adults appearing in alfalfa and waste lands in southwestern and southern counties. (Wis. Ins. Sur.). INDIANA - Generally averaged 1 larva per 10 sweeps on alfalfa throughout central half of State. (Bram, Saugstad). MARYLAND - Light numbers collected on alfalfa near Centreville, Queen Annes County. (U. Md., Ent. Dept.).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Averaged 3 per 10 sweeps on alfalfa in New Castle and Kent Counties. (Burbutis, Crossan). MARYLAND - Light to moderate on alfalfa in Frederick County and on soybeans in Worcester County. (U. Md., Ent. Dept.). ILLINOIS - Larvae in soybeans varied 0-80 (average 40) per 100 sweeps in northeast; in central district, counts varied 0-140 (average 62) per 100 sweeps and 60-220 (average 116) per 100 feet of row. Counts higher locally in some northern areas; few diseased and parasitized larvae observed. (Ill. Ins. Rpt.). ARKANSAS - Small numbers noted in Faulkner County. (Ark. Ins. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Extremely high infestation and pupation observed in soybeans in Monroe County; large numbers of adults emerging. (Martin). ARKANSAS - Small numbers present in forage fields in Faulkner County. (Ark. Ins. Sur.).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Larvae ranged 10-15 per plant on 3 peanut farms checked in Houston County; causing considerable damage. (Roney) FLORIDA - Light on peanuts at Greenwood, Jackson County. (Tipton, July 21).

GARDEN WEBWORM (Loxostege similalis) - ILLINOIS - Probably this species, heavy on fall-seeded alfalfa and late-planted soybeans in western area. (Ill. Ins. Rpt.). ARKANSAS - Averaged 9 per 10 sweeps in alfalfa in Faulkner County. (Ark. Ins. Sur.).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Moderate to heavy on peanuts in Bryan County. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Lightly infested peanuts at Reddick, Marion County, July 22. (Roberson, Adkins).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Larval populations generally increasing on alfalfa in Frederick County; highest count, 15 per sweep. (U. Md., Ent. Dept.). WYOMING - Averaged 12 adults and 97 larvae per 100 sweeps in alfalfa in Niobrara, Weston, Crook, Campbell and Converse Counties. (Marks). Average adult and larval counts, respectively, per 10 sweeps in alfalfa were as follows: 1 and 9 at Devils Tower, Crook County; 3 and 22 at Lander, Fremont County; 1 and 27 at Thermopolis, Hot Springs County; 8 and 24 at Ten Sleep, Washakie County. (Fronk). COLORADO - Second-generation larvae present in alfalfa in northwest Weld County. (Jenkins). NEW MEXICO - Larvae per 25 sweeps ranged 6-10 in alfalfa at Laplata and 4-5 in Farmington area, San Juan County; and 2-3 in Chama area, Rio Arriba County. (N.M. Coop. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Great numbers of adults noted in flight; moving from clover fields turned for green manure in southern Latah County. (Gittins).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Adults becoming common in alfalfa; averaged 24 per 100 sweeps. (Hintz).

ASIATIC OAK WEEVIL (Cyrteplistomus castaneus) - DELAWARE - Feeding on soybeans in an area of Kent County. (Burbutis, Crossan).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ILLINOIS - Adults varied 40-120 (average 85) per 100 sweeps in soybeans in northeast and 0-180 (average 115) per 100 sweeps in central district. (Ill. Ins. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Extremely high infestation observed in 30-acre field of soybeans in Monroe County; adults and larvae causing serious damage. Dead specimens ranged 2-4 per square foot over entire field following application of controls. (Martin et al.).

BLISTER BEETLES (*Epicauta* spp.) - ILLINOIS - Adults of *E. pennsylvanica* (black blister beetle) occasionally noted on soybeans in northeast. (Ill. Ins. Rpt.). WISCONSIN - Large numbers of *E. pennsylvanica* appearing in alfalfa; as high as 6 per sweep in some instances. *E. pestifera* (margined blister beetle) more common in fields in southern counties than in past years. Large number of *Epicauta* sp. caught in Platteville blacklight trap. (Wis. Ins. Sur.). IOWA - *E. pennsylvanica* feeding on corn silks in Ida County; ranged 5-7 per ear on 15 acres; silks cut off but pollination complete. (Iowa Ins. Inf., Aug. 3). SOUTH DAKOTA - *Epicauta* spp. becoming abundant in alfalfa; ranged 12-25 per 100 sweeps. (Hintz). NEBRASKA - *Epicauta* sp. adults infesting several small spots in field of soybeans in Fillmore County; damage to leaves quite extensive. (Bergman). OKLAHOMA - *Epicauta* sp. moderate in alfalfa in Rogers County. (Okla. Coop. Sur.).

JAPANESE BEETLE (*Popillia japonica*) - INDIANA - Adults remained high, with little change from numbers previously reported in Newton County; severely damaging soybeans and corn silks in restricted area. (Gould).

SPIDER MITES - DELAWARE - Probably *Tetranychus atlanticus* (strawberry spider mite) increasing rapidly on soybeans with very heavy numbers present in certain portions of some fields in Kent and Sussex Counties. (Burbatis, Crossan). MARYLAND - Medium on 2 fields of soybeans in Queen Annes County. (U. Md., Ent. Dept.). WYOMING - Large populations of unspecified species reported on Goshen County corn previous week, decreased slightly; light to moderate damage noted on leaves. (Marks). COLORADO - *Tetranychus* spp. increasing in many untreated forage fields in Otero, Crowley and Pueblo Counties; infestations as high as fourth, fifth and sixth leaves in some fields. (Schweissing). NEVADA - Unspecified species increasing on corn in Fallon, Churchill County. (Hudson).

#### FRUIT INSECTS

EUROPEAN RED MITE (*Panonychus ulmi*) - NEW JERSEY - Still major cause for concern on apples; damage became evident in some orchards from middle to end of July. (Ins.-Dis. Newsltr.). NEW YORK - Continues most important pest in many Clinton County orchards; growers using variety of materials for controls with varying degrees of success. Also most important pest in Monroe County, with some of the highest populations noted on peaches. (N.Y. Wkly. Rpt., Aug. 3). VERMONT - Caused severe bronzing of Red Delicious apples; prevalent in many areas. (MacCollom).

A FRUIT-TREE MITE (*Bryobia rubrioculus*) - CALIFORNIA - Heavy on peach trees locally in Fresno, Fresno County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - NEW YORK - Becoming noticeable in few Clinton County orchards, although no alarming numbers yet present. Some appearing in Oswego County. (N.Y. Wkly. Rpt., Aug. 3). KANSAS - Bronzing apple foliage where controls not applied in Doniphan County. (Eshbaugh).

SPIDER MITES (*Tetranychus* spp.) - ALABAMA - Extremely light following controls in orchard previously heavily infested. (Bagby, Carroll).

APPLE MAGGOT (*Rhagoletis pomonella*) - VERMONT - Adults active in unsprayed trees and abandoned blocks but rarely seen in treated orchards. (MacCollom). NEW YORK - Emergence in cages at Geneva dropped very sharply July 27-August 3 to approximately 10 percent of peak rate. Emergence continued heavy in Monroe County; however, peak emergence over in all zones of county. Adults noted in poorly sprayed orchards on Wealthy apples in Oswego County. (N.Y. Wkly. Rpt., Aug. 3). NEW JERSEY - Two boards at Hardingville, Gloucester County, yielded 64 specimens August 3 and 4 boards at Cranbury, Middlesex County, yielded 81 on same dates. (Ins.-Dis. Newsltr.). MARYLAND - Adults active on neglected Golden Delicious apples at Hancock, Washington County. (Md. Ins. Notes). MICHIGAN - Adults continue but in declining numbers from most sticky boards in southeast. Total of 61 flies reported from 6 traps in 3 Oakland and Macomb County orchards. Light

infestations reported in Berrien and Marquette Counties. (Siefert, Rapp, Green, Conrad, Nyquist). WISCONSIN - Ammonia bait traps yielded 2 on July 29, one each on August 1 and 2 and 2 on August 4 at Madison. Counts at other locations doubling each week for past few weeks. (Wis. Ins. Sur.). MINNESOTA - Adults still active; controls urged. Adults reported for first time this year in Duluth, St. Louis County. (Minn. Ins. Rpt.).

CODLING MOTH (*Carpocapsa pomonella*) - CALIFORNIA - Larvae light in unopened almond husks and light in peaches in Yuba City, Sutter County. (Cal. Coop. Rpt.). NEW MEXICO - Heavy flights appeared at light traps in orchards near Bloomfield, San Juan County, July 29-30. (N.M. Coop. Rpt.). COLORADO - Fourth cover spray posted for August 8 at Olathe and August 12 at Montrose, Montrose County, pear and apple orchards. (Bulla). MARYLAND - Fresh entries still seen on untreated apples in Hancock area, Washington County. (Md. Ins. Notes). NEW JERSEY - Fresh entries still evident where first brood not controlled. (Ins.-Dis. Newsltr.). VERMONT - Recent cool weather lessened threat of second brood. (MacCollom).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - WASHINGTON - Much heavier than usual infestation on peaches primarily in lower Yakima Valley. (Anthon). NEW JERSEY - Two traps in Gloucester County yielded 3 each at Glassboro on August 3 and 6 and 2 on latter date at Pitman. (Ins.-Dis. Newsltr.).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - NEW YORK - On July 31, 99 percent of first-generation larvae pupated and 90 percent had emerged as adults in western area. (N.Y. Wkly. Rpt.).

FALL WEBWORM (*Hyphantria cunea*) - ALABAMA - Only very few isolated webs observed in some 10 southeastern counties; much lighter than previous years. (Hartzog, Martin, et al.).

FLATHEADED APPLE TREE BORER (*Chrysobothris femorata*) - ALABAMA - Killed 2-year-old apple tree. (Bagby, Carroll).

APPLE-AND-THORN SKELETONIZER (*Anthophila pariana*) - OREGON - Damaging many unsprayed fruit trees in Lane County. (Tinker).

UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) - MARYLAND - Larvae found in Hancock area, Washington County; an uncommon pest. (Md. Ins. Notes).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - NEW MEXICO - Apple trees in residential areas of Kirtland and Farmington, San Juan County, heavily infested. (N.M. Coop. Rpt.). ALABAMA - Observed on roots of few young apple trees in orchards in Tallapoosa and Chambers Counties. (Bagby, Carroll). VERMONT - Prevalent on old pruning scars in southern counties. (MacCollom).

APPLE APHID (*Aphis pomi*) - WISCONSIN - Very heavy on unsprayed apple foliage in Shawano County. (Wis. Ins. Sur.).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - FLORIDA - Immatures and adults severe on stem and bark of peach at Dover (Simmons, July 21) and severe on persimmon at Plant City, Hillsborough County (Custead, July 24) NORTH CAROLINA - Infested Winesap apples in Cabarrus County; only one tree involved. (Allen, Mount).

LEAFHOPPERS - MINNESOTA - Heavy on young apple trees in south central district. (Minn. Ins. Rpt.).

A SOFT SCALE (*Coccus mangiferae*) - FLORIDA - Immatures and adults moderate on jambolan (*Syzygium cumini*) at Tampa, Hillsborough County. Found almost entirely on undersurface of leaves. (Simmons, July 22).

A FRUIT FLY (*Rhagoletis* sp.) - OHIO - Maggot infestation in cultivated high bush blueberries caused economic damage in North Kingsville, Ashtabula County. (Still).



IMPORTED CURRANTWORM (Nematus ribesii) - UTAH - Damaged currants at Clarkston, Cache County, June 3. Det. by B. D. Burks. (Knowlton, Tueller).

CURRANT APHID (Capitophorus ribis) - UTAH - Light on red currants at Farmington, Davis County. (Knowlton).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Traps indicate light to medium emergence of adults locally in San Diego County; very light emergence noted in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

WALNUT CATERPILLAR (Datana integerrima) - DELAWARE - Present on walnut; causing only light injury locally in New Castle County. (Burbutis, Crossan).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Extremely heavy on pecan trees in city of Abbeville, Henry County. (Hartzog et al.).

A LACE BUG (Corythucha sp.) - NORTH CAROLINA - Abundant on pecan in New Hanover County. (Jones).

PECAN WEEVIL (Curculio caryae) - GEORGIA - First adult of season taken in orchard in Randolph County. (Osborne, July 29).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Light to moderate infestations continue in many citrus groves in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - All stages localized and moderate on leaves of Citrus sp. at San Antonio, Pasco County. (Barber, Williams, July 21). Severe on citrus at Plymouth, Orange County. (Musgrove, July 22).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Light in some citrus groves in Maricopa County. (Ariz. Coop. Sur.).

CORN EARWORM (Heliothis zea) - CALIFORNIA - Larvae medium and damaging new twig growth on citrus trees in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - Population in infested areas near Yuma, Yuma County, appears to be increasing; heavy damage occurred to lower-hanging fruit. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Small number of damaging populations remain in citrus in areas of Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Daily checking of all traps in "zone A" of Dade County revealed no specimens; trapping now on biweekly schedule. (PPC, South. Reg., June Rpt.). MEXICO - Inspections of Steiner traps in States of Chiapas, Campeche, Yucatan, Guerrero, Oaxaca, Tabasco, Veracruz, Tamaulipas, Nuevo Leon, Hidalgo, Puebla, Mexico, Colima, Jalisco, Sinaloa, Sonora and Baja California, the Federal District and Territory of Quintana Roo continue negative. (PPC, Mex. Reg., June Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Total of 45 native flies trapped in McAllen, Hidalgo County, in same location of larval finds in April. Only 6 marked, sterile flies trapped. (PPC, South. Reg., June Rpt.). MEXICO - One male trapped in Nogales, Sonora, June 24. Total of 6 females and 5 native males trapped in Municipio Tijuana, Baja California. Total of 415,426 sterile, male flies liberated in 4 releases in control area at Tijuana; 8,557 marked flies from second to seventh releases captured. (PPC, Mex. Reg., June Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Four light infestations found near citrus juice plant in Montemorelos, Nuevo Leon; survey to delimit infestation underway. Inspection of 106,379 trees on 2,034 properties in States of Nuevo Leon, Tamaulipas, Sonora and Baja California revealed 13 trees lightly infested on 4 properties. This is first infestation in Municipio Montemorelos since before freeze of January 1962. Biological Control Zone - More than one-half million specimens of Prosopaltella opulenta (a eulophid) captured in Municipio Guemez, Tamaulipas. Surveys indicate necessity of liberation of parasites on 47 properties in 7 States and 1 territory and possibility of parasite captures on 11 properties in 4 States; 790,400 specimens of P. opulenta captured in States of Michoacan and Tamaulipas. In States of Veracruz and Tamaulipas and Territory of Quintana Roo, 790,400 P. opulenta specimens liberated. (PPC, Mex. Reg., June Rpt.).

#### TRUCK CROP INSECTS

HORNWORMS (Protoparce spp.) - DELAWARE - Adult collections considerably increased in blacklight traps in Sussex County; some larval feeding injury noted on peppers in Kent County. (Burbutis, Crossan). MARYLAND - Many eggs noted on commercial peppers at Bishopville, Worcester County. (U. Md., Ent. Dept.). NEW MEXICO - Larvae damaging tomato vines and fruit in home gardens in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.). UTAH - P. quinquemaculata (tomato hornworm) commonly damaging tomatoes and occasionally potatoes in home gardens in Uintah County. (Knowlton).

SOUTHERN ARMYWORM (Prodenia eridania) - SOUTH CAROLINA - Eating tomato foliage in Spartanburg County. (Smith).

CUTWORMS - LOUISIANA - Lightly damaging fall-planted tomatoes in East Baton Rouge Parish. (Tynes et al., Aug. 3).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - Entries noted on all peppers examined in garden at Carmichael, Queen Annes County. (U. Md., Ent. Dept.).

FLEA BEETLES - NEVADA - Unspecified species light on potatoes in Diamond Valley, Eureka County. (Earnist). COLORADO - Adult Epitrix tuberis (tuber flea beetle) trace to moderate in Milliken area, Weld County, potatoes. (Urano). MARYLAND - E. hirtipennis (tobacco flea beetle) heavy on potatoes near Wye Mills, Queen Annes County. E. fuscula (eggplant flea beetle) heavy on garden eggplants in same area. (U. Md., Ent. Dept.). VERMONT - Unspecified species common on home garden potatoes and tomatoes. (MacCollom).

BLISTER BEETLES - MARYLAND - Adult Epicauta sp. causing heavy injury to eggplant at Carmichael, Queen Annes County. (U. Md., Ent. Dept.). IOWA - E. fabricii (ash-gray blister beetle) and E. pestifera (margined blister beetle) defoliated potato patch in Ames. (Iowa Ins. Inf., Aug. 3). OKLAHOMA - Un-determined species damaging tomatoes in home gardens in Roger Mills, Kay and Adair Counties. (Okla. Coop. Sur.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Larvae extremely destructive to garden potatoes and eggplant at Carmichael, Queen Annes County. Light on commercial tomatoes in Worcester County. (U. Md., Ent. Dept.). DELAWARE - Adults and larvae rather common on some tomatoes in New Castle County. (Burbutis, Crossan).

VINEGAR FLIES (Drosophila spp.) - NEW JERSEY - Survey of average number of eggs per slit per tomato on August 4 shows 11 at Burlington, Burlington County; 1 at Swedesboro, Gloucester County; 3 at Salem, Salem County; and 3 at Bridgeton, Cumberland County. (Ins.-Dis. Newsltr.).

LYGUS BUGS (Lygus spp.) - NEVADA - About 50 percent nymphs; averaged 2-3 per sweep in potato fields in Diamond Valley, Erueka County. (Earnist).

EGGPLANT LACE BUG (Gargaphia solani) - MARYLAND - Noted on eggplant in Queen Annes County. (Md. Ins. Notes).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adult population variable on potatoes in San Luis Valley. Highest counts 10 per 100 sweeps; leaf counts of 2-5 nymphs per 10 leaves. No plants showing yellows. (Jenkins). Averaged 2 per 100 sweeps on tomatoes in Arkansas Valley. (Schweissing).

POTATO APHID (Macrosiphum euphorbiae) - MARYLAND - Colonies conspicuous on commercial tomatoes in Worcester County. (U. Md., Ent. Dept.).

Aphids on Potatoes in Maine - Experimental plantings at Presque Isle, Aroostook County, showed substantial drop in populations of Myzus persicae (green peach aphid), Aphis nasturtii (buckthorn aphid) and Acyrtosiphon solani (foxglove aphid), but little change in those of Macrosiphum euphorbiae (potato aphid). Overall populations decreased at time they normally increase in size very rapidly; likely will remain small for remainder of season because of increasing importance of natural agents, particularly entomogenous fungi. Populations on potatoes elsewhere in central and southern Aroostook County generally light but spotty. Moderately heavy to heavy in a few fields. While Macrosiphum euphorbiae and Aphis nasturtii generally present, heavily infested fields have Myzus persicae predominant species. Acyrtosiphon solani very scarce. Most generally prevalent, important natural agents of control are lady beetles and entomogenous fungi. (Shands et al.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Heavy on cabbage in home gardens in Fannin County. (Vanderford). MARYLAND - Moth numbers at light trap indicate possible damaging infestations on late tomatoes and crucifers in Berlin area, Worcester County. (U. Md., Ent. Dept.). NEW JERSEY - Present on cole crops in Cranbury area, Middlesex County, and in southern part of State. (Ins.-Dis. Newsltr.). NEW YORK - Small numbers of eggs and larvae noted in most vegetable plantings in Suffolk County; under control in Albany County; few noted in unsprayed cabbage and cauliflower fields in Erie County. (N.Y. Wkly. Rpt., Aug.3). VERMONT - Prevalent and causing much damage to cole crops. (MacCollom).

CABBAGE APHID (Brevicoryne brassicae) - NEW JERSEY - Observed generally throughout State on cabbage, broccoli and other cole crops. (Ins.-Dis. Newsltr.).

CABBAGE MAGGOT (Hylemya brassicae) - RHODE ISLAND - Larvae, probably this species, numerous in turnips in East Greenwich, Kent County. (Mathewson).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Major larval outbreak damaging field beans on Lower Peninsula continues. General infestation reported over entire bean-growing area of the "thumb", Saginaw Valley, and extending westward into Eaton, Ionia and Gratiot Counties. Alfalfa, soybeans and lima beans attacked to lesser degree. Damage expected to continue in unsprayed bean fields because young larvae, eggs and adults present in sizable numbers. Most actual injury caused by large, late instars. Counts of "loopers" dislodged by shaking ranged 40-200+ per 25 feet of row in Saginaw County August 4. Aerial application of insecticides continues on large scale. Adults taken as far north as Manistee County. (Janes, Vasold, Pryor, Johnson, Tobin, Bortel, Stroud, Newman). DELAWARE - Rather common on some lima beans in eastern Sussex County. (Burbutis, Crossan).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARKANSAS - Infested southern peas and young snap beans in Lafayette and Pulaski Counties. (Ark. Ins. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - UTAH - Damage common in home gardens in Salt Lake, Weber and Cache Counties. (Knowlton). COLORADO - Population level low in all bean-growing areas of western part of State. (Bulla). No serious

adult or larval infestations reported in Weld County beans. (Urano). MICHIGAN - Larvae light to moderate on field and garden beans in many central and southern Lower Peninsula Counties. (Steeby, Thompson, Janes, Newman). MARYLAND - Larvae caused heavy injury to unprotected garden lima beans in Queen Annes County. (U. Md., Ent. Dept.). GEORGIA - Moderate to heavy on pole and lima beans in Fannin County. (Vanderford).

BEAN APHID (Aphis fabae) - DELAWARE - Present on untreated lima beans in eastern Sussex County and locally in Kent County. (Burbutis, Crossan).

ONION THRIPS (Thrips tabaci) - COLORADO - Ranged 40-50 per onion plant in Montrose and Olathe areas, Montrose County, in unsprayed fields. Silvering of leaves noticeable where numbers high. (Bulla). Populations generally low in Arkansas Valley onion fields; 10 per plant in fields checked. Buildup after chemical treatment slow. (Schweissing).

CLAY-BACKED CUTWORM (Agrotis gladiaria) - OHIO - Larvae attacking onions at Galloway June 2 determined this species. (Holdsworth).

THRIPS - WASHINGTON - Undetermined species abundant and apparently damaging asparagus foliage near Dayton, Columbia County. (Telford).

BEEF LEAFHOPPER (Circulifer tenellus) - ILLINOIS - Averaged 1 per 100 sweeps on horseradish in East St. Louis area; this is first collection in State this season. (Ill. Ins. Rpt.). COLORADO - Continues to appear in all areas of Arkansas Valley sugar beets. Ranged 0-40 per 100 sweeps. Varying numbers noted on tomatoes in all areas. (Schweissing).

BEEF WEBWORM (Loxostege sticticalis) - CALIFORNIA - Larvae light on sugar beets in Selma, Fresno County. (Cal. Coop. Rpt.). COLORADO - Complex of this species, Prodenia ornithogalli (yellow-striped armyworm) and Spodoptera exigua (beet armyworm) caused severe damage to sugar beets in Loma, Mack and New Liberty areas, Mesa County. Pupating presently; some second-generation moths appearing. Aerial application of insecticides gave poor control. (Bulla).

VARIEGATED CUTWORM (Peridroma saucia) - OHIO - Larvae attacking head lettuce in home garden in Van Wert County reared and determined this species by R. W. Rings. (Rings).

SQUASH VINE BORER (Melittia cucurbitae) - MARYLAND - Infesting garden squash at Stevensville, Queen Annes County. (U. Md., Ent. Dept.). RHODE ISLAND - Emerging adult collected in garden in Peace Dale, Washington County. (Stessel, Mathewson).

CUCUMBER BEETLES - NORTH DAKOTA - Acalymma vittata (striped cucumber beetle) and Diabrotica undecimpunctata howardi (spotted cucumber beetle) adults very abundant; 30-40 per plant on cucumbers in Fargo area, Cass County. A. vittata dominant species. (Frye, Gage). MARYLAND - Adults of A. vittata heavy on garden cucumbers at Wye Mills, Queen Annes County. (U. Md., Ent. Dept.).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - Superficially damaged most watermelons in Sampson County field last week; however, 2 of 40 melons examined penetrated completely through rind. Larvae found in rind; 1-3 larvae of varying size found on or in soil under 50 percent of melons examined. Soil not in cultivation for past 10-12 years. (Mount).

SQUASH BUG (Anasa tristis) - MARYLAND - All stages infesting garden squash in Caroline and Montgomery Counties. (U. Md., Ent. Dept.).

MEADOW SPITTLEBUG (Philaenus spumarius) - IDAHO - Exceedingly heavy concentration caused loss in excess of 50 percent on approximately 10-acre commercial strawberry field in Latah County during July. (Futter, Gittins).

A WEEVIL (Sciopithes obscurus) - OREGON - Continue root damage to strawberries in several northern Willamette Valley plantings. (Every).

FALSE CHINCH BUG (Nysius ericae) - IDAHO - Abundant on maturing carrot umbels in many seed fields of Canyon County. Problem developed in mid-July and continuing, but no evaluation of damage made. (Waters, Gittins).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - LOUISIANA - Inspections revealed newly infested property in Allen, East Baton Rouge and Livingston Parishes. (PPC, South. Reg., June Rpt.). FLORIDA - Larvae and adults light to medium on wild sweetpotato-vine (Ipomoea pandurata) at San Mateo, Putnam County. (Roberson, July 28).

RED-HUMPED CATERPILLAR (Schizura concinna) - RHODE ISLAND - Larvae feeding on raspberry in garden in East Greenwich, Kent County. (Fry, Mathewson). MARYLAND - Larvae damaged blackberry plants at Beltsville, Prince Georges County. (U. Md., Ent. Dept.).

APHIDS - NEW YORK - Continue a problem on potatoes in Suffolk County; appearing on tomatoes and crucifers in Oswego, Onondaga and Cayuga Counties; infesting cabbage in Albany County; building up on crucifers in Monroe County; heavy on unsprayed cabbage and cauliflower and very heavy on tomatoes and peppers in Erie County. Again building up on crops in Niagara County. (N.Y. Wkly. Rpt., Aug 3).

GREEN PEACH APHID (Myzus persicae) - NEW YORK - Main problem on earliest planted fall crucifers in Suffolk County. (N.Y. Wkly. Rpt., Aug. 3). COLORADO - Trace to moderate on late potato plantings in Weld County. Chemical controls fairly effective. Only a few commercial fields (not to be certified) show high counts; 20-55 per leaf. Very high populations in early districts. (Urano).

A LEAFHOPPER (Empoasca filamenta) - UTAH - Light to moderate on sugar beets and potatoes in Box Elder and Weber Counties. (Knowlton).

POTATO LEAFHOPPER (Empoasca fabae) - MICHIGAN - Adults numerous in many southern areas; especially large collection made in Jackson County blacklight trap. (Newman). WISCONSIN - Some decrease noted as dispersion continues; sufficiently abundant in some potato areas of Oneida County to warrant controls. (Wis. Ins. Sur.). MARYLAND - Causing injury to beans, squash, peppers and cucumbers in all sections. (U. Md., Ent. Dept.). NEW JERSEY - Ranged 6-326 and averaged 64 per 25 sweeps on August 6. (Ins.-Dis. Newsltr.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Causing substantial injury to inadequately sprayed escarole and endive in Syracuse area, Onondaga County. Very heavy; 20-25 per 12 sweeps in potatoes in Erie County. (N.Y. Wkly. Rpt., Aug. 3). DELAWARE - Present on peppers in some areas of State and becoming numerous on lima beans in areas of Sussex County. (Burbutis, Crossan).

HARLEQUIN BUG (Murgantia histrionica) - NEBRASKA - Defoliating eggplant and horseradish in Gage County. (Bergman).

TOMATO FRUITWORM (Heliothis zea) - UTAH - Egg counts high enough to justify dusting; this is first year since 1949 and 1952 that general dusting of canning tomatoes will be necessary. Eggs average about 1 per 100 leaves capable of producing 5-6 percent "wormy" fruit. (Dorst, Knowlton).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - IDAHO - Mostly late instars exceedingly abundant and moving into gardens from grain fields in Texas Ridge area of southern Latah County. This is first outbreak in northern area of State in recent years. (Futter, Gittins).

SPIDER MITES - OKLAHOMA - Tetranychus spp. heavy on tomatoes in Canadian County. (Okla. Coop. Sur.). CALIFORNIA - Eotetranychus lewisi nymphs and adults medium on lima beans in Irvine, Orange County. (Cal. Coop. Rpt.).

MITES - NEW JERSEY - Damaging strawberry and raspberry fields not dusted in past 2 weeks. Continue problem on cucurbits, lima beans and tomatoes. (Ins.-Dis. Newsltr.).

#### TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Building up and damaging several tobacco fields in Anne Arundel and Calvert Counties. Treatments for aphid control general in tobacco-growing areas. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - MARYLAND - Infestations continue relatively light on tobacco in Anne Arundel and St. Marys Counties. (U. Md., Ent. Dept.).

HORNWORMS (Protoparce spp.) - MARYLAND - Generally not increased on tobacco in all sections. (U. Md., Ent. Dept.).

#### CORRECTIONS

CEIR 14(31):890 - LIGHT TRAP COLLECTIONS - INDIANA - Collections under Heliothis virescens (tobacco budworm) should be entered under Protoparce sexta (tobacco hornworm).

CEIR 14(32):896 - WEATHER OF THE WEEK ENDING JULY 27 should read AUGUST 3.

CEIR 14(32):911 - COWPEA APHID (Aphis medicaginis) - FLORIDA - Should read "Severe on field peas at Orland, Orange County, July 21. (Mosteller).

CEIR 14(32):918 - STATUS OF THE SCREW-WORM IN THE SOUTHWEST - Lines 2 and 3 should read: "... , 1 case in Pima County and 4 cases in Graham County..."

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Weather continued from p. 928.

Tropical Storm Abby, the first of the season, developed rapidly on Friday morning, August 7, a short distance off the middle Texas coast. The center of the very small storm moved inland near Matagorda about 4 p.m., c.s.t., and dissipated during the night. The highest winds were estimated at 60 m.p.h. in squalls along the coast. Locally heavy rains, more than 6.00 inches in some areas, fell from the coast west-northwestward to near San Antonio. Reports indicate little crop or property damage. (Summary supplied by U.S. Weather Bureau).

COTTON INSECTS

**BOLL WEEVIL** (*Anthonomus grandis*) - TEXAS - Infestation remains very light in Falls and McLennan Counties. (Cowan et al.). OKLAHOMA - Counts ranged from 0-7 percent in most areas with exceptions being 100 percent in Choctaw County, 28 percent in Tillman County and recorded as heavy in Bryan County. (Okla. Coop. Sur.). ARKANSAS - Activity on increase; 196 fields at treatment level compared with 103 previous week. Same time last year, 570 fields at treatment level. (Wkly. Cott. Ins. Rpt.). TENNESSEE - Remains only a minor problem except for "hot spots." Conditions ideal for increase but damage expected to remain light throughout remainder of season. (Locke). LOUISIANA - Increasing rapidly in areas receiving rain. Some increase in dry areas. (Tynes et al.). MISSISSIPPI - Infestations increasing in delta fields where weevils present, but many fields still free. (Pfrimmer et al.). ALABAMA - Extremely high and overlapping "hatch outs" of weevils throughout central and southern areas. Some heavy, isolated areas show as many as 5 young weevils per bloom. Infestations generally light in northern counties. (McQueen). GEORGIA - Counts in 21 fields in northwest, north and northeast areas ranged 4-28 percent punctured squares with average of 17. (Johnson). FLORIDA - Lightly infesting cotton at Reddick, Marion County. (Roberson, Adkins). SOUTH CAROLINA - Migration of second-generation weevils in areas where controls not practiced, no mass movement. Some untreated fields have counts of 70-90 percent punctured squares. (Cott. Lett.). NORTH CAROLINA - Infestations increasing rapidly; migrations increasing rapidly. Counts in various counties range from 0-75 percent depending upon treatments. (Cott. News Lett., July 31).

**BOLLWORMS** (*Heliothis* spp.) - CALIFORNIA - Populations increasing in many areas of Fresno County. Counts ranged 4-12 larvae per 100 plants in Firebaugh-Mendota area; some counts higher. Treatments applied to 1,000 acres in Burrel-Helm-Five Points area; some combination application for bollworms and lygus bugs. (Ferris, July 29). Moths active at light traps in Shafter area, Kerns County. Low larval infestations evident in fields. (Leigh, July 30). ARIZONA - Heavy infestations in Pima, Pinal and Maricopa Counties; controls required. Medium infestations in Graham County and light in Yuma. (Ariz. Coop. Sur.). TEXAS - Decrease in Falls and McLennan Counties with only an occasional field requiring treatment. (Cowan et al.). OKLAHOMA - Counts light to moderate (up to 20 percent) in southern counties. Infestations of 24-32 percent found in Sequoyah and Muskogee Counties. (Okla. Coop. Sur.). ARKANSAS - Moth flights underway and egg counts increased in southeastern area. Egg counts remain about same in other sections. (Wkly. Cott. Ins. Rpt.). TENNESSEE - Some increase over previous week but generally below treatment level. Counts 1 to 3 larvae per 100 terminals in infested fields. Egg laying heaviest in rank cotton. (Locke). MISSOURI - Egg counts ranged from 1-29 and larval counts 1-26 per 100 terminals in 61 percent of 950 fields in southeastern area. Control applied to 1,612 acres in 58 fields. (Harrendorf, Jones). LOUISIANA - Infestations increased sharply over State. Close observation of fields recommended. (Tynes et al.). MISSISSIPPI - Field infestations in delta still low; light trap moth catch showed sharp increase. Close check for remainder of season recommended. (Pfrimmer et al.). ALABAMA - Counts continue generally light. One infestation of 1-3 larvae per stalk noted in tall cotton in Barbour County. Large numbers of moths observed in southern counties. (McQueen). GEORGIA - Egg counts in 21 fields of northwest, north and northeast sections ranged 3-17 average 7; larval counts 3-9 (average 5) per 100 terminals. (Johnson). SOUTH CAROLINA - Numbers of eggs and small larvae increasing; growers warned of possible trouble. (Cott. Lett.). NORTH CAROLINA - Moth activity noted in Union County (Marsh, July 31) and small larvae in Scotland and Robeson Counties. (Burnside, July 31).

**FALL ARMYWORM** (*Laphygma frugiperda*) - ALABAMA - Continues concern to some growers. Controls applied to one heavy, localized infestation in Montgomery County.

**BEE T ARMYWORM** (*Spodoptera exigua*) - CALIFORNIA - Low populations evident in fields throughout San Joaquin County. (Leigh, July 30). ARIZONA - Moderate to heavy infestations damaging in areas of Pinal County. (Ariz. Coop. Sur.).

COTTON LEAFWORM (Alabama argillacea) - FLORIDA - Light infestation at Reddick, Marion County (Roberson, Adkins).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Moths taken in light trap at Shafter, Kern County, but no infestations found in fields. (Leigh, July 30).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Light infestations near Shafter Experiment Station, Kern County, but treatment not warranted. (Leigh, July 30).

APHIDS - CALIFORNIA - Evident in some fields in Shafter area, Kern County, but infestations spotty. (Leigh, July 30). Some spot treatments required in Clovis area, Fresno County. (Ferris, July 29). ARIZONA - General infestations throughout Safford Valley, Graham County. Heavily infesting long staple cotton in spotted areas. (Ariz. Coop. Sur.). OKLAHOMA - Building up in some fields of Muskogee, Sequoyah and Bryan Counties. (Okla. Coop. Sur.). TENNESSEE - Increasing in all areas, with heaviest infestations in rank cotton. (Locke). GEORGIA - Light infestations in northern areas. (Johnson). SOUTH CAROLINA - Few widely separated counties reported trouble. (Cott. Lett.). NORTH CAROLINA - Infestations light but caution expressed as to possible increase. (Cott. News Lett., July 31).

LYGUS BUGS - CALIFORNIA - In Firebaugh-Mendota area of Fresno County, counts 10-30 per 50 sweeps with movement from safflower and alfalfa accounting for some infestation; Burrel-Helm-Five Points area, 10-20 per 50 sweeps; Kerman-Rolinda area counts 3-20; Clovis area, counts 30-40. In Kingsburg-Selma area, growers treating on 10-20 counts per 50 sweeps. (Ferris, July 29). Populations increasing in Kern County with counts of 2-15 per 50 sweeps. (Leigh). ARIZONA - Continue to increase in Graham, Yuma, Maricopa and Pinal Counties. Control necessary in most areas. (Ariz. Coop. Sur.).

PLANT BUGS - ARKANSAS - Activity down. (Wkly. Cott. Ins. Rpt.). TENNESSEE - Continue to cause some square injury in isolated fields in southern counties. (Locke). MISSOURI - Counts ranged 1-31 per 100 plants in 83 percent of 950 fields scouted. (Harrendorf, Jones). LOUISIANA - Light populations persisting in untreated fields in central and northwestern areas. (Tynes et al.). MISSISSIPPI - Numbers in delta area low in most cases but occasional field needs treating. (Pfrimmer et al.).

STINK BUGS - NEW MEXICO - Probably Chlorochroa ligata (conchuela), heavy in cotton near Columbus, Luna County. Treatments underway in area. (N.M. Coop. Rpt.). ARIZONA - Scattered fields in Yuma, Maricopa and Pinal counties continue to have heavy populations. (Ariz. Coop. Sur.).

LEAFHOPPERS - CALIFORNIA - Numerous in many Fresno County fields near the San Joaquin River and on east side of County. (Ferris, July 29).

SPIDER MITES - CALIFORNIA - Numerous fields in Burrel-Helm-Five Points area of Fresno County have infestations along margins. In Clovis area, many fields treated with only temporary reduction of infestation in several instances. (Ferris, July 29). Becoming abundant in many fields of Shafter area, Kern County, with control measures needed in some instances. (Leigh, July 30). ARKANSAS - Activity showed increase over previous week; 26 percent of inspected fields infested compared with 21 percent previous week. (Wkly. Cott. Ins. Rpt.). TENNESSEE - Increasing where controls not applied. General infestations in some fields and damage resulting. One field Fayette County heavily infested. (Locke). MISSOURI - Infestations found in 27 percent of 950 fields scouted in south-eastern area, controls applied to 866 acres in 45 fields. (Harrendorf, Jones). MISSISSIPPI - Number one problem in some delta areas. Present in heavy enough numbers in spotted situations to cause damage. (Pfrimmer et al.). ALABAMA - Not a major problem but infestations increasing. (McQueen). GEORGIA - Light infestations in northern area. (Johnson). SOUTH CAROLINA - Problem reduced but under optimum conditions rapid buildup is possible. (Cott. Lett.).



FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SPRUCE BUDWORM (Choristoneura fumiferana) - IDAHO - Extremely heavy adult flight at lights observed in Salmon, Lemhi County, August 4. Inquiries revealed this first observance of adults in area. Adults particularly attracted by mercury vapor street lights, with blue and white fluorescent lights next in attractiveness; other types of lighting noticeably less attractive. Observations made following night, August 5; no moths observed in flight, apparently because of strong winds and cooler temperatures. (Manis). MAINE - Control applied to 50,000 acres in Aroostook County from May 29 to June 14. (Northeast For. Pest Rptr., July).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Little evidence of current damage in previously infested plantations near Two Rivers, Manitowoc County, July 28. (Wis. Ins. Sur.). PENNSYLVANIA - Considerable increase in infestations this year. Many complaints of damage from northeastern and southeastern counties. (Pa. For. Pest Rpt., July 1).

A PINE TIP MOTH (Rhyacionia sp.) - NEBRASKA - Very heavy on Austrian, ponderosa and Scotch pines. Some nurseries in eastern area about 75 percent infested. (Walstrom, White).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - IDAHO - Continues to cause considerable concern in Moscow and other areas of Latah County; one unconfirmed report indicates severe defoliation in timber stands in Troy area. (Gittins).

A DOUGLAS-FIR DEFOLIATOR (Xylomyges simplex) - OREGON - Caused light defoliation of mature and immature trees in Coast Range near Harlan in Siletz River drainage, Lincoln County. This is first recorded outbreak of this pest in State. (Lund, Aug. 4).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Activity on Talladega National Forest continues at low level. GEORGIA - Population level reduced on Chattahoochee National Forest. LOUISIANA - On increase. Epidemic confined to West Bay area of Allen Parish. MISSISSIPPI - Increasing on Homochitto National Forest and adjacent private lands. NORTH CAROLINA - Outbreak in upper Piedmont gradually decreased in severity. Small infestations still found in Davidson, Randolph and Yadkin Counties. SOUTH CAROLINA - Steady decline noted in Piedmont and mountain districts of National forests of State. Populations considered at endemic level. TEXAS - Increased. New infestations located over entire 4,500,000 acres previously infested. Infested area covers National Forest, State and private lands. Control applied. (South. For. Pest Rptr., July).

PINE ROOT COLLAR WEEVIL (Hylobius radialis) - MINNESOTA - Adults common in soil at base of infested Scotch pine in plantation east of Sand Lake, St. Louis County. (Minn. Ins. Rpt.).

ENGRAVER BEETLES (Ips spp.) - PENNSYLVANIA - Attacking many red pines throughout Bradford County; drought of 1962-1963 primarily responsible. (Pa. For. Pest Rpt., July 1).

PALES WEEVIL (Hylobius pales) - NEW YORK - This species and Pissodes approximatus continue important on Scotch pine Christmas tree plantations throughout State. (N.Y. Wkly. Rpt., Aug. 3). PENNSYLVANIA - Damaged 3 acres of pine reproduction in Huntingdon County. (Pa. For. Pest Rpt., July 1). NORTH CAROLINA - Continued to damage pine plantations on Croatan National Forest where sites prepared by a rolling chopper. As many as 18 percent of seedlings in individual plantations had adult feeding injury by early June even though all seedlings planted in 1964 were treated prior to planting. (South. For. Pest Rptr., July).

APHIDS - PENNSYLVANIA - Periphyllus lyropictus (Norway maple aphid) extremely heavy on ornamentals. (Pa. For. Pest Rpt., July 1). MARYLAND - Macrosiphum liriodendri (tuliptree aphid) heavy on tuliptrees locally in Laurel. (U. Md., Ent. Dept.). WYOMING - High adult and nymphal numbers of Monellia caryae infesting black walnut at Torrington, Goshen County. (Marks). UTAH - Undetermined species severe on black locust, maples, elms and weeping willows in Provo-Alpine area of Utah County. (Knowlton). WASHINGTON - Cinara palmerae abundant and attacking ornamental spruce at Yakima, Yakima County. Apteræ migrating. Det. by L. M. Russell. (Landis).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - OREGON - Heavy populations in several Douglas-fir plantations on eastern slopes of Cascade Mountains resulted in extensive local damage. (Lund, Aug. 4). NEW YORK - General on blue spruce and more prevalent than in last 2-3 years. Galls have opened in an Erie County nursery. (N.Y. Wkly. Rpt., Aug. 3).

BALSAM WOOLLY APHID (Chermes piceae) - OREGON - Caused light to moderate tree kill in lowland white and Pacific silver fir stands near Coquille and Myrtle Point, Coos County. This marks southernmost point species has been recorded in Coastal Range. Old outbreaks in subalpine fir in upper Rogue River Valley increased in size and intensity. (Lund, Aug. 4). NORTH CAROLINA - Small infestations on ornamental Fraser fir occurring in Watauga, Mitchell and Avery Counties. (South. For. Pest Rptr., July).

PINE LEAF CHERMID (Pineus pinifoliae) - Damage continues throughout the Northeast, particularly in parts of VERMONT and NEW HAMPSHIRE. (Northeast. For. Pest Rptr., July).

PINE BARK APHID (Pineus strobi) - NORTH CAROLINA - Abundant on eastern white pine in Ashe, Avery and Watauga Counties. (South. For. Pest Rptr., July).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEBRASKA - Infestations in nurseries and shelterbelts very heavy and highest reported in recent years. (Walstrom, White). NEW YORK - Second-generation crawlers active on new growth of Scotch pine near Martville, Cayuga County. Large population of Chilocorus stigma (twice-stabbed lady beetle) important in biological control of scale in area. (N.Y. Wkly. Rpt., Aug. 3).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MINNESOTA - Infesting 90-100 percent of jack pine in an area treated in Mission Township last year. (Minn. Ins. Rpt.). PENNSYLVANIA - Heavy in a Scotch pine planting in Westmoreland County. (Pa. For. Pest Rpt., July 1).

BALSAM GALL MIDGE (Cecidomyia balsamicola) - WISCONSIN - Infestations generally heavy in balsam fir stands in northeastern counties. (Wis. Ins. Sur.).

LARCH SAWFLY (Pristiphora erichsonii) - PENNSYLVANIA - Light to heavy in a wide area, including 25 acres in Jefferson County, 100 acres in Potter County; reported from Lycoming, Perry, Sullivan and Cameron Counties. (Pa. For. Pest Rpt., July 1).

PINE SAWFLIES - MICHIGAN - Larvae causing feeding injury to approximately 6-foot red pines in plantation in Menominee County. (Bowers). WISCONSIN - Few colonies of Neodiprion lecontei (red-headed pine sawfly) in Marinette County consisted of second and third instars. (Wis. Ins. Sur.). MINNESOTA - Some larvae of Diprion similis (introduced pine sawfly) still feeding in Virginia area, St. Louis County; N. lecontei feeding in central district. (Minn. Ins. Rpt.). N. taedae linearis heavier in ARKANSAS than at any time since 1946-1947 outbreak; defoliated an estimated 2,500 acres in Georgetown and Urania areas of LOUISIANA; and defoliated about 10 acres of loblolly pine on Noxubee Wildlife Refuge in Winston County, MISSISSIPPI. (South. For. Pest Rptr., July).

ELM LEAF BEETLE (*Galerucella xanthomelaena*) - ARIZONA - Damaging Chinese elms in Stafford area, Graham County. (Ariz. Coop. Sur.). UTAH - Damaging in parts of San Juan County. (Argyle, Davis, Knowlton). OKLAHOMA - Moderate to heavy on elms over most of State. (Okla. Coop. Sur.) ALABAMA - Elms almost completely defoliated in southeastern part of Jefferson County. (Robinson). GEORGIA - Moderate to heavy on elm in Atlanta area. (Johnson). SOUTH CAROLINA - Severe defoliation on elms locally in Pendelton. (Nettles et al.) ILLINOIS - Larvae causing browning of Chinese elms in central area. Larvae rapidly becoming full grown. Many pupae and adults noted. (Ill. Ins. Rpt.). NEW YORK - Damage extensive in Onondaga-Cayuga-Oswego County area. Generally increased considerably in Ithaca area in unsprayed sections where numbers had been light. (N.Y. Wkly. Rpt., Aug. 3).

A LEAF BEETLE (*Galerucella* sp.) - NEW MEXICO - Severely damaged foliage of Chinese elms at Espanola, Rio Arriba County; Santa Cruz, Santa Fe County; and Aztec, San Juan County. (N.M. Coop. Rpt.).

COTTONWOOD BORER (*Plectodera scalator*) - ALABAMA - Numerous adults feeding on willows and cottonwoods along Alabama River at Claiborne, Monroe County. (McQueen).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - OKLAHOMA - Reported from Osage County. (Okla. Coop. Sur.)

A LEAF MINING WEEVIL (*Odontopus calceatus*) - KENTUCKY - Again reached outbreak proportions this season in yellow-poplar over much of eastern area. Last outbreak occurred in spring of 1962. (Northeast. For. Pest Rpt., July).

WALKINGSTICK (*Diapheromera femorata*) - WISCONSIN - Moderate defoliation in scattered patches in Marinette County. First eggs of season in the field on August 3. (Wis. Ins. Sur.).

FALL WEBWORM (*Hyphantria cunea*) - MICHIGAN - Larval webs and colonies appearing on ornamental willow and birch in Berrien County. (Belter). WISCONSIN - Webs more noticeable on various plants in southwest. (Wis. Ins. Sur.). MINNESOTA - Nests now obvious in scattered elm, willow, apple and other shade and ornamental trees in northeast. (Minn. Ins. Rpt.). NORTH DAKOTA - Heavy infestation locally on lilac in Buffalo. (Frye, Gage).

SADDLED PROMINENT (*Heterocampa guttivitta*) - WISCONSIN - Larvae numerous in localized area but defoliation of hard maple, basswood and other trees only light to moderate. Calosoma scrutator and other predatory species were destroying the larvae. (Wis. Ins. Sur.).

NOTODONTID MOTHS (*Datana* spp.) - ILLINOIS - *D. ministra* (yellow-necked caterpillar) caused noticeable defoliation of many oaks in central area; larvae becoming full grown. *D. integerrima* (walnut caterpillar) defoliating black walnut in some central areas. (Ill. Ins. Rpt.).

AMERICAN DAGGER MOTH (*Acronicta americana*) - NEVADA - Larvae vary light to heavy on boxelder in Reno-Sparks area, Washoe County. (Bechtel).

GYPSY MOTH (*Porthetria dispar*) - MICHIGAN - No adults taken in State since treatment applied in 1962. (Turner). RHODE ISLAND - Single adult male caught in blacklight trap in Kingston, Washington County, July 31. (Mathewson).

AN OLETHREUTID MOTH (*Eucosma gloriola*) - PENNSYLVANIA - Heavy infestations continue in Berks County; damage lighter in several other districts. Larvae nearly full grown on June 17. (Pa. For. Pest Rpt., July 1). NEW YORK - Of prime importance on white and Scotch pines throughout most of State. Also collected from red, jack and Austrian pines and Douglas-fir. (N.Y. Wkly. Rpt., Aug. 3).

AN OAK LEAF ROLLER (Croesia semipurpurana) - PENNSYLVANIA - Seriously infested area now in excess of 500,000 acres, largely on State forest lands. Trees in red oak group prime target; 70-100 percent defoliation common in Lycoming, Union, Clinton, Cameron and Pike Counties. Areas of heaviest concentration in these counties coincide rather well with those areas where there has been oak mortality since the early 1950's. (Pa. For. Pest Rpt., July 1). NEW JERSEY - On oaks over most of State but populations highest in northern half. Nearly complete defoliation in Kittatinny Mountains (Sussex and Warren Counties), Sourland Mountains (Hunterdon County) and Watchung Mountains (Somerset County). (North-east. For. Pest Rptr., July).

FALL CANKERWORM (Alsophila pomataria) - NEW JERSEY - Found on oaks over most of State but heaviest in southern area where it caused heavy to complete defoliation in Monmouth and Ocean Counties. (Northeast. For. Pest Rptr., July). PENNSYLVANIA - In Potter and McKean Counties, about 400,000 acres (including 100,000 acres of State forest land) heavily defoliated. Most of valuable northern hardwood in areas affected. Damage particularly severe (100 percent defoliated) around Denton Hill, Lyman Run, Germania, and Cherry Springs in Potter County, below Smethport and in northeastern McKean County. Later reports indicate heavy stripping on Allegheny National Forest in Elk County; in parts of Crawford and Pike Counties. Associated insects were Operophtera bruceata (Bruce spanworm), Paleacrita vernata (spring cankerworm), Erranis tiliaria (linden looper) and Ectropis crepuscularia. Indications are that there will be one to two more years of heavy defoliation by cankerworms before the epidemic tapers off. (Pa. For. Pest Rpt., July 1).

ELM SPANWORM (Ennomos subsignarius) - NORTH CAROLINA - Preliminary observations indicate infestation in western area declined to endemic level; heavy egg parasitism by Telenomus alsophilae (a scelionid wasp) and high percentage of infertile eggs may be chief reasons. (South. For. Pest Rptr., July).

CALICO SCALE (Lecanium cerasorum) - DELAWARE - Infesting sweetgum and maple in northern New Castle County. Collected by Burbutis and Kelsey in Wilmington in June. Det. by R. F. Wilkey. This is a new State record. (Burbutis, Crossan).

COCCIDS - MINNESOTA - Pulvinaria innumerabilis (cottony maple scale) extremely heavy on silver maple at Howard Lake. (Minn. Ins. Rpt.). PENNSYLVANIA - Asterolecanium minus causing branch mortality and dieback to chestnut and white oaks in parts of Union County. (Pa. For. Pest Rpt., July 1). FLORIDA - Pulvinaria psidii severe on Aralia sp. at Tampa, Hillsborough County, July 24. (Fuller). Pseudococcus adonidum (long-tailed mealybug) severe on stem and leaves of pothos at Apopka, Orange County, July 24. (Musgrove).

LACE BUGS (Corythucha spp.) - DELAWARE - C. ciliata (sycamore lace bug) very heavy on many sycamores in northern New Castle County. (Burbutis, Crossan). NORTH DAKOTA - C. arcuata (oak lace bug) feeding heavily on oak foliage in northeastern areas. (Frye, Gage).

BIRCH LEAF MINER (Fenusa pusilla) - NEW YORK - Caused extensive leaf damage in Tompkins, Schuyler, Wayne, Cayuga and Franklin Counties. (N.Y. Wkly. Rpt.).

A SPIDER MITE (Eotetranychus matthyssei) - DELAWARE - Infesting slippery elm in northern New Castle County. Collected and determined by J. Mellott on August 6, 1964, at Newark. This is a new state record. (Burbutis, Crossan).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - NEW YORK - Extensive leaf damage observed in Tompkins, Schuyler, Wayne, Cayuga and Franklin Counties. (N.Y. Wkly. Rpt., Aug. 3).

BAGWORM (Thyridopteryx ephemeraeformis) - MICHIGAN - Larvae in moderate numbers on ornamental host plants in Branch County. (Thompson). INDIANA - Severe injury to arborvitae in scattered sections of Marion County. (Favinger).

ILLINOIS - Feeding heavily on some evergreens, sycamore and maple trees in central area. (Ill. Ins. Rpt.). OKLAHOMA - Heavy on evergreens in Mayes and Roger Mills Counties. (Okla. Coop. Sur.). ALABAMA - Heavy and killing several arbovitae and other trees in Monroeville, Monroe County. Few trees and shrubs burned in Randolph County to control populations which had reached enormous proportions. (Barwood, Lemons, et al.). GEORGIA - Heavy on juniper and arbovitae in Atlanta area and other parts of State. (Johnson).

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Caused much browning of honeylocust in central area. (Ill. Ins. Rpt.). NORTH CAROLINA - Almost completely browned foliage of honeylocust locally. (Mount).

HOLLYHOCK WEEVIL (Apion longirostre) - NEBRASKA - Infesting hollyhock buds in Scotts Bluff County. This is a new State record. (Hagen).

LEAD-CABLE BORER (Scobicia declivis) - CALIFORNIA - Adults medium in trunks of mulberry nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Local, heavy populations of beetles attacking shrubs in Monroeville, Monroe County. Many adults entering homes in new subdivision not treated in 1958 when other parts of city treated. (Lemons, Burns).

GLADIOLUS THRIPS (Taeniothrips simplex) - MARYLAND - Heavily infesting field grown gladioli near Wye Mills, Queen Annes County. (U. Md., Ent. Dept.).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Unspecified species heavy in Iberville Parish. (Tynes et al., Aug. 3). FLORIDA - Forty-three traps operated July 17 and 21 in all regions of State showed following highest counts for female mosquitoes per trap-night: Aedes taeniorhynchus on July 17 at Allenhurst, Brevard County, 788; Sanibel, Lee County, 572; Fort Myers, Lee County, 328; and Jupiter, Palm Beach County, 286. On July 21 at Sanibel 2,592; Salerno, Martin County, 1,192; Boca Grande, Lee County, 1,176; Santa Rosa, Walton County, 880; and Allenhurst 844. Only counts of A. sollicitans (salt-marsh mosquito) over 32 females per trap-night were 420 on July 17 at Santa Rosa and 544 on July 21. Biggest catch (114) of total fresh-water species occurred at Ruskin, Hillsborough County, July 21. (Fla. State Board Health). OHIO - Between July 27 and July 31 the following numbers and species were reported by the Toledo Area Sanitary District and listed in order of frequency: Culex pipiens 266, Aedes vexans 122, Anopheles punctipennis 5, Uranotaenia sapphirina 5, C. restuans 2, C. territans 2, and Anopheles quadrimaculatus 1. (Brockway). C. pipiens abundant and annoying residents in homes in northeastern area on August 6. (Rings). MINNESOTA - During week ending August 1, Metropolitan Mosquito Control District collected 162 larval samples of which 21 percent were Aedes vexans and 12 percent Culex tarsalis. In light trap collections of 7,263 females taken, 6,529 were A. vexans and 149 C. tarsalis. Aedes vexans was the chief species taken in daytime and evening collections. In collections from the Mississippi River bottoms in Dakota County, 265 Aedes salinarius and 16 C. tarsalis were taken. (Minn. Ins. Rpt.). UTAH - Undetermined species very abundant and annoying in areas of Uintah and Duchesne Counties. (Knowlton). WISCONSIN - Increase in mosquito populations apparently underway in many areas. (Wis. Ins. Sur.).

FACE FLY (Musca autumnalis) - WISCONSIN - High in Ashland County; dairyman in area reported 10 cows with pinkeye. (Wis. Ins. Sur.). MICHIGAN - Counts of 12-14 flies per face on cattle in Menominee County and 15+ per face on animals in Shiawassee County. (Bowers). MISSOURI - Counts low on cattle in Boone County; ranged 7.9 to 15.2 (July 29); 4.1 to 5.7 (Aug. 5). (Houser, Thomas, Wood).

INDIANA - Adult populations remained low (average 2 per face) on cattle, but observations suggest a trend toward increasing populations in central area. Maximum populations of 8 per face in Cass, Carroll and Blackford Counties and 15 per face in Jay County. (Bram, Saugstad). ILLINOIS - Increasing fairly rapidly in northern half of State. Populations this week averaged 14.5 per face with many flies clustered on back and sides of cattle in most heavily infested herds. (Ill. Ins. Rpt.). MARYLAND - Ranged 5-25 per head on dairy cattle checked in Frederick County. (U. Md., Ent. Dept.).

HOUSE FLY (*Musca domestica*) - LOUISIANA - Light in Caddo Parish. (Tynes et al., Aug. 3). IOWA - Large populations may need control on feedlots. (Iowa Ins. Inf., Aug. 3). WISCONSIN - Populations appear on increase. (Wis. Ins. Sur.).

HORN FLY (*Haematobia irritans*) - INDIANA - Adults averaged 75 per head on cattle throughout central half of State. (Bram, Saugstad). OHIO - Populations ranged 50-200 per animal in State. (Holdsworth). ILLINOIS - Populations relatively light (0-100 per animal) in northern half of State. (Ill. Ins. Rpt.). LOUISIANA - Light in Caddo Parish; medium in St. John the Baptist and East Feliciana Parishes. (Tynes et al., Aug. 3). OKLAHOMA - Light in Pushmataha and Adair Counties, moderate in Latimer, Murray and Mayes Counties and heavy in Bryan County. (Okla. Coop. Sur.). UTAH - Annoying and numerous on cattle throughout the Uintah Basin, Duchesne and Uintah Counties. (Knowlton).

STABLE FLY (*Stomoxys calcitrans*) - MARYLAND - Ranged 3-35 per head on dairy cattle checked in Frederick County. (U. Md., Ent. Dept.). IOWA - Large populations may need control on feedlots. (Iowa Ins. Inf.). MICHIGAN - Adults in moderate numbers on some Clinton and Ingham County farms. (Westwood, Roll).

TABANIDS - MICHIGAN - *Chrysops* spp. and *Tabanus* spp. adults annoying animals and man in Clinton, Ingham, Livingston and Marquette Counties. (Westwood, Nyquist).

FLEAS (*Ctenocephalides* spp.) - RHODE ISLAND - Complaints of household infestations received from North Kingstown, Kent County; Newport, Newport County; Kingston, Washington County; and Providence, Providence County. (Mathewson, Hannah, Veilleux). OHIO - Annoying and biting humans in basement of residence. (Rings). MICHIGAN - Annoying to some Ingham County homeowners. (Dowdy). IOWA - Continuing problem to pets and their owners. (Iowa Ins. Inf.). WISCONSIN - Undetermined species reported severe in Calumet and Dane Counties. (Wis. Ins. Sur.).

PUSS CATERPILLAR (*Megalopyge opercularis*) - NORTH CAROLINA - Caused severe skin irritation and illness to Pender County resident. (Honeycutt, Mount).

GIANT HORNET (*Vespa crabro germana*) - GEORGIA - Numerous complaints from Atlanta residents received. (Johnson).

CHICKEN MITE (*Dermanyssus gallinae*) - OHIO - Mites moving from birds' nests to interior of homes and annoying residents in Akron, July 29. (Rings).

LONE STAR TICK (*Amblyomma americanum*) - OKLAHOMA - Heavy on cattle in Latimer County. (Okla. Coop. Sur.).

A BROWN SPIDER (*Loxosceles reclusa*) - KANSAS - Reported from home in Nemaha County. (Gates).

BLACK WIDOW SPIDER (*Latrodectus mactans*) - MARYLAND - Collected frequently around homes in Dundalk area, Baltimore County. (U. Md., Ent. Dept.).

HOUSEHOLD AND STRUCTURAL INSECTS

STRAWBERRY ROOT WEEVILS (*Brachyrhinus* spp.) - OREGON - Invading homes and suburban business structures in Multnomah County. (Larson). NEW YORK - *B. ovatus* active nuisance in Chemung County homes. (N. Y. Wkly. Rpt., Aug. 3). MARYLAND - Adults of *B. ovatus* in homes in Baltimore, Queen Annes and Wicomico Counties. (U. Md., Ent. Dept.).

EUROPEAN EARWIG (*Forficula auricularia*) - UTAH - Increasing annoyance about homes and gardens in central and northern communities. (Knowlton).

A MOTH FLY (*Telmatoscopus albipunctatus*) - MARYLAND - Adults in homes in Harford and Prince Georges Counties. (U. Md., Ent. Dept.).

A POWDER-POST TERMITE (*Cryptotermes brevis*) - CALIFORNIA - Found in bed frame in residence in Menlo Park, San Mateo County. Bed purchased out of State several years ago. (Cal. Coop. Rpt.).

A DESERT DAMPWOOD TERMITE (*Paraneotermes simplicicornis*) - NEVADA - Heavy in wood under one home and adults swarming inside another home in Las Vegas, Clark County. (Williams).

A SUBTERRANEAN TERMITE (*Reticulitermes tibialis*) - UTAH - Infesting home in Brigham City, Box Elder County. Det. by T. E. Snyder. (Knowlton, Allred).

BENEFICIAL INSECTS

LADY BEETLES - NORTH DAKOTA - Abundant in corn fields infested with *Rhopalosiphum maidis*. *Hippodamia convergens* (convergent lady beetle) and *Adalia bipunctata* (two-spotted lady beetle) dominant. (Frye, Gage). WYOMING - Adults of several species averaged 36 per 100 sweeps in alfalfa in Niobrara, Weston, Campbell and Converse Counties (Marks); counts per 10 sweeps averaged 3 at Devils Tower, Crook County; 5 at Ethete and 3 at Lander, Fremont County; 2 at Thermopolis, Hot Springs County; 1 at Big Horn, Sheridan County; 5 at Farson, Sweetwater County; and 3 at Ten Sleep, Washakie County (Fronk). UTAH - Unspecified species conspicuous in alfalfa infested with *Acyrtosiphon pisum* (pea aphid) in Beaver County. (Knowlton). CALIFORNIA - Abundant in most cotton areas of Fresno County. (Ferris, July 29).

DAMSEL BUGS (*Nabis* spp.) - WYOMING - Adults averaged 114 per 100 sweeps in alfalfa in Niobrara, Weston, Crook, Campbell and Converse Counties. (Marks). Counts per 10 sweeps in alfalfa averaged 9 at Devils Tower and 2 at Four Corners, Crook County; 10 at Ethete and Lander, Fremont County; 6 at Buffalo, Johnson County; and 10 at Story, Sheridan County. (Fronk). CALIFORNIA - Numerous in most Fresno County cotton. (Ferris, July 29). FLORIDA - *Nabis* sp. taken in sweepings on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

BIG-EYED BUGS - CALIFORNIA - Numerous on cotton in most areas of Fresno County; decreased in Kingsburg-Selma area. Decrease common this time of year due to parasitism of eggs by tiny wasp. (Ferris, July 29). Populations in Kern County cotton decreased in Shafter area. (Leigh, July 30). FLORIDA - *Geocoris punctipes* taken in sweepings on Hairy Peruvian alfalfa at Gainesville, Alachua County. (Mead).

FLOWER BUGS (*Orius* spp.) - WYOMING - Adults averaged 88 per 100 sweeps in alfalfa in Niobrara, Weston, Crook, Campbell and Converse Counties. (Marks). Counts per 10 sweeps in alfalfa averaged 5 at Devils Tower and 3 at Four Corners, Crook County; 2 at Buffalo, Johnson County; 18 at Big Horn, Sheridan County; and 1 at Farson, Sweetwater County. (Fronk).

MINUTE PIRATE BUGS - CALIFORNIA - Numerous in most Fresno County cotton. (Ferris, July 29).

LACEWINGS - NORTH DAKOTA - Chrysopa spp. abundant in corn fields in southeast; appear to be feeding on Rhopalosiphum maidis (corn leaf aphid). (Frye, Gage). CALIFORNIA - Abundant in most cotton areas of Fresno County. (Ferris, July 29).

A LEAFCUTTING BEE (Megachile rotundata) - OREGON - Many nests completely decimated by unspecified dermestid in Nyssa area, Malheur County, where this beneficial species being propagated for alfalfa seed production. (Every).

CICADA KILLER (Sphecius speciosus) - MARYLAND - Active about several sandy lawn areas in Kent, Prince Georges, St. Marys and Washington Counties; number of reports above normal. (U. Md., Ent. Dept.).

A BRACONID WASP (Aphidius pulcher) - CALIFORNIA - Adults heavy in alfalfa infested with Acyrtosiphon pisum (pea aphid) in Cedarville, Modoc County. (Cal. Coop. Rpt.).

Parasites of European Corn Borer - WISCONSIN - Examination of early field corn near Mazomanie infested with Ostrinia nubilalis revealed about 20 percent of tunnels with pupae of Lydella grisescens (a parasitic tachina fly) and about same percentage with larvae that are probably Symplesis viridulus (a parasitic eulophid). (Wis. Ins. Sur.).

#### MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Surveys over NORTH CAROLINA negative with exception of small area in Onslow County which was treated when found. Small extensions of infested area found in Lexington and Horry Counties, SOUTH CAROLINA; appraisal survey in treated area in Orangeburg County very satisfactory. Delimiting survey in Dodge County, GEORGIA, revealed 10,000 acres of additional infestation. Additional infested acreages found in Clay, Randolph, Morgan and Lawrence Counties, ALABAMA. Surveys in generally infested counties of MISSISSIPPI revealed extensions of infestations in some areas. Surveys in 16 LOUISIANA parishes showed extensions in infested areas of Allen, Caddo, Grant, Red River and Union Parishes. (PPC, South. Reg., June Rpt.).

A SAPYGD WASP (Sapyga louisii) - FLORIDA - Taken in Steiner trap at Orlando, Orange County, April 21, 1964, by J. R. Woodley. Det. by K. V. Krombein. This single adult is a new record for the State. (Fla. Coop. Sur.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - VIRGINIA - Adults found outside of known infested area in Norfolk. (PPC, East. Reg., June Rpt.). Survey of infested area of Wayne County, NORTH CAROLINA, revealed small extension. Extensions of known infestations found in 13 GEORGIA counties and found for the first time in Zebulon, Pike County, June 15. Found for the first time at Wewahitchka, Gulf County, FLORIDA, May 27. Rather heavy adult infestations noted in Houston and Crenshaw Counties, ALABAMA, and collected for the first time in Jackson County June 24. New area of infestation found in East Baton Rouge Parish, LOUISIANA, between 2 known infested areas. (PPC, South. Reg., June Rpt.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - WASHINGTON - Adults unusually abundant; extremely large numbers climbing on outsides of residences and other buildings at Uniontown, Whitman County. (Weis).

EUROPEAN CHAFER (Amphimallon majalis) - Collected in Yates and Broome Counties, NEW YORK, on June 22 and 24 respectively. Extensions of known infestations made in Schuyler and Niagara Counties. Newly discovered infestation in Erie County, PENNSYLVANIA, extends approximately 7 miles east of area treated in 1963. (PPC, East. Reg., June Rpt.).

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - Low in traps in all areas except Battle Creek. Sizeable sample of adults near periphery of area (about 13,000 acres) treated in 1963. (Turner).









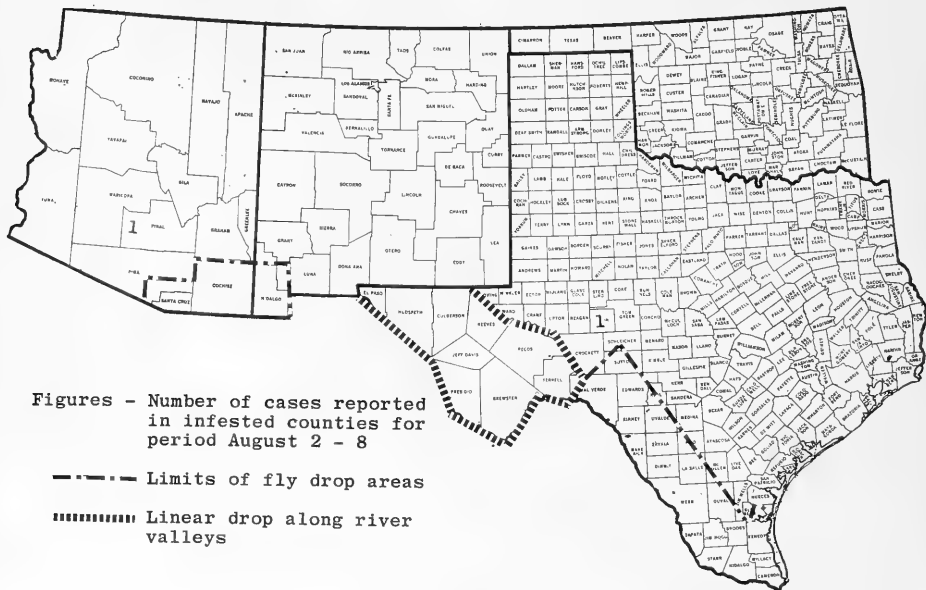
STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period August 2-8, one screw-worm case was confirmed in Irion County, TEXAS. No infestations reported in NEW MEXICO. One case was reported in Pinal County, ARIZONA. The Republic of Mexico reported 100 cases from the States of Sonora (22), Chihuahua (45), Coahuila (2), Nuevo Leon (5), Tamaulipas (11), San Luis Potosi (3), Durango (8) and Veracruz (4). Total of 122,737,450 sterile screw-worm flies was released: 28,662,250 in Texas, 1,942,000 in New Mexico, 5,862,000 in Arizona and 86,271,200 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,366	31,082	42	2,167	3,252.3:100	1,434.3:100
1963	33	2,309	66	4,487	50.0:100	51.4:100
1964	1	107	45	4,143	2.2:100	2.5:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases with cases that are not screw-worm is an index of the change in number of screw-worm cases.  
(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period August 2 - 8

- Limits of fly drop areas
- ..... Linear drop along river valleys



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPER populations high and treatments underway in areas of Wisconsin; moving into corn in Minnesota; damage continues to increase in areas of Utah; serious damage expected in dry areas of northeastern Iowa; heavy populations building up and causing concern to ranchers in Arizona. (p. 961). EUROPEAN CORN BORER adults emerging in record numbers and second-brood borers unusually heavy in corn in Iowa; second-generation moth flights heavy but egg laying slow due to cool weather in Minnesota; early stage larvae infesting up to 90 percent of corn plants through central third of Missouri; and stalk infestations increasing in maturing corn in all sections of Maryland. (pp. 962, 963). GLASSY CUTWORM larvae appearing in above normal numbers in Washington and larvae may be problem in spring of 1965 on grasses grown for seed. (p. 965). WEBWORMS (*Loxostege* spp.) heavy on alfalfa in Oklahoma and GARDEN WEBWORM (*L. similalis*) damaging soybeans in northern two-thirds of Illinois. (p. 966).

CITRUS RUST MITE will continue to increase on Florida citrus through August; GLOVER SCALE and CHAFF SCALE above normal, but decreases expected; MEALYBUG populations on citrus in Florida decreased from high level of June but still at record high for July. (p. 969).

GREEN CLOVERWORM continues heavy and widespread on beans on Lower Peninsula of Michigan. (p. 972).

GREEN PEACH APHID continues light to heavy on tobacco in areas of Maryland and controls necessary on some fields in Pittsylvania County, Virginia. (p. 973).

BEECH SCALE infestation serious in Tobyhanna State Park, Pennsylvania. This is third report since pest first found in State in 1958. Controls scheduled when eggs hatch. (p. 979).

DETECTION

New State records reported were WESTERN CORN ROOTWORM (*Diabrotica virgifera*) in Wisconsin (p. 963) and a SPIDER MITE (*Eotetranychus pruni*) in Delaware (p. 979). New county records included WESTERN CORN ROOTWORM in Lafayette, Carroll and Saline Counties, Missouri (p. 963); LESSER PEACH TREE BORER (*Synanthedon pictipes*) in Morton County, North Dakota (p. 968); MEXICAN BEAN BEETLE in Baxter County, Arkansas (p. 972); ELM LEAF BEETLE (*Galerucella xanthomelana*) in Valencia County, New Mexico, and in Kane and Emery Counties, Utah (p. 978); SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) in Pershing County, Nevada, and in Hutchinson County, Texas (p. 979); an APHID (*Myzocallis bella*) in Sacramento County, California (p. 979); FACE FLY (*Musca autumnalis*) in Dawson County, Georgia (p. 981); CHINESE MANTIS (*Tenodera aridifolia sinensis*) in Greenville and Pickens Counties, South Carolina (p. 982); and a WEEVIL (*Cosmobarus americana*) in Merced County, California (p. 983).

CORRECTIONS

See page 983.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 986). No screw-worm infestations reported in southwest eradication area during period August 9-15.

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

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-AUGUST TO MID-SEPTEMBER

The Weather Bureau's 30-day outlook for mid-August to mid-September calls for temperatures to average below seasonal normals over the eastern third of the country except near normal along the gulf coast. Above normal temperatures are predicted for the western third of the Nation except near normal in the Far Southwest. In the central third, temperatures are expected to average slightly above normal in the south but below normal in the north. Precipitation is expected to exceed normal over the Northeast and the Great Lakes as well as the Central Plains, southern Rockies, and Florida. Subnormal rainfall is indicated over the Ohio and Tennessee Valleys, northern portions of the Plains and Rockies, southern Texas, and California. In unspecified areas, near normal amounts are in prospect.

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

WEATHER OF THE WEEK ENDING AUGUST 17

Cool air spread southward over the eastern two-thirds of the country. Hot, humid, tropical air from the south meeting the cold air, produced generous thunderstorms from central Texas to the Carolinas.

**TEMPERATURE:** Cool air from the Dakotas to the Atlantic coast pushed southward almost to the Gulf of Mexico. Record low temperatures for August occurred from the northern Great Plains to Pennsylvania. Frost and subfreezing temperatures occurred at scattered locations from Montana to Michigan and in some of the higher valleys in the Appalachians. Afternoon temperatures over much of the Northeast were generally in the 60's and 70's. The central Great Plains remained cool Wednesday when Des Moines, Iowa, registered 63° as the maximum. In parts of Texas and the Far Southwest 100° heat continued. Needles, California, Las Vegas, Nevada, Yuma, Arizona, and Laredo, Texas, registered 100° or higher on every day. Warm, humid, gulf air continued to push northward across the Southern States from Texas to South Carolina. Afternoon temperatures were mostly in the 80's and 90's. Early morning temperatures were generally in the 70's. Temperatures in mid-America returned to the 80's by the end of the week. Springfield, Illinois, illustrates the temperature pattern for the Middle States. That station's maximums were 96° on Monday, August 10, 71° on Wednesday, and 87° on Sunday, August 16. Cool weather persisted over the Middle Atlantic States where highest temperatures on Sunday were mostly in the 60's and 70's. Temperatures averaged above normal over northern Nevada and nearby portions of neighboring States and over central and southern Texas. Temperatures averaged below normal over most of the rest of the Nation. Weekly mean temperatures were 12° to 15° below normal over much of eastern Nebraska, north-eastern Kansas and west central Iowa.

**PRECIPITATION:** The warm gulf air, riding up over the dome of cold air, produced thundershowers over much of the South from Texas to the Carolinas. Amarillo, Fort Worth, and Junction, Texas, received more than 2 inches of rain Saturday and Abilene, Texas, received almost 3 inches on Sunday. Weekly totals exceeded 2 inches over the southern Appalachians. Tallahassee, Florida, registered 4.07 inches. On Sunday morning, Greenwood, Mississippi, recorded over 5 inches which had fallen during the night. Totals were generally less than 1 inch along the Atlantic and gulf coasts and from the Pacific Ocean to the Great Plains. Wide areas from Minnesota to the Ohio River received less than 0.50 inch. Much of the area from California to the northern Great Plains received no rain or only light showers. The dry conditions in Nevada increased the fire hazard.

Weather continued on p. 976.

## CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WISCONSIN - Populations high in many scattered areas; treatments underway in Ashland and Outagamie Counties and parts of Richland, Bayfield, Green Lake, Washburn, Sheboygan, Waukesha and Dunn Counties. Feeding increasingly more noticeable as more maturation occurs. Alfalfa noted half defoliated in central area fields and in sandier areas along Wisconsin River. In latter area, 80 percent of Melanoplus femurrubrum (red-legged grasshopper) and M. differentialis (differential grasshopper) adults; 10 percent of former species contained eggs, but none present in latter species. M. bivittatus (two-striped grasshopper) nearly gone in Wood County infestation; only occasional adult noted. Corn in some areas noticeably injured; observations near Mazomanie showed 90 percent of grasshoppers feeding in corn were M. differentialis; very little parasitism noted except for predaceous mites. (Wis. Ins. Sur.). MINNESOTA - Movement into corn noted in many fields in southwest, south central, southeast and central districts. Counts averaged less than one per plant well in field to high numbers along margins. In one Olmsted County field of corn, almost all silks eaten off 25 rows adjacent to alfalfa; pollination very poor. Adjacent alfalfa had 25 grasshoppers per square yard. High counts in corn margins reported from Cottonwood, Murray, Martin and Watonwan Counties. M. femurrubrum predominant, but M. differentialis and in some cases M. bivittatus important. Economic populations scattered and localized in southwest, south central and southeast. More high count fields reported this year than in 1963. Sample field counts per square yard, by county as follows: Wabasha 36, Mower 36, Rice 27, Martin 35, Murray 20, Yellow Medicine 30. Nearly all species in adult stage. (Minn. Ins. Rpt.).

ILLINOIS - Damaging some soybeans in northern two-thirds of State. (Ill. Ins. Rpt.). IOWA - Continue to grow in many areas of State; moving into corn and bean fields when nearby forages cut for hay. Serious damage expected in dry areas of northeast adding to drought condition situation. (Iowa. Ins. Inf., Aug. 10). NORTH DAKOTA - Adults ranged 1-4 (average 3) per square yard in margins and 1-3 (average 2) within fields in Pierce, Benson, Towner, Rolette, Bottineau, Renville and McHenry Counties. M. sanguinipes (migratory grasshopper) M. bivittatus and M. femurrubrum dominant species. (Scholl). Ranged 1-40 (average 7) per square yard in margins and 1-12 (average 3) within fields in McKenzie, Billings, Golden Valley, Dunn and Mercer Counties; highest field counts in alfalfa, late small grains and in corn. M. differentialis, M. bivittatus and M. femurrubrum dominant species. (Brandvik). SOUTH DAKOTA - Generally moderate to heavy in every county surveyed: ranged 1-45 adults per square yard throughout southeast area. Farmers using varying degrees of control throughout area. M. femurrubrum, M. bivittatus and M. differentialis dominant species present. (Burge, Zimmerman, Hintz). OKLAHOMA - Several species moderate on 45,000 acres of rangeland in Atoka, Coal, Pittsburg and Pontotoc Counties, southeast; adults ranged 8-12 per square yard. Melanoplus bivittatus, M. occidentalis, M. differentialis and Mermiria maculipennis dominant species. Adults light in 7 southwest counties surveyed. Grasshoppers light to moderate on rangeland and in crops in Hughes, McIntosh and Cleveland Counties. (Okla. Coop. Sur.). UTAH - Damaged rangelands 2 miles north of Roosevelt, Duchesne County; numerous in several cultivated fields in Ashley Valley and field at Tridell, Uintah County; numerous on farms at American Fork, Utah County. (Aug. 6). Moving from range areas and becoming serious on alfalfa for seed and forage in Pleasant Valley, Duchesne County, August 10; numerous on rangeland on Harmstons Bench, near Roosevelt. M. sanguinipes constituted 90 percent of adults present with 98 percent of these winged. (Knowlton). Grasshopper damage continues to increase in several areas; surveys show over 70,000 acres of cropland and more than 200,000 acres of rangeland to have economic to threatening infestations in Grand, Beaver, Davis, Duchesne, Morgan, Salt Lake, Sevier, Uintah, Utah, Wasatch and Weber Counties. (Burnell, Knowlton). ARIZONA - Heavy populations of several species building up and causing concern to ranchers in Cochise and Santa Cruz Counties. (Ariz. Coop. Sur.).

FALL ARMYWORM (*Laphygma frugiperda*) - LOUISIANA - Continued heavy on untreated pastures; also heavy in lawns in East Baton Rouge Parish. Heavy on young corn in Rapides Parish. (Tynes et al., Aug. 10). FLORIDA - Larvae collected from blooming alfalfa at Gainesville, Alachua County, August 3. (Mead). GEORGIA - Moderate to heavy on Coastal Bermuda grass, millet, grain sorghum and peanuts in southern area; medium to heavy on millet and lawns in Columbus area; heavy on millet in Walker County. Moderate to heavy on lawns in Columbus and Atlanta. (Johnson, Greene, Harris). SOUTH CAROLINA - Except for Greenwood County, little expansion of outbreak to north and west noted. Attacked 100 acres of 3-week-old sorghum for grazing in Greenwood County. (Nettles et al., Aug. 11). VIRGINIA - Severe on corn in 25-acre field and 50-acre field in Spotsylvania County. (Tarpley, Kash, Aug. 10). MARYLAND - Whorl infestations generally conspicuous but spotty on late corn in all sections. (U. Md., Ent. Dept.). NEW JERSEY - Damaged sweet corn in Middlesex County. (Ins.-Dis. Newsltr.). NEW YORK - Found in 1-5 percent of sweet corn in Dutchess, Ulster and Rensselaer Counties; planting knee-high to tasseling. (N.Y. Wkly. Rpt., Aug. 10).

ARMYWORM (*Pseudaletia unipunctata*) - VERMONT - Infestation subsided. (MacCollom). MASSACHUSETTS - Subsiding in several western counties; many growers applied controls. (Wave, Aug. 8). OHIO - Most larvae on corn full grown and about to pupate; parasitized larvae common in many fields. Control applications questionable. (Holdsworth).

ARMYWORMS - NEW YORK - Infestations subsided in Erie County; many heavily parasitized near end of outbreak. Growers in Oswego County report 85-bushel oat yield when armyworms not present and only 25-bushel yields when prevalent. (N.Y. Wkly. Rpt., Aug. 10).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - MISSOURI - Early-stage larvae infesting 10-90 percent of corn plants through central third of State; lighter in extremely dry area of Warren, Montgomery County, and in Audrain and Randolph Counties. Infestation 70-90 percent in Marion and Lewis Counties, with moth flights heavy in Lewis County. Adult numbers increasing in southeast. (Harrendorf, Jones). IOWA - Adults emerging in record numbers. Second-brood borers unusually heavy on late sweet corn, popcorn and replanted field corn still shedding pollen. (Iowa Ins. Inf., Aug. 10). ILLINOIS - Moth emergence 85 percent complete in northern area; all moths emerged in area south of U.S. Highway 6. Egg counts on late corn in area between U.S. Highway 6 and State Highway 9 ranged 100-500 per 100 plants; ranged 20-200 per 100 plants north of U.S. Highway 6. Egg hatch ranged 30-80 percent in central section and just beginning in northern section. (Ill. Ins. Rpt.). MINNESOTA - Heavy, second-generation moth flights indicated by blacklight trap catches at Worthington, Nobles County. Egg laying slow due to unseasonably cool weather. Percent development by district as follows: Southwest - 29 fifth stage, 31 pupae, 40 emerged; south central - 11 fifth stage, 28 pupae, 61 emerged; west central - 4 fourth and 30 fifth stage, 33 pupae, 33 emerged; northwest - 8 second, 17 third, 25 fourth and 8 fifth stage. (Minn. Ins. Rpt.). WISCONSIN - Pupation ranged from 10 percent in Portage County to 90 percent in Marquette and western Dane Counties. In 13 corn-growing counties in State. Few small larvae appearing on silks of sweet corn. Observations in field corn near Spring Green showed 36 percent egg masses August 12; 61 percent were fresh and remainder in black-head stage. In 50 plants examined, 4 larvae noted in ears and 4 in leaf axils. No eggs or larvae noted on 100 plants examined in commercial corn planting in Wood County; none noted on field corn in vicinity. (Wis. Ins. Sur.). MARYLAND - Stalk infestations steadily increasing in maturing corn in all sections. (U. Md., Ent. Dept.). NEW JERSEY - Moths continue to be taken in blacklight traps. (Ins.-Dis. Newsltr.). NEW YORK - Cumulative day degrees totaled 1,574 units to August 9. Captures in blacklight traps for August 2 moderate (15-20 moths); August 4 and 8 heavy (38 moths on August 8). Counts ranged 5-40 percent total infestation with 1-8 percent ear infestation on 5 varieties of sweet corn in Geneva area. Most advanced in third instar at Hurley August 3. Second and third instars more readily found, some entering silk tips of sweet corn. Females

appeared in trap catches and readily found in sweeping weeds in mid-Hudson Valley fields. Few pupae found in stalks of sweet corn in Rensselaer County August 5 but no eggs nor signs of second-brood hatch detected. (N.Y. Wkly. Rpt., Aug. 10).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - LOUISIANA - Heavy on young corn beginning to tassel in Rapides Parish. (Tynes et al., Aug. 10). ARKANSAS - Adults noted during past few days; these moths will give rise to third-generation larvae. (Whitcomb). MISSOURI - First-generation moth population increasing in southeast. (Harrendorf, Jones). ARIZONA - Building up in stalks of corn in Graham County. (Ariz. Coop. Sur.).

CORN EARWORM (*Heliothis zea*) - RHODE ISLAND - Infestations reported by growers in Washington and Providence Counties. (King, Kerr). NEW YORK - Inspection of ear tips in Ulster County variety trial (unsprayed) revealed third instar in 100 tips of Eastern Belle sweet corn in late silk stage. Inspection of 100 silks in other varieties yielded 1 egg. On unsprayed field corn, 3 eggs found on 100 silks. No evidence of larvae in Rensselaer County corn August 5. On same date, 100 tips of untreated Iochief corn at Poughkeepsie yielded 3 large larvae. At Salt Point, 100 ears of untreated Gold Chief corn yielded 1 fifth instar. One adult trapped on August 7. Sufficient activity to justify spray program. (N.Y. Wkly. Rpt., Aug. 10). NEW JERSEY - Low numbers of moths continue to be taken in all light traps. (Ins.-Dis. Newsltr.). ALABAMA - Heavy locally in 3 acres of late corn in Mexia, Monroe County. (Lemons). LOUISIANA - Averaged 1 per foot of row on soybeans in St. Landry Parish. Heavy on sweet corn in East Baton Rouge Parish. (Tynes et al., Aug. 10). ARKANSAS - Present in 15 of 16 fields of soybeans checked in Lonoke County; high count, 6 per 30 feet of row. Some fields setting pods and will require careful checking for damage. (Little). OKLAHOMA - Averaged 30 per 100 terminals in late sorghum in McCurtain County. (Okla. Coop. Sur.). MISSOURI - Late-stage larvae infesting 20-100 percent of corn ears in Callaway and Audrain Counties and 10-20 percent in Marion and Pike Counties. Second-generation adult numbers decreasing in southeast. (Harrendorf, Jones). INDIANA - Larvae low on corn in northern quarter of State; population reached one per 25 ears in scattered fields. (Saugstad). MINNESOTA - Numbers low in field corn in southwest, south central and southeast districts. Numbers high in one field in Steele County; present in 10 of 10 plants inspected. (Minn. Ins. Rpt.). NEW MEXICO - Larvae found in almost every corn ear checked in fields near Roswell, Chaves County. (N.M. Coop. Rpt.). ARIZONA - Continues damaging corn in Graham and Cochise Counties. Light in alfalfa seed fields in Yuma County. (Ariz. Coop. Sur.). UTAH - Infestation ranged 0-5 percent in earliest corn at Logan, Cache County. (Knowlton). WASHINGTON - Larvae abundant on sweet corn in eastern area, particularly in Columbia Basin. (Landis).

SORGHUM WEBWORM (*Celama sorghiella*) - TEXAS - Heavy, local infestations noted in grain sorghum in Brazos-Burleson County area. (Meisch).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - WISCONSIN - Surveys conducted in Richland, Vernon, La Crosse, Trempealeau, Pepin, Pierce, St. Croix, Dunn, Chippewa and Clark Counties showed *D. virgifera* to be present in River Falls area in Pierce and St. Croix Counties. This is a new State record. *D. longicornis* (northern corn rootworm) by far predominant species, although generally light in all areas except vicinity of River Falls. Ranged 0-6 per stalk, although latter number not common. (Wis. Ins. Sur.). IOWA - Adults collected in Benton and Iowa Counties for new county records. (Iowa Ins. Inf., Aug. 10). MISSOURI - Present in Cass, Jackson, Lafayette, Carroll and Saline Counties. Lafayette, Carroll and Saline are new county records. (Houser, Thomas, Wood).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - INDIANA - Adults infesting 40 percent of corn plants in northern quarter of State; feeding on silks and reaching maximum densities of 10 per ear. (Saugstad). OHIO - Populations varied considerably from field to field in northwest. Very few beetles noted in

rotational planted corn fields; ranged 1-33 per corn ear in fields continuously in corn. Averaged 12 per ear in one Putnam County field of corn with most silks consumed. (Polivka, Lyon).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - INDIANA - Adults active on corn in northern quarter of State; infesting 5 percent of plants but density very low. (Saugstad).

CORN ROOTWORMS (*Diabrotica* spp.) - MINNESOTA - *D. virgifera* (western corn rootworm) and *D. longicornis* (northern corn rootworm) adults dispersing from corn and now found in alfalfa and flowering weeds. Numbers high in corn in southwest districts; 18-20 per plant noted in one Murray County field, with 90 percent being *D. virgifera*. (Minn. Ins. Rpt.).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - DELAWARE - Common on young corn in New Castle and Kent Counties. (Burbutis, Crossan).

CEREAL LEAF BEETLE (*Oulema melanopa*) - MICHIGAN - Quiescent adults remain difficult to find in unsprayed research plots in Berrien County. No evidence of second brood of larvae detected. Inspection and fumigation of regulated commodities at peak. (Turner, Boyer).

JAPANESE BEETLE (*Popillia japonica*) - RHODE ISLAND - Reported feeding on corn silks in Wakefield, Washington County. This is only second report of concentration of this pest received this summer. (Mathewson, Kerr).

CORN LEAF APHID (*Rhopalosiphum maidis*) - MICHIGAN - Extremely high populations built up over entire corn-growing area of Lower Peninsula; plants under stress from drought affected most until general rains of August 11; predators, especially lady beetle adults and larvae common in many colonies. (Newman, Ruppel, Sowerby, Proctor, Patterson, Mahaffy, Mulvany, Guyer). WISCONSIN - High populations persist in some areas of Dunn, Green Lake, Sauk, Bayfield, Walworth and Columbia Counties. Observations indicate general decrease in most fields; some treatments applied in Columbia and Green Lake Counties. (Wis. Ins. Sur.). IOWA - Reported in Osceola, Hardin, Clayton, Howard and Mitchell Counties; chemical control not justified in spite of heavy populations. Adults and larvae of lady beetles often associated with heavy populations. (Iowa Ins. Inf., Aug. 10).

ILLINOIS - Populations decreased noticeably; 20-90 percent of aphids dying from disease or parasitism. Numerous predators observed feeding on aphids. (Ill. Ins. Rpt.). INDIANA - Populations high on corn in northern quarter of State; infestations light to moderate generally on 80-100 percent of plants; heavy on 10-20 percent of plants. (Saugstad). Observations indicate 20-30 percent of late-planted corn in northern half of State severely infested, with 100 percent infestation in some fields. Parasites and predators scarce in northern area, but aphid populations in southern sections appear contained by several predators. (Everly, Matthew, Bram). OHIO - Evidence indicated heavy populations throughout most late-planted corn in northwest and west central sections; 100 percent infestation observed in few fields of popcorn and field corn. Populations declining rapidly and becoming noneconomic due to parasitism and maturity of corn. (Lyon). VERMONT - Prevalent on most sweet corn. (MacCollom).

MASSACHUSETTS - Extremely large populations developed on sweet corn in some Hampden County fields. (Wave). NEW YORK - Unusually abundant in 3 Hudson Valley counties on sweet corn. Winged forms reached early whorl plants and established young deep in whorls; already in husks on tasseling corn. More than one control may be necessary this year. Many other areas of State report heavy infestations with light silked varieties most severely affected. (N.Y. Wkly. Rpt., Aug. 10). PENNSYLVANIA - Very severe on field corn in several fields in Indiana County. (Udine). MARYLAND - Light to moderate in field and sweet corn in all sections. (U. Md., Ent. Dept.). NORTH CAROLINA - Infesting corn in Caldwell County. (Andrews, Mount). MISSOURI - Light in northeast area. (Houser, Thomas, Wood). WYOMING - Small colonies noted on corn plants in Hot Springs, Washakie, Big Horn and Park Counties. (Marks). COLORADO - Ranged

from trace to few heavy infestations on corn in Weld County. Controls applied. (Urano). UTAH - Damaged several fields of barley in Duchesne-Myton area, Duchesne County. (Knowlton). IDAHO - Populations remain more or less static in Canyon County due to large populations of lady beetles, lacewings and other parasites and predators. (Bechtolt). CALIFORNIA - Nymphs and adults medium on Kafir corn in Riverdale, Fresno County. (Cal. Coop. Rpt.).

APHIDS - NEW YORK - Unspecified species present on sweet corn in Suffolk County. Very heavy on field and sweet corn in Orleans County. Heavy buildup in tassel and leaves of sweet and field corn in Niagara County. (N.Y. Wkly. Rpt., Aug. 10).

CHINCH BUG (Blissus leucopterus) - ILLINOIS - Second-generation nymphs damaging Sudan grass, Sudax, millet and an occasional field of corn in central and eastern sections. (Ill. Ins. Rpt.). OHIO - Many adults noted on leaf sheaths of corn throughout northwest. (Polivka, Lyon). NEW JERSEY - Heavy in many lawns. (Ins.-Dis. Newsltr.).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - In Lonoke County, 13 rice fields checked by sweep method and 3 by head-count method. Average counts per sweep were 4.1 adults and 1.0 nymph, compared with 4.4 adults and 1.4 nymphs previous week. Average counts per 100 rice heads were 6 adults and 3.3 nymphs. (Ark. Ins. Sur.).

FIELD CRICKETS (Gryllus spp.) - NORTH DAKOTA - Buildup occurring in various crops in northeast, with control considered in some instances. (Frye, Gage).

SORGHUM MIDGE (Contarinia sorghicola) - ARKANSAS - Adults active in northwest. (Whitcomb). TEXAS - Activity increased in Lubbock area; adults noted in few grain sorghum fields. Widespread infestations not present. (Rummel).

BLACK GRAIN STEM SAWFLY (Cephus tabidus) - OHIO - Four larvae isolated from wheat stems in Fairfield County. (Taylor, Holdsworth).

WHEAT HEAD ARMYWORM (Faronta diffusa) - NEW MEXICO - Causing considerable damage to sand bluestem seed heads in Los Lunas, Valencia County; damage somewhat less to vine mesquite. Controls underway. (N.M. Coop. Rpt.).

GLASSY CUTWORM (Crymodes devastator) - WASHINGTON - Larger than normal numbers appearing; larvae may be problem in spring of 1965 on grasses grown for seed. (Brannon).

A GRASSWORM (Mocis sp.) - FLORIDA - Severely damaged 120 acres of Sudax in Alachua County; approximately half of acreage completely defoliated. Crop grown for ensilage. (Genung, Aug. 4).

A BILLBUG (Sphenophorus phoeniciensis) - ARIZONA - Numerous in Bermuda grass lawns in Pima County. (Ariz. Coop. Sur.).

A SPITTLEBUG (Prosapia bicincta) - GEORGIA - Moderate on centipede grass in De Kalb County (DeIsle) and very heavy on 5 acres of Coastal Bermuda grass in Terrell County (Locke).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Larvae averaged 14 per 25 feet of row in 3 soybean fields checked August 7 in Montcalm and Clinton Counties; 20 percent were late stage, 40 percent middle stages and 40 percent early stages. No feeding injury noted on soybean pods. (Dowdy et al.). WISCONSIN - Larval populations generally high in many alfalfa fields in central and some southern counties; average 4 per 10 sweeps. (Wis. Ins. Sur.). ILLINOIS - Causing some damage to soybeans in northern two-thirds of State. Defoliation rather extensive in some areas. (Ill. Ins. Rpt.). OHIO - Moderate to heavy damage observed on several soybean fields throughout northwest; usually only tops of plants 25-75 percent defoliated. All larval stages present; averaged 2-3 per linear foot in

many fields in Seneca, Fulton, Henry, Wood and Williams Counties. (Blair, Lyon). MISSOURI - Generally noneconomic, but damage moderate in occasional field of soybeans in northeast. (Houser, Thomas, Wood). ARKANSAS - Present in 16 fields of soybeans checked in Lonoke County; high count, 6 per 30 feet of row. (Little). FLORIDA - Larvae collected from blooming alfalfa at Gainesville, Alachua County, August 3. (Mead). DELAWARE - Averaged 3 per 10 sweeps on soybeans throughout State. (Burbutis, Crossan).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Moderate to heavy in Bryan and Garvin Counties. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - Increasing in alfalfa in Yuma, Pinal, Graham and Maricopa Counties; averaged 110 per 100 sweeps in Graham County and 135 in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Larvae in alfalfa averaged 3-5 per 25 sweeps in Chaves and Dona Ana Counties. (N.M. Coop. Rpt.). MARYLAND - Larvae light to moderate on alfalfa in Frederick County. (U. Md., Ent. Dept.).

WEBWORMS (*Loxostege* spp.) - OKLAHOMA - Moderate to heavy on alfalfa in Lincoln and Kingfisher Counties. (Okla. Coop. Sur.). MISSOURI - Webbing and damage by *L. similalis* (garden webworm) heavy in field in Lewis County; larvae pupating. Most alfalfa recently cut. (Houser, Thomas, Wood). ILLINOIS - *L. similalis* causing some damage to soybeans in northern two-thirds of State. (Ill. Ins. Rpt.).

LOOPERS - SOUTH CAROLINA - General buildup of unspecified species on soybeans occurring; disease may cause more control than in average dry year. (Nettles, et al., Aug. 11). LOUISIANA - Infestations on soybeans increasing; 3-5 per 3 feet of row at Jonesville, Catahoula Parish, and in St. Landry Parish. (Tynes et al., Aug. 10).

ALFALFA WEEVIL (*Hypera postica*) - DELAWARE - Larvae and adults in alfalfa in one area of New Castle County. (Burbutis, Crossan). MARYLAND - Larvae generally light on alfalfa in Frederick and Queen Annes Counties; highest count 2 per sweep. (U. Md., Ent. Dept.). VIRGINIA - Larvae very scarce in Rockbridge-Augusta and Appomattox-Campbell County areas. (Woodside). WYOMING - Adults averaged 21 and larvae 210 per 100 sweeps in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Marks). UTAH - Larvae held back second-growth alfalfa seriously on farm on South Myton Bench, Duchesne County. (Knowlton).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - ILLINOIS - Damaging some soybeans in northern two-thirds of State. (Ill. Ins. Rpt.). SOUTH DAKOTA - Defoliating soybeans in Union County; averaged 7 adults per linear foot of row. (Hintz). ARKANSAS - Counts low in 9 of 16 soybean fields checked in Lonoke County. (Little). OKLAHOMA - Damaging soybeans in Le Flore County. (Okla. Coop. Sur.).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - MARYLAND - Adults evident in alfalfa and red clover in Queen Annes County. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Larvae caused heavy foliage damage to 15 acres of soybeans in Worcester County. (U. Md., Ent. Dept.).

BLISTER BEETLES (*Epicauta* spp.) - SOUTH DAKOTA - Moderate numbers present throughout southeast area; ranged 1-12 per sweep. (Hintz). OKLAHOMA - Heavy in soybeans and alfalfa in Mayes County. (Okla. Coop. Sur.). VIRGINIA - Adults moderate on soybeans in one section of Gloucester County. (Tarpley, Goode, Aug. 5). GEORGIA - *E. pestifera* (margined blister beetle) moderate on kudzu in De Kalb County. (Vanderford).



PEA APHID (*Acyrtosiphon pisum*) - WASHINGTON - All stages numerous on alfalfa forage in vicinity of Yakima, Yakima County; alates present only in some instances. Ranged mostly 1-2 alates per 100 sweeps; all stages averaged 65 per 100 sweeps in one field. (Halfhill). IDAHO - Almost totally disappeared in alfalfa in northern Canyon County. (Waters). Spotted, heavy populations present in Bonneville County on some second-cutting alfalfa; however, no serious damage because of abundance of parasites and predators. (O'Leary). UTAH - Damaging alfalfa in Vernal-Maeser area and moderately serious in Lapoint-Tridell area, Uintah County, August 6. Moderate and damaging second and third-crop alfalfa in Uintah Basin August 10. (Knowlton). COLORADO - Populations remain low on alfalfa in Mesa, Delta and Montrose Counties; range 50-100 per 100 sweeps where lady beetle populations high. (Bulla). WYOMING - Adults and nymphs averaged 3,750 per 100 sweeps in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Marks). INDIANA - Adults and nymphs generally low on alfalfa; counts per sweep averaged 3 in northwest, 6 in north central and 2 in northeast. Averaged 200 per sweep in one Lake County field and 150 per sweep in one Kosciusko County field. (Saugstad). OHIO - Remains low and of little economic importance in northwest area forage fields. (Lyon). MARYLAND - Generally light on alfalfa in all sections; however, ranged 100-200 per sweeps in few fields in Frederick County. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WISCONSIN - Little change in populations noted; definite preference for regrowth alfalfa evident. Somewhat greater incidence of parasitized aphids observed. (Wis. Ins. Sur.). NEW MEXICO - Light to moderate on alfalfa in Chaves and De Baca Counties; one field near Fort Sumner, De Baca County, treated during last week of July. (N.M. Coop. Rpt.). OKLAHOMA - Moderate on alfalfa in Payne County. Light in counties in northwest, west central, central and southeast areas. (Okla. Coop. Sur.). FLORIDA - Adult taken from blooming alfalfa at Gainesville, Alachua County, August 3. (Mead).

CLOVER APHID (*Anuraphis bakeri*) - IDAHO - Difficult to find in most clover seed fields in northern Canyon County; this unusual for this time of year. (Waters).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Ranged from 15 to over 50 per 25 sweeps in alfalfa near Roswell, Chaves County. (N.M. Coop. Rpt.). UTAH - Numerous (70-80 percent nymphs) in alfalfa throughout Ashley Valley, Uintah County, August 6; some alfalfa seed stripped conspicuously in Randlett-Ouray area where controls neglected. Ranged 4-9 per sweep August 10 in several Uintah and Duchesne County fields left for seed; 70 percent nymphs. (Knowlton). COLORADO - Counts high in alfalfa in Mesa County with injury to flower heads. (Bulla). WYOMING - Adults and nymphs averaged 226 per 100 sweeps in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Marks). MISSOURI - Averaged 224 per 100 sweeps on soybeans in Boone County. (Foster).

STINK BUGS - LOUISIANA - Light on soybeans and very low on rice. (Tynes et al., Aug. 10). ARKANSAS - Several species present in some soybean fields checked but counts generally low; high count, 2 adults and 1 nymph per 30 feet of row. (Little). MISSOURI - Average of 17 adults and 49 nymphs of *Acrosternum hilare* (green stink bug) per 100 sweeps collected in field of soybeans in Boone County. (Daugherty). NEW MEXICO - *Chlorochroa* sp. damaging grain sorghum in Luna County; controls planned. (N.M. Coop. Rpt.).

MEADOW SPITTLEBUG (*Philaeus spumarius*) - WISCONSIN - Nymphs appearing in Ashland County. (Wis. Ins. Sur.). INDIANA - Adults in alfalfa per 10 sweeps averaged 3 in northwest, 7 in north central and 30 in northeast sections. (Saugstad). OHIO - Adult population remains relatively low in northwest area forage fields. (Lyon).

AN ALYDID BUG (*Alydus pilosulus*) - MISSOURI - Averaged 4-5 per soybean plant in test plot in Boone County. (Daugherty)

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Remains high in most alfalfa; some discoloration appearing in marginal areas of regrowth fields. Adults increasingly more common. (Wis. Ins. Sur.). INDIANA - Adults and nymphs remained low in alfalfa; counts per sweep averaged 9 in northwest, 45 in north central and 10 in northeast sections. (Saugstad). VERMONT - Active in legume forage fields. (MacCollom).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing rapidly in alfalfa throughout State; counts vary 150-500 per 100 sweeps. (Ariz. Coop. Sur.). TEXAS - Ranged 40-85 per sweep in alfalfa in Brazos-Burleson County area. (Randolph). ARKANSAS - Adults present in 11 of 16 soybean fields checked in Lonoke County; highest count 2 per 30 feet of row. (Little).

SEED CHALCIDS (Bruchophagus spp.) - ARIZONA - Heavy and damaging seed alfalfa in Yuma County. (Ariz. Coop. Sur.).

SPIDER MITES (Tetranychus spp.) - IDAHO - T. telarius (two-spotted spider mite) populations not increasing appreciably in 10 alfalfa seed fields examined in Canyon County where treatments applied early in season. Predatory mites, lacewings and ladybeetles abundant in these fields. (Bechtolt). COLORADO - Infestations range from trace to heavy on corn in Weld County; vary from field to field. Controls warranted in some instances. (Urano). MARYLAND - Tetranychus sp. causing conspicuous injury to border rows in several soybean fields in Caroline and Talbot Counties. (U. Md., Ent. Dept.). DELAWARE - Probably T. atlanticus (strawberry spider mite) present on soybeans in most areas and abundant in several fields in Kent and Sussex Counties. (Burbutis, Crossan). NORTH CAROLINA - Tetranychus sp. infesting end rows in 25-acre field of soybeans in Pasquotank County. (Aycock, Jones).

#### FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - VERMONT - There is no evidence second brood will be threat. (MacCollom). NEW YORK - Injury seems greater than usual on unsprayed trees in Chautauqua County. "Stings" and entries more prevalent due to extreme hot weather and continuously warm nights during last half of July in Orleans County. Two sprays necessary on pears for adequate control. (N.Y. Wkly. Rpt.). NEW MEXICO - Light numbers taken in light traps in orchards in Sandoval County; ranged 5-16 per light trap. (N.M. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - PENNSYLVANIA - Light to moderate on cherry and other hosts in Butler County and northwestern areas; less than in 1963. (Adams, Aug. 4). NORTH DAKOTA - Larvae noted on cultivated and wild plum in several areas in southwest. (Frye, Gage)

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NEW YORK - Third brood caused more than normal twig terminal injury in Orleans County. (N.Y. Wkly. Rpt., Aug. 10).

RED-HUMPED CATERPILLAR (Schizura concinna) - GEORGIA - Caused moderate defoliation of apple in Forsyth County. (Rucker).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceanus) - NORTH DAKOTA - Larvae active on plum in Mandan area, Morton County. (Frye, Gage).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Well under control in all orchards treated earlier in western area. (Bulla).

LESSER PEACH TREE BORER (Synanthedon pictipes) - NORTH DAKOTA - Larvae severe in plum and apricot in Mandan, Morton County. This is a new county record. (Frye, Gage).

APPLE MAGGOT (Rhagoletis pomonella) - MINNESOTA - Adult activity apparently decreased, but late apple varieties should be protected. (Minn. Ins. Rpt.). WISCONSIN - Numbers decreased; only occasional adult caught in ammonia bait traps at Madison. (Wis. Ins. Sur.). MICHIGAN - Total of 33 adults taken on sticky board traps in Grand Traverse County and 50 in Oakland County. (Schaffer, Siefert). OHIO - Populations decreasing; adults averaged 10 per sticky-board trap for one week. (Lyon). NEW YORK - Emergence dropped in cages in all zones of Monroe County. (N.Y. Wkly. Rpt., Aug. 10). VERMONT - Adults observed in isolated areas. (MacCollom).

PEAR-SLUG (Caliroa cerasi) - IDAHO - Abundant on pear, cherry, hawthorn and other hosts in Bonneville County. Damage severe in some instances where trees not sprayed. (O'Leary). NEW MEXICO - Probably this species, skeletonizing leaves of pear and cherry in orchards at Albuquerque, Bernalillo County. (N.M. Coop. Rpt.).

ORCHARD MITES - VERMONT - Panonychus ulmi (European red mite) severely bronzing apple foliage; more apparent on Delicious varieties, but McIntosh also affected. In some areas, damage caused by combination of P. ulmi and Tetranychus telarius (two-spotted spider mite). (MacCollom). MASSACHUSETTS - P. ulmi increasing in numbers but bronzing of apple foliage not yet apparent. (Wave). NEW YORK - Bronzing by unspecified species common in orchards in Chautauqua County. P. ulmi continues troublesome in Orleans County; some T. telarius noted also. P. ulmi continues number one pest problem in Monroe County; no outbreak of T. telarius in commercial orchards to date. P. ulmi serious problem in several Wayne County orchards this year, but some orchards without mite problems. (N.Y. Wkly. Rpt., Aug. 10). NORTH DAKOTA - T. telarius remains active on various fruits in Mandan area, Morton County. (Frye, Gage). COLORADO - Tetranychus spp. counts as high as 50 per leaf in apple and pear orchards in Mesa County where controls not applied. Fifth cover spray posted August 12 for Palisade area and August 14 for Clifton, Grand Junction and Fruita areas. Well under control in Silt and Rifle areas, Garfield County; fourth cover spray posted August 12 in these areas and August 15 at Glenwood Springs. (Bulla). NEW MEXICO - Probably T. mcdanieli, noted as light to heavy on apple in Sandoval and Bernalillo Counties. Damage very evident in several orchards. (N.M. Coop. Rpt.).

PECAN PHYLLOXERA (Phylloxera notabilis) - NORTH CAROLINA - Infesting leaves of young pecan at a Wayne County location. (Goforth, Robertson).

A FRUIT-TREE MITE (Bryobia rubrioculus) - CALIFORNIA - Eggs heavy on almond trees in Hanford, Kings County. (Cal. Coop. Rpt.).

A BARK BEETLE (Leperisinus californicus) - CALIFORNIA - Larvae, pupae and adults medium in bark of olive trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Adults infesting leaves of sweet orange (Citrus sinensis) at Lake Como, Crescent City and Pomona Park, Putnam County. (Graham).

Citrus Insect Situation in Florida - End of July - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 48 percent of groves (norm 70 percent); 36 percent economic (norm 50 percent). Although population is below normal, current increasing trend will continue through August. Between 40 and 50 percent of groves may be expected to develop infestations capable of blemishing fruit. Highest districts are west and south. CITRUS RED MITE (Panonychus citri) infested 74 percent of groves (norm 68 percent); 43 percent economic (norm 43 percent). Decrease of past month will continue through August. About 10 percent of groves will harbor important infestations. Highest districts are north, central and west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 71 percent of groves (norm 54 percent); 42 percent economic (norm 32 percent). Downward trend will continue into September. Very few heavy infestations are expected. Highest districts are central, south and east. PURPLE SCALE (Lepidosaphes beckii) infested 68 percent of groves (norm 71 percent); 7 percent economic (norm 12 percent). Below normal; heavy parasitism expected to cause further decrease and keep

infestations unimportant. Highest districts are south and central. GLOVER SCALE (*L. gloverii*) infested 66 percent of groves (norm 22 percent); 25 percent economic (norm 1 percent). Above normal; decrease expected but scattered groves will have important infestations. Highest districts are south and east. CHAFF SCALE (*Parlatoria pergandii*) infested 76 percent of groves (norm 28 percent); 16 percent economic (norm 1 percent). Above normal; decrease expected with most infestations becoming light. Highest districts are east and south. YELLOW SCALE (*Aonidiella citrina*) infested 44 percent of groves (norm 12 percent); 10 percent economic (norm 1 percent). Above normal; decrease will continue; very few infestations expected to be important. Highest district is central. BLACK SCALE (*Saissetia oleae*) infested 55 percent of groves (norm 56 percent); 34 percent economic (norm 33 percent). Population at average level and will decrease through September. Highest districts are east and south. WHITEFLIES infested 66 percent of groves (norm 52 percent); 32 percent economic (norm 18 percent). Populations continue above average; little change from current high level. MEALYBUGS infested 74 percent of groves (norm 46 percent); 30 percent economic (norm 5 percent). Populations decreased from record high level of June but still at record high level for July. Although further decrease is expected, statewide level will be above average. Highest districts are south and east. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) - NEVADA - Heavy on grapes in Las Vegas, Clark County. (Zoller).

GRAPE LEAF SKELETONIZER (*Harrisina americana*) - SOUTH CAROLINA - More numerous in Coastal Plains than in Piedmont area on grapes. (Nettles et al., Aug. 11).

GRAPE LEAF FOLDER (*Desmia funeralis*) - SOUTH CAROLINA - More numerous on grapes in Coastal Plains than in Piedmont area. (Nettles et al., Aug. 11).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - NEW YORK - Activity in Chautauqua County vineyards appears low this year; not expected to be serious problem. Second brood appears well under control in Monroe County. (N.Y. Wkly. Rpt., Aug. 10).

GRAPE PHYLLOXERA (*Phylloxera vitifoliae*) - WISCONSIN - Galls appearing on grapes at a Dane County location. (Wis. Ins. Sur.).

GRAPE BERRY MOTH (*Paralobesia viteana*) - NEW YORK - Based on bait trap catches at Vineyard Laboratory, Fredonia, Chautauqua County, second-brood spray should be applied August 8-15. (N.Y. Wkly. Rpt., Aug. 10).

#### TRUCK CROP INSECTS

TOMATO HORNWORM (*Protoparce quinquemaculata*) - RHODE ISLAND - Heavy in plantings in Westerly area of Washington County. (Hindle). NEW YORK - Causing concern to Oneida County vegetable gardeners. (N.Y. Wkly. Rpt., Aug. 10). WISCONSIN - Adults continue to appear in blacklight traps. Larvae plentiful on tomatoes in home gardens in Sauk County. (Wis. Ins. Sur.).

TOMATO FRUITWORM (*Heliothis zea*) - UTAH - Egg counts averaged about 1 per 100 tomato leaves; dusting of fields in canning areas may be necessary. (Dorst, Knowlton). MARYLAND - Light in commercial tomatoes in Worcester County. (U. Md., Ent. Dept.).

BLACK CUTWORM (*Agrotis ipsilon*) - WISCONSIN - Nearly full-grown larvae noted feeding on potato tubers in area of Waushara County; as high as 7 per hill noted. Some pupation occurred. Similar condition reported near Alma, Buffalo County; problem more severe on upland soil than on muck soil. (Wis. Ins. Sur.).

EGGPLANT LEAF MINER (*Keiferia glochinella*) - MICHIGAN - Larvae, possibly this species, feeding on foliage of eggplant in Monroe County. (Newman, Proctor).

THREE-LINED POTATO BEETLE (Lema trilineata) - OHIO - Light on potatoes in Morrow County. Generally, population unusually heavy this season on jimson weed and groundcherry. (Holdsworth, Lyon).

GREEN PEACH APHID (Myzus persicae) - NEW YORK - Present generally and serious occasionally on potatoes in Suffolk County; aphids continue as biggest problem in county. (N.Y. Wkly. Rpt., Aug. 10). NEW JERSEY - Continues a problem on peppers, as well as potatoes and tomatoes. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Infested 1.5 acres of commercial peppers in Erie County. (Adams). DELAWARE - Abundant on commercial peppers in some areas of Sussex County and on potatoes in one area of Kent County. (Burbutis, Crossan). WISCONSIN - Colonies appearing on peppers in Wood County; colonies noted as heavy on commercial potatoes in Waushara and Portage Counties. (Wis. Ins. Sur.). COLORADO - Well under control on potatoes in late district of Weld County; number of winged forms increasing. (Bulla).

POTATO APHID (Macrosiphum euphorbiae) - PENNSYLVANIA - Ranged up to 10 per leaf on potatoes in 5-acre field in Erie County. (Adams). MARYLAND - Populations on tomatoes considerably above normal in all sections. (U. Md., Ent. Dept.). WISCONSIN - Colonies relatively heavy on few fields of commercial potatoes in Portage County. (Wis. Ins. Sur.). CALIFORNIA - Nymphs and adults medium on eggplant in Hanford, Kings County. (Cal. Coop. Rpt.).

Aphids on Potatoes in Maine - On untreated potato plantings at Presque Isle, Aroostook County, numbers of Myzus persicae (green peach aphid) tripled and Macrosiphum euphorbiae (potato aphid) doubled during week ending August 15; numbers of Aphis nasturtii (buckthorn aphid) and Acyrtosiphon solani (foxglove aphid) were reduced. Although total aphid numbers doubled, overall numbers are unusually small for this time of season. Macrosiphum euphorbiae and Myzus persicae predominate, followed by Aphis nasturtii and Acyrtosiphon solani. There was a marked increase in abundance of dead aphids killed by entomogenous fungi. (Shands).

LACE BUGS - MINNESOTA - Groups feeding on undersides of leaves of eggplant in Anoka County. Yellowing and browning of leaves conspicuous. Some plants dying as result of feeding and drought. (Minn. Ins. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - WYOMING - Populations decreasing slightly on potatoes and tomatoes. Averaged less than 1 adult per 100 sweeps in potatoes in Washakie and Big Horn Counties; 2 per 100 sweeps in Park County. (Marks).

CRICKETS - WISCONSIN - Damaging tomatoes in fields mulched with straw in Sauk County. (Wis. Ins. Sur.).

SQUASH VINE BORER (Melittia cucurbitae) - WISCONSIN - Larvae damaging cucurbits in Calumet County. (Wis. Ins. Sur.).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - Larvae under 20 percent of watermelons in a 10-acre Sampson County field which was about 2 miles from field reported previous week. Soil was sandy to sandy loam which had not been in cultivation for past 2 years. Only superficial damage noted. Single larva of Horistonotus uhlerii (sand wireworm) found under a watermelon in Sampson County field. (Mount).

SQUASH BUG (Anasa tristis) - IDAHO - Causing some wilting of squash near Parma. Only few noted at any time during past 4 years, but controls required this season. (Scott). OHIO - Adults infesting pumpkin, squash and melon at Pemberville, Wood County. (Holdsworth).

MELON APHID (Aphis gossypii) - MARYLAND - Heavily injured one acre of cucumbers at Newark, Worcester County. (U. Md., Ent. Dept.).

CABBAGE APHID (Brevicoryne brassicae) - MICHIGAN - Moderate to heavy in Monroe, Wayne and Macomb Counties. (Proctor, Austin). NEW YORK - Found occasionally on cabbage in Suffolk County. (N.Y. Wkly. Rpt., Aug. 10).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW YORK - Moderate numbers of this and unspecified loopers present in most cabbage fields in Orleans County. (N.Y. Wkly. Rpt., Aug. 10).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Larvae continue heavy and widespread on beans. In addition to feeding injury on navy beans in central and east central areas of Lower Peninsula, damage also evident on red kidney beans in Montcalm and Manistee Counties. High percentage of navy bean fields sprayed with reasonably good control. Adults taken at all blacklight traps in Lower Peninsula and in Chippewa County. Larvae averaged 17 (range 2-46) per 25 feet of row in 7 fields of red kidney beans in Montcalm County August 7; 50 percent in late stages, 30 percent in middle stages and 20 percent in early stages. (Dowdy et al.).

COWPEA CURCULIO (Chalcodermus aeneus) - LOUISIANA - Heavy on field peas in East Feliciana Parish. (Tynes et al., Aug. 10). ALABAMA - Larvae infested 1-2 seeds per pod in local market in Lee County. (McQueen).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ARKANSAS - Collected from snap beans in Baxter County. This is a new county record. (Warren).

SPINACH LEAF MINER (Pegomya hyoscyami) - WASHINGTON - Eggs of late brood very abundant in some sugar beet fields at Walla Walla, Walla Walla County. (Landis).

A ROOT APHID - WASHINGTON - Severe in portions of field of head lettuce at Orchards, Clark County. (Shanks).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Average adult counts per 100 sweeps at several locations as follows: Arnaudville 150, Scott 32, Church Point 130 and Lewisburg 20. (Tynes et al., Aug. 10).

PALE STRIPED FLEA BEETLE (Systema blanda) - LOUISIANA - Adults per 100 sweeps on sweetpotatoes averaged as follows at several locations: Arnaudville 5, Scott 1 and Grand Prairie 0. (Tynes et al., Aug. 10).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Average adult counts per 100 sweeps on sweetpotatoes at several locations as follows: Arnaudville 6, Lewisburg 1, Grand Prairie 0 and Scott 1. (Tynes et al., Aug. 10).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - LOUISIANA - Adults per 100 sweeps on sweetpotatoes at several locations averaged as follows: Arnaudville 2, Lewisburg 1 and Grand Prairie 0. (Tynes et al., Aug. 10).

A WEEVIL (Hyperodes texana) - TEXAS - Surveys negative in carrot-growing areas in Herford. (Texas Coop. Rpt.; Smith, Thomas, Meisch).

WESTERN RASPBERRY FRUITWORM (Byturus bakeri) - WASHINGTON - All larval stages damaging loganberries and raspberries at Morton, Lewis County. (Breakey).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEW JERSEY - Moths very abundant. Third generation will begin soon; although of little concern on old beds, can damage new plantings. (Ins.-Dis. Newsltr.).

MITES - NEW YORK - Common on raspberry plantings in Chautauqua County. (N.Y. Wkly. Rpt., Aug. 10). NEW JERSEY - Populations continue high on untreated raspberries. (Ins.-Dis. Newsltr.). MARYLAND - Tetranychus spp. injured strawberry planting at Crumpton, Queen Annes County. (U. Md., Ent. Dept.). OKLAHOMA - Tetranychus spp. moderate to heavy in home gardens in Cleveland, Canadian and Cotton Counties. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - NEW YORK - Moderate in Suffolk County; 3-5 or more larvae and eggs per plant. (N.Y. Wkly. Rpt., Aug. 10). MARYLAND - Caused moderate injury to one large field of tomatoes in Worcester County. (U. Md., Ent. Dept.). WISCONSIN - Larvae, probably this species, heavy on beans in Oconto County and on potatoes in Iowa and Waushara Counties. Pupae and adults noted in Iowa County. Considerable damage reported on commercial cabbage in Kenosha, Racine and Bayfield Counties; 4-6 larvae per 10 sweeps present on mint in Waushara County. (Wis. Ins. Sur.).

FLEA BEETLES (Epitrix spp.) - MAINE - Summer-generation adults of E. cucumeris (potato flea beetle) unusually scarce on treated and untreated potato foliage at Presque Isle; only trace numbers present. (Shands). DELAWARE - E. cucumeris numerous on potatoes in many areas of New Castle and Kent Counties. E. hirtipennis (tobacco flea beetle) very common on some tomatoes in New Castle County and present on young lima beans in an area of Sussex County. (Burbutis, Crossan).

BEEF LEAFHOPPER (Circulifer tenellus) - UTAH - Not very numerous in northern area fields. Curly top in tomatoes generally ranged 3-5 percent from Utah County through Box Elder County; ranged 7-8 percent in one field. Incidence lower than anticipated earlier in spring. (Dorst, Knowlton). WYOMING - Curly top averaged less than 1 percent in sugar beets surveyed in Hot Springs, Washakie and Big Horn Counties. (Marks).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - LOUISIANA - Heavy on southern peas and tomatoes in East Baton Rouge Parish. (Tynes et al., Aug. 10).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Infesting carrots in New Castle County and common on lima beans in Sussex County. (Burbutis, Crossan).

#### TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Infestations continue light to heavy on tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.). VIRGINIA - Control necessary on some tobacco fields in Pittsylvania County. Weather conditions very favorable for buildup. (Dominick, Aug. 5).

HORNWORMS (Protoparce spp.) - VIRGINIA - Only very light numbers of larvae noted on tobacco in Pittsylvania County. (Dominick, Aug. 5).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults evident in 17 tobacco fields surveyed in St. Marys County. (U. Md., Ent. Dept.). VIRGINIA - Adults generally light to medium on tobacco in Pittsylvania County, but expected to increase during next 2 weeks. (Dominick, Aug. 5). GEORGIA - Light to moderate on tobacco in southern area. (Johnson).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Remains light in central area. Continues to increase in irrigated cotton below Cap Rock with heaviest infestations in Dickens and Motley Counties. Present in approximately 80 fields above Cap Rock in Floyd, Crosby and Dickens Counties. Light populations reported from Hardeman, Wilbarger, Jones and Garza Counties. (Texas Coop. Rpt.).

OKLAHOMA - Punctured square counts ranged from 4 percent in irrigated cotton to 23 percent in dry land cotton of Jackson County; other counts, 6 percent in Tillman, 2 percent in Harmon, 12 percent in Garvin, 3-10 percent in Choctaw, and 10 percent in McCurtain Counties. Light infestations reported in Bryan County. (Okla. Coop. Sur.).

ARKANSAS - Activity increasing; 303 fields at treatment level compared with 196 previous week. (Wkly. Cott. Ins. Rpt.).

MISSOURI - First adults of season taken; 12 taken in southern part of Pemiscot County. (Harrendorf, Jones).

TENNESSEE - Local migration taking place in fields "cutting out". Punctured squares average 12 percent in infested fields. Conditions ideal for further buildup. (Locke).

LOUISIANA - Infestations continue to increase in areas where it has rained. (Tynes et al.).

MISSISSIPPI - Infestations increasing in some delta fields but many fields still clean. Some local migrations from fields which have "cut out". (Pfirmer et al.).

ALABAMA - Continuous and overlapping "hatchout" throughout central and southern areas. Weather conditions very favorable for larval and pupal survival in squares. (McQueen).

GEORGIA - Infestations increasing and reached damaging proportions in some fields. (Johnson). Counts for punctured squares in 10 south central and southwest area fields ranged 14-85 percent, averaged 48. Scouts checked 1,368 fields in 18 counties; 11 percent of fields had over 50 percent infestation. (Jordan).

SOUTH CAROLINA - Controls giving excellent results throughout State. Treated fields averaged 11 percent punctured squares and untreated fields 37 percent. (Cott. Lett.).

NORTH CAROLINA - Counts of 34-95 percent punctured squares in one field each in Robeson and Duplin Counties. (Johnson, Federonko).

BOLLWORMS (*Heliothis* spp.) - CALIFORNIA - Moth flights increasing in Shafter area of Kern County. Larval counts 2-9 per 100 terminals in same area and 2-4 in Huron section. (Leigh, Aug. 6). Populations high in Mendota-Firebaugh area of Fresno County; 6-8 larvae per 100 plants common but counts of 20-30 found. Elsewhere in county, counts range 2-4 but building up. (Stromberg, Aug. 6).

ARIZONA - Heavy infestations continue damage in Pima, Pinal and Maricopa Counties. Light, with few heavy, populations in Yuma and Graham Counties. (Ariz. Coop. Sur.).

NEW MEXICO - Infestations light to medium in Dona Ana County. Controls applied in occasional field. (N.M. Coop. Rpt.).

TEXAS - Infestations generally lighter throughout State than last year. Heavy infestations reported from Reeves and Hall Counties. (Texas Coop. Rpt.).

OKLAHOMA - Counts generally light to moderate; most of area infestations do not exceed 16 percent. Few fields in Choctaw County up to 30 percent. (Okla. Coop. Sur.).

ARKANSAS - Egg and larval counts up in all areas. Control expected to be difficult for a period of 10-14 days. (Wkly. Cott. Ins. Rpt.).

MISSOURI - Egg counts 0-20 and larvae 0-21 per 100 terminals in southeastern area. Infestations in 76 percent of fields scouted. (Harrendorf, Jones).

TENNESSEE - Continue to increase over entire area. Infestations much heavier in fields where early season control started then discontinued. Larval and egg counts 1-11 per 100 terminals. Controls not practiced unless boll weevils a problem. (Locke).

LOUISIANA - Generally low and well controlled, but a few localized areas have heavy populations with control difficult. (Tynes et al.).

MISSISSIPPI - Heaviest moth flight of year in Stoneville area with very heavy egg deposition; considerable number of larvae expected. (Pfirmer et al.).

ALABAMA - Infestations on increase but numbers not as great as in 1963. (McQueen).

GEORGIA - Increasing with warnings issued to look for eggs and larvae. (Jordan). In south central and southwestern areas, egg counts 9-40 per 100 terminals, average 9; larval counts 4-15, average 9. (Johnson).

SOUTH CAROLINA - Damage increasing in all sections. (Cott. Lett.).



PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Two additional moths collected from sex lure trap near Florence, Pinal County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Light to moderate populations appearing in Pinal and Graham Counties; damage light. (Ariz. Coop. Sur.). MISSISSIPPI - Larvae appearing in many delta area fields; considerable ragging and economic loss of foliage reported in some areas. (Pfrimmer et al.) ALABAMA - Considerable moth flight and egg laying continue in southern counties. Isolated larval populations light to medium but no damage reported. (McQueen). GEORGIA - Caused concern in southern area and showing up in northern section. Virus reduced problem in southern areas and expected to reach the northern section. (Jordan). SOUTH CAROLINA - Larvae and damage noticeable in some areas (Cott. Lett.), but populations in Florence section decimated by virus disease (Taft et al.).

COTTON LEAFWORM (Alabama argillacea) - ARKANSAS - Reported from southeast part of State. (Wkly. Cott. Ins. Rpt.).

SALT MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Small number of "flags" and some hatching in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Common but light in cotton fields on and near the Shafter Experiment Station, Kern County. (Leigh, Aug. 6).

APHIDS - ARIZONA - Damaging numbers continue in Graham County. (Ariz. Coop. Sur.). ARKANSAS - Activity up, fields with medium to heavy infestation 60 compared with 25 previous week. (Wkly. Cott. Ins. Rpt.). MISSISSIPPI - Present in scattered fields of delta area; mostly light. (Pfrimmer et al.). SOUTH CAROLINA - Infestations in Florence area remain light. (Taft et al.). TENNESSEE - Continue in rank cotton and could become problem later. (Locke).

FLEAHOPPERS - NEW MEXICO - Mostly light in Chaves and Eddy Counties. (N.M. Coop. Rpt.). TEXAS - Damage light in most parts of western area. (Texas Coop. Rpt.). TENNESSEE - One field with 90 percent damage observed in Hardeman County; no control practiced. (Locke).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Nymphal populations increasing in Kern County and western Fresno County areas. (Leigh, Aug. 6). General in Fresno County but fairly low; some treatments being applied. (Stromberg, Aug. 6). ARIZONA - Increasing and causing damage in nearly all sections; continued controls necessary. (Ariz. Coop. Sur.). NEW MEXICO - Mostly light infestations in Chaves and Eddy Counties. (N.M. Coop. Rpt.).

PLANT BUGS - ARKANSAS - Activity continues about same as previous week with infestations at treatment level in 23 fields. (Wkly. Cott. Ins. Rpt.). MISSOURI - Populations ranged 0-43 per 100 terminals in 76 percent of fields scouted. (Harrendorf, Jones). TENNESSEE - Continue to cause some injury in scattered fields in southern counties. (Cott. Ins. Notes).

STINK BUGS - ARIZONA - Scattered infestations damaging cotton in Yuma, Graham, Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - CALIFORNIA - Populations largely controlled along San Joaquin River and edge of Sierra foothills, Fresno County, but checks urged for possible re-invasion. (Stromberg, Aug. 6).

WHITEFLIES - LOUISIANA - Infestations heavy enough to treat in isolated fields in Franklin and Caddo Parishes. (Tynes et al.).

SPIDER MITES - ARKANSAS - Activity remaining about same as previous week. Fields with medium to heavy infestations 55 compared with 62 previous week. (Wkly. Cott. Ins. Rpt.). MISSOURI - Infesting 12 percent of fields scouted in

southeastern area; 535 acres treated. (Harrendorf, Jones). TENNESSEE - Continue to increase causing considerable damage in fields not treated. (Locke). MISSISSIPPI - Continue to be a problem in delta areas. Light infestations found in many fields for first time this season. (Pfrimmer et al.). GEORGIA - Light to moderate in south central and southwestern areas. (Johnson). SOUTH CAROLINA - Infestations remain light. (Cott. Lett.). CALIFORNIA - Increasing in abundance in the Shafter area of Kern County and the Five Points area of Fresno County. (Leigh, Aug. 6). Building up rapidly in the Clovis-Sanger area of Fresno County. (Stromberg, Aug. 6).

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Weather continued from p. 960.

By Monday night, nearly 200,000 acres of rangelands in northeastern Nevada had been burned over and about 2,000 persons were attempting to control the fires. (Summary supplied by U.S. Weather Bureau).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

JACK-PINE BUDWORM (Choristoneura pinus) - MICHIGAN - Larval defoliation severe in Iosco and Alcona Counties. Damage in 1964 greatly reduced in Mio Ranger district where defoliation severe last year. (Pommerening).

SPRUCE NEEDLE MINER (Taniva albolineana) - NEW YORK - Heavy in various western areas. (N.Y. Wkly. Rpt., Aug. 10).

EUROPEAN PINE SHOOT MOTH (Rhyacionia bouliana) - PENNSYLVANIA - Severe on red and Scotch pines in planting in Huntingdon Valley, Montgomery County. (Cole, July 30).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - PENNSYLVANIA - Killing a few Austrian pines in Luzerne County. (Pa. For. Pest Rpt., Aug. 10).

A PINE TIP MOTH - ARKANSAS - Activity prevalent in young pine plantations across southern part of State. Peak of this generation past; few moths active now. Another generation expected before frost; expected to damage terminals not making rapid growth at present. Ornamental pines should be sprayed since brown tips will be more evident as larvae forced to feed on older needles and tips. (Ark. For. Pest Rpt., Aug.).

AN OLETHREUTID MOTH (Eucosma gloriola) - PENNSYLVANIA - Becoming more of a problem in forest plantings, particularly in white and red pines. Several instances noted where this species caused more damage than Pissodes strobi (white-pine weevil). In some white pine plantings where P. strobi effectively controlled, E. gloriola caused as much additional damage. (Pa. For. Pest Rpt., Aug. 10).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Damage continued on upswing during early July and activity was more concentrated, particularly in Polk, San Jacinto, Tyler and Jasper Counties. Fewer infestations controlled in Hardin, Liberty and Orange Counties. On the whole, activity declining. According to recent survey by USFS personnel, about 200 spots, ranging in size from single to 50 trees found in San Augustine County. Loblolly, shortleaf and slash pines attacked and spots spreading. Control initiated. (Texas For. Pest Comm., July Rpt.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ARKANSAS - Reported active in a few areas; this is normal seasonal activity but care should be taken in logging operations to do least amount of damage to trees left standing. (Ark. For. Pest Rpt., Aug.). TEXAS - Damage in Angelina, Jasper, San Augustine and Tyler Counties. Heaviest damage in areas logged during past year. (Texas For. Pest Comm., July Rpt.).

ENGRAVER BEETLES (Ips spp.) - ARKANSAS - More prevalent than at any time since October 1963 in dry areas, especially in western part of State. Conditions favorable for rapid increase in infestations. Most prevalent species seems to be I. avulsus which attacks crowns. Infestations still limited mostly to small groups of trees. (Ark. For. Pest Rpt., Aug.). TEXAS - I. avulsus, I. grandicollis, I. calligraphus most noticeable in association with southern pine beetle. (Texas For. Pest Comm., July Rpt.).

WHITE-PINE WEEVIL (Pissodes strobi) - MICHIGAN - Larval injury common on red pines 2-10 feet high in Alcona County; 20 percent of trees damaged in some spots. (Pommerening). MINNESOTA - Adults now emerging. Some noticeable damage to roadside pine in Hubbard and Clearwater Counties. (Minn. Ins. Rpt.).

RED-PINE CONE BEETLE (Conophthorus resinosae) - MICHIGAN - Adult injury to cones and shoots of red pine common in Schoolcraft County. (Pommerening).

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - MICHIGAN - Adults have emerged; 1964 infestations apparently reduced in Alcona and Schoolcraft Counties. (Pommerening).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - PENNSYLVANIA - Defoliation reported in Scotch pine planting in Greene County; controls may be necessary in August and September. (Pa. For. Pest Rpt., Aug. 10). MICHIGAN - Larvae, believed to be this species, causing some damage in Dickinson and Menominee Counties. (Mattson, Bowers). MINNESOTA - Defoliating occasional roadside jack pine. No serious plantation infestations. Many colonies in southern, east central and central districts completed feeding. (Minn. Ins. Rpt.).

INTRODUCED PINE SAWFLY (Diprion similis) - MINNESOTA - No areas of high infestation expected except for roadside plantings near Atkinson in Carlton County and Rush City in Pine County. (Minn. Ins. Rpt.).

LARCH SAWFLY (Pristiphora erichsonii) - PENNSYLVANIA - Ten reports of heavy defoliation received since late June; problem apparently on increase. (Pa. For. Pest Rpt., Aug. 10).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Webbing very noticeable in pecan and poplar trees in Dona Ana County along Rio Grande River. (N.M. Coop. Rpt.). SOUTH DAKOTA - Webs conspicuous in southeastern area; particularly abundant in farm windbreaks. (Hintz). WISCONSIN - Apparently a higher population in northeast than in many previous years. (Wis. Ins. Sur.). INDIANA - Webs on wild cherry, walnut and other trees in 7 north central counties. (Schuder). OHIO - Moderate to heavy on many wild cherry trees throughout northeast. One tree had 8 webs averaging 90 larvae in Wayne County. (Lyon). RHODE ISLAND - Locally heavy in Jamestown, Newport County. (Peabody).

OAK WEBWORM (Archips fervidanus) - PENNSYLVANIA - Caused nearly 100 percent defoliation over several thousand acres of scrub oaks and smaller red oaks in Monroe and Franklin Counties. (Pa. For. Pest Rpt., Aug. 10).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Larval damage less striking by July 27 on Ulster County mountains owing to refofoliation in progress. Larvae difficult to find in woods; many hundreds of pupal skins examined to find one occupied by unemerged moth. Males and newly emerged females growing scarcer. Completed egg masses very abundant. (N.Y. Wkly. Rpt., Aug. 3). MICHIGAN - None found in approximately 2,000 traps checked. (Carlson, Turner, Boyer).

HAG MOTH (Phobetrion pitheciun) - RHODE ISLAND - Feeding on shrubbery in Westerly, Washington County. (Hindle, Mathewson). PENNSYLVANIA - Quite numerous on maple in Huntingdon County. (Udine).

PANDORA MOTH (Coloradia pandora) - COLORADO - Widespread in Larimer and Jackson Counties. Mating and egg laying underway. (Thatcher).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - CALIFORNIA - Medium larval population on elms in Arroyo Grande, San Louis Obispo County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW MEXICO - Found for first time on Chinese elm at Belen, Valencia County. Damage light. This is new county record. Moderate to heavy on Chinese elms at Los Padillas, Bernalillo County. (N.M. Coop. Rpt.). TEXAS - Heavy locally on elms in Marion and Grayson Counties. (Meisch). OKLAHOMA - Moderate to heavy throughout most of State. (Okla. Coop. Sur.). CALIFORNIA - Larvae heavy on elms in Escondido, San Diego County. (Cal. Coop. Rpt.). UTAH - Damaging at Kanab, Kane County. This and Emery County are two new county records. Damage serious in St. George area of Washington County also. (Knowlton). IDAHO - Many large elms completely defoliated. (Scott). GEORGIA - Heavy on elm in Columbus area. (Greene).

LARGER ELM LEAF BEETLE (Monocesta coryli) - SOUTH CAROLINA - Very serious on elms for past 2 or 3 weeks; controls recommended. (Nettles et al., Aug. 11). GEORGIA - Larvae moderate on elm in Greene County. (Ebel).

A LEAF BEETLE (Anoplitis inaequalis) - OKLAHOMA - Damaging elms in Rattan area of Pushmataha County. (Okla. Coop. Sur.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Adults active on elm in Lovelock, Pershing County. This is first record for county. (Betchel, Rivers). TEXAS - Specimens recorded from Borger in Hutchinson County. Degree of infestation not reported. (Weisch).

A BARK BEETLE (Corthylus punctatissimus) - PENNSYLVANIA - Killing healthy sugar maple seedlings in Pike County; usually attacks dead or dying trees. (Pa. For. Pest Rpt., Aug. 10).

AN APHID (Myzocallis bella) - CALIFORNIA - Nymphs and adults heavy on scarlet oak in Sacramento, Sacramento County. This is first record for county. (Cal. Coop. Rpt.).

BEECH SCALE (Cryptococcus fagi) - PENNSYLVANIA - Heavy on approximately 200 trees at Tobyhanna State Park, Monroe County. This is third report of species in State; first found in State in 1958 in Promised Land State Park, Pike County, and on some beeches later in southern Wayne County. Infestation in Tobyhanna State Park serious in picnic areas. Danger of losing many trees within next few years. Control scheduled for August or September when eggs hatch. Infestation in Promised Land State Park covers wider area but not so serious. Large numbers of adults and larvae of Chilocorus stigma (twice-stabbed lady beetle) noted feeding on this pest but affording little actual control. (Pa. For. Pest Rpt., Aug. 10).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW MEXICO - Moderate to heavy populations damaging elm at Belen, Valencia County. (N.M. Coop. Rpt.).

A PIT SCALE (Asterolecanium minus) - PENNSYLVANIA - Causing dieback on 50 acres of chestnut oak in Bedford and Greene Counties and dieback on white oak in Pike County. (Pa. For. Pest Rpt., Aug. 10).

A PAMPHILIID SAWFLY - PENNSYLVANIA - Species not previously recorded on oak in North America found causing 20-100 percent defoliation of individual high quality red oak scattered over area of 1,200 acres in Linn Run State Park, Westmoreland County, by J. F. Wagner. Species probably in genus Pamphilius; only one European species known to feed on oak. Det. by B. D. Burks. Defoliation greatest on lower branches progressing into crowns with higher populations. (Pa. For. Pest Rpt., Aug. 10).

WALKINGSTICK (Diapheromera femorata) - WISCONSIN - Nymphs nearly full-grown in infestation on locust near Plainfield, Waushara County. Populations noticeably reduced. (Wis. Ins. Sur.).

SPIDER MITES - NEW JERSEY - Tetranychus telarius (two-spotted spider mite) and Panonychus ulmi (European red mite) infestations heavy on many ornamentals. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Oligonychus bicolor collected on scarlet oak in Montour County August 4; det. by R. Snetsinger. (Simons). IOWA - Unspecified species damaged evergreens in Calhoun County. Infesting many other trees including Moraine honeylocust and other honeylocusts. (Iowa Ins. Inf., Aug. 10). CALIFORNIA - Light to medium populations of O. pritchardi on valley oak (Quercus lobata) in Hanford, Kings County. (Cal. Coop. Rpt.).

A SPIDER MITE (Eotetranychus pruni) - DELAWARE - Infesting leaves of Quercus borealis maxima in Newark, New Castle County, August 6. Collected and determined by J. Mellott. This is a new State record. (Burbutis, Crossan):

BAGWORM (Thyridopteryx ephemeraeformis) - PENNSYLVANIA - Fairly heavy in nursery on evergreens at Point Pleasant, Bucks County. (Cole, July 28). SOUTH CAROLINA - Extremely serious and far above average in nurseries not sprayed. (Nettles et al., Aug. 11). GEORGIA - A continuing problem on arborvitae, juniper and cedar in Atlanta area. (Johnson). OKLAHOMA - Moderate to heavy on evergreens in Cleveland, Kingfisher, McIntosh, Payne, Mayes and Pushmataha Counties. (Okla. Coop. Sur.).

MIMOSA WEBWORM (Homadaula albizziae) - INDIANA - Extensive infestations on both wild and cultivated honeylocusts in Cass, Carroll, Clinton, Grant, Howard, Miami and Wabash Counties. (Schuder). PENNSYLVANIA - Noted on Sunburst honeylocust in Montgomery County. (Cole, July 30).

JUNIPER WEBWORM (Dichomeris marginella) - NEW YORK - Serious in nursery plantings in Erie County. (N.Y. Wkly. Rpt., Aug. 10).

CATALPA SPHINX (Ceratonia catalpae) - ALABAMA - General throughout State; heavy defoliation of catalpa in isolated areas. (McQueen). OHIO - Defoliating catalpa in Allen County. (Polivka).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - MICHIGAN - Larval injury to roots of taxus severe in Wayne County nursery. Adults feeding on taxus and euonymus foliage. (Dennis).

BOXELDER BUG (Leptocoris trivittatus) - OKLAHOMA - Heavy on shrubs in Kingfisher County. (Okla. Coop. Sur.).

A LEAFHOPPER (Erythroneura aelys) - INDIANA - Infestations on redbud causing extensive yellowing of foliage in Bartholomew County. (Schuder).

TWO-STRIPED WALKINGSTICK (Anisomorpha buprestoides) - GEORGIA - Building up again in Stone Mountain area. Defoliating privet and other plants over wide area of De Kalb County. (Vanderford).

A SAWFLY (Schizocerella pilicornis) - NORTH DAKOTA - Larvae abundant on pursalane in southern third of State. (Frye, Gage).

AN ERIOPHYID MITE (Calacarus adornatus) - FLORIDA - Moderate to severe on leaves of camellia at a nursery in Winter Haven, Polk County, August 6. (Henderson).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - WISCONSIN - Although not particularly annoying to cattle grazing at night, noticeable buildup has occurred in some southern areas. Populations reportedly high in parts of Waukesha, Walworth and lowland parts of Sheboygan Counties. (Wis. Ins. Sur.). MINNESOTA - During week ending August 8, of 82 larval collections made by Metropolitan Mosquito Control District, 32 percent were Culex restuans and 16 percent were C. tarsalis. Aedes vexans was dominant in 45 evening and daytime bite collections as well as in light trap collections. C. salinarius also taken in daytime bite collections and all specimens were from Dakota County. A total of 264 females of C. tarsalis collected in light traps. (Minn. Ins. Rpt.). ILLINOIS - Troublesome even with the dry weather. (Ill. Ins. Rpt.). LOUISIANA - Moderate in St. Landry and Iberville Parishes. (Tynes et al., Aug. 10). UTAH - Mosquitoes annoying in areas of Duchesne, Uintah and Daggett Counties. (Knowlton).

HORN FLY (Haematobia irritans) - GEORGIA - Averages per animal in untreated herds: 165 in Rabun County, 90 in White County and 220 in Spalding County. (Roberts). LOUISIANA - Heavy in Rapides and Acadia Parishes. (Tynes et al., Aug. 10). OKLAHOMA - Populations moderate to heavy in Cotton, Greer, Hughes, McIntosh, Mayes, Bryan, Cleveland and Choctaw Counties. Light in Pushmataha County. (Okla. Coop. Sur.). INDIANA - Averaged 40 per head of cattle in

northwest, 30 in north central and 20 in northeast. (Saugstad). SOUTH DAKOTA - Counts of 30-250 per side on various herds in Union, Clay and Yankton Counties. (Hintz). WYOMING - Adults very annoying to livestock in Hot Springs, Washakie, Big Horn and Park Counties. Estimate 200-300 per animal with high of 600. (Marks). UTAH - Moderately numerous on cattle in areas of Daggett and Uintah Counties. (Knowlton).

FACE FLY (Musca autumnalis) - GEORGIA - Reported for first time from Dawson County, Aug. 14. (Ayres). Averaged 5 per animal in untreated herd in White County and 22 per animal in untreated herd in Rabun County. (Roberts). MARYLAND - Averaged 15-30 per head on untreated dairy animals in 2 herds checked in Frederick County. (U. M., Ent. Dept.). INDIANA - Averaged 3.5 per face in northwest, 2 in north central and less than 1 in northeast. (Saugstad). WISCONSIN - Some decrease in activity noted although pinkeye reported. Numbers not as high in Richland County as last season at this time. (Wis. Ins. Sur.). SOUTH DAKOTA - Populations continue to remain around the 5-15 per face level in southeast. (Hintz).

TABANIDS - LOUISIANA - Average counts of horse flies per animal by parish as follows: Acadia 5, St. Landry 9, West Baton Rouge 1, Iberville 9 and Ascension 3. (Tynes et al., Aug. 10). OKLAHOMA - Tabanus spp. heavy in Choctaw County. Counts light in Pushmataha County. (Okla. Coop. Sur.). UTAH - Horse flies commonly annoying in Myton-Duchesne area of Duchesne County but numbers are decreasing. Tabanids annoying livestock and people in Manila-Antelope area of Daggett County. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Averaged 10-20 per head on untreated dairy animals in 2 herds in Frederick County. (U. Md., Ent. Dept.). WISCONSIN - Apparently still the most annoying fly affecting cows. (Wis. Ins. Sur.).

A BOT FLY (Cuterebra ruficrus) - CALIFORNIA - A single specimen taken by a 4-H member in Ridgecrest, Kern County, in an area adjacent to a horse corral. (E. C. Loomis, Ext. Serv.).

MASKED HUNTER (Reduvius personatus) - UTAH - Found in home at American Fork, Utah County, August 6. (Knowlton).

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

FLEAS - NEW JERSEY - Continue nuisance in homes and lawns. (Ins.-Dis. Newsltr.). ILLINOIS - Problem in homes. (Ill. Ins. Rpt.). RHODE ISLAND - Ctenocephalides sp. in house in Kingston, Washington County. (Mathewson).

#### HOUSEHOLD AND STRUCTURAL INSECTS

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - MASSACHUSETTS - Reports of household nuisances increasing in western area. (Wave, Aug. 8). VIRGINIA - Adults common locally in Harrisonburg, Rockingham County. (Tarpley, Peterson, July 28).

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Invading homes in Salt Lake City area. (Knowlton).

DRUGSTORE BEETLE (Stegobium paniceum) - PENNSYLVANIA - Abundant in 2 homes in Butler County. (Adams).

EUROPEAN EARWIG (Forficula auricularia) - NEW YORK - Annoying to homeowners in Oneida County. (N.Y. Wkly. Rpt., Aug. 10). UTAH - Unusually troublesome about and in homes and motels at Kanab, Kane County. (Knowlton, Hatch).

A CAMEL CRICKET (Ceuthophilus sp.) - NORTH DAKOTA - Causing some concern in homes in Fargo area. (Dogger).

A LEAFHOPPER (Carneocephala sp.) - SOUTH CAROLINA - Attracted by lights in homes and tourist courts. (Nettles et al., Aug. 11).

#### STORED-PRODUCT INSECTS

FOREIGN GRAIN BEETLE (Ahasverus advena) - VIRGINIA - This species and Lasioderma serricorne (cigarette beetle) infesting a bin containing about 2,000 bushels of wheat in Middlesex County. (Tarpley, Edwards, Aug. 3).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - OHIO - Many homeowners annoyed during end of July and first of August by infestation of cereals and other stored foods. (Delaplane).

#### BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults of several species averaged 64 per 100 sweeps in alfalfa, 42 in sugar beets and 36 in beans. Adults averaged 8 per plant in corn fields of Hot Springs, Washakie, Big Horn and Park Counties. (Marks). UTAH - Undetermined species as well as other predators and parasites were numerous and helped to bring unsprayed fields heavily infested with pea aphids under control near Vernal and elsewhere in Ashley Valley and at Tridell in Uintah County. (Knowlton, Aug. 6).

GROUND BEETLES (Harpalus spp.) - IOWA - Large numbers of several species reported in northwest area; feeding on many other insects. (Iowa Ins. Inf., Aug. 10).

FLOWER BUGS (Orius spp.) - WYOMING - Adults averaged 126 per 100 sweeps in alfalfa, 87 in sugar beets and 64 in beans in Hot Springs, Washakie, Big Horn and Park Counties. (Marks).

BIG-EYED BUGS (Geocoris spp.) - NEW YORK - Found associated with Blissus leucopterus hirtus (hairy chinch bug) in Oneida County. G. bullatus conspicuous in Rockland County. (N.Y. Wkly. Rpt., Aug. 10).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 68 per 100 sweeps in alfalfa, 52 in sugar beets and 49 in beans in Hot Springs, Washakie, Big Horn and Park Counties. (Marks).

CHINESE MANTIS (Tenodera aridifolia sinensis) - SOUTH CAROLINA - Specimens collected at Greenville and Pickens Counties for the first time. (Nettles et al., Aug. 11).

#### MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - NEW YORK - First adults of season observed in Rockland County. (N.Y. Wkly. Rpt., Aug. 10). VIRGINIA - In smaller numbers in Augusta County area than at any time in past 4 years. (Woodside). OHIO - Based on trappings, beetles are about one-fourth the population of last year. Less damage and fewer complaints. (Polivka). MICHIGAN - Small numbers collected in Detroit and St. Clair Shores areas, also reported from 1 trap each in Ann Arbor and Grand Rapids. In more heavily infested area in and around Battle Creek some 600 beetles taken in 166 of 2,000 traps. As trapping progresses, delimiting of Battle Creek infestation appears good. (Carlson, Turner, Boyer).



A WEEVIL (Cosmobarus americana) - CALIFORNIA - Light to medium on rice and weeds in Merced, Merced County. This is a new county record. (Cal. Coop. Rpt.).

A BEAN WEEVIL (Acanthoscelides pauperculus) - CALIFORNIA - Medium populations in loco weed seed. Adults now in seed pods in Livermore, Alameda County. (Cal. Coop. Rpt.).

AN EARWIG (Anisolabis maritima) - VIRGINIA - All stages severely infesting fishing worms and eggs in worm beds locally in Richmond. (Willey). Aug. 6).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Live nymphs on citrus and gardenia in 5 new blocks. These areas to be treated for eradication in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

#### CORRECTIONS

CEIR 14(29):811 - APHIDS - MAINE - End of line 3 should read Periphyllus lyopictus...

CEIR 14(33):935 - ALYDID BUGS (Alydus spp.) - MISSOURI - A. pilosus should read A. pilosulus

CEIR 14(33):951 - MOSQUITOES - MINNESOTA - Aedes salinarius should read Culex salinarius.

CEIR 14(33):954 - Parasites of European Corn Borer - WISCONSIN - Sympiesis veridulus should read Sympiesis viridula.





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

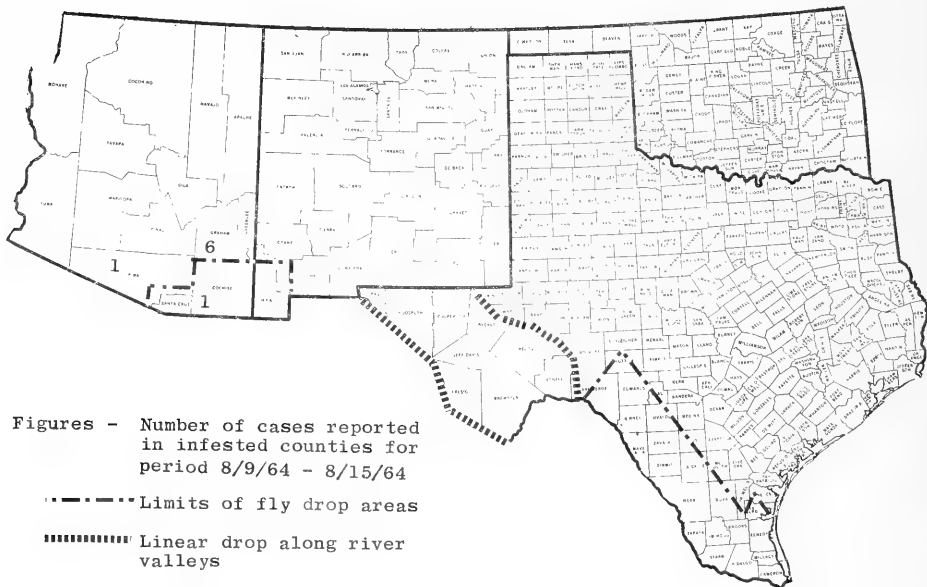
During the period August 9 - 15, no screw-worm infestations were reported in the Southwestern Screw-worm Eradication Area. Eight cases were reported in ARIZONA: Graham County (6), Pima County (1) and Cochise County (1). The Republic of Mexico reported no cases. A total of 100,458,250 sterile screw-worm flies was released: 26,274,250 in Texas; 2,600,000 in New Mexico, 6,380,000 in Arizona, and 65,204,000 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,366	32,448	30	2,197	4,553.3:100	1,476.9:100
1963	80	2,389	69	4,556	115.9:100	52.4:100
1964	0	107	30	4,173	0.0:100	2.5:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases with cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).





UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS



577  
Ent.  
VOL. 14 No. 35

August 28, 1964

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**



# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Considerable movement of GRASSHOPPERS into crops observed in Wisconsin, with loss to late oats and damage to cabbage reported; movement into corn and soybeans increased in Minnesota; extremely numerous in some agricultural areas of Utah. (p. 989). EUROPEAN CORN BORER infestations in stalks and tassels of maturing corn increasing in all sections of Maryland, and light trap catches high and about a week earlier than in 1963 in Wisconsin. (pp. 989-990). CORN EARWORM larval feeding moderate to heavy on soybeans in areas of Georgia; moth flights and egg laying heavy over most of Illinois. (p. 990). FALL ARMYWORM whorl infestations continue to be a problem in late corn in all sections of Maryland and considerable whorl feeding noted in areas of Wisconsin. CORN LEAF APHID numbers declining in many areas where previously high. (p. 991). SPIDER MITES spotty but potentially damaging on soybeans in several areas on Eastern Shore of Maryland. SPOTTED ALFALFA APHID increasing on alfalfa in Colorado, South Dakota and Wisconsin. (p. 992). BLISTER BEETLES (*Epicauta* spp.) causing some concern by feeding on silks of corn in Wisconsin and North Dakota. (p. 994).

GREEN CLOVERWORM populations greatly reduced in thumb area of Michigan, but outbreak reported on beans over extensive acreage in western New York (p. 997); also reported damaging soybeans in Ohio. (p. 993).

BOLL WEEVIL increasing on cotton in southern Tennessee and conditions are favorable for buildup. (p. 1000). PINK BOLLWORM larvae and exit holes becoming more numerous in most cotton fields between Solomon and Safford, Arizona. (p. 1001).

DETECTION

New State records reported were WESTERN FLOWER THRIPS (*Frankliniella occidentalis*) in Maryland, which is also apparently a new record for the Eastern United States (p. 1004), and a WALNUT HUSK FLY (*Rhagoletis suavis*) from Delaware (p. 1004). New county records include WESTERN CORN ROOTWORM (*Diabrotica virgifera*) from Putnam, Schuyler, Sullivan, Cass and Jackson Counties, Missouri (p. 991); a BERMUDA-GRASS MITE (*Aceria neocynodonis*) from Merced and Yolo Counties, California (p. 992); and SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) from Buffalo County, Nebraska (p. 1003).

CORRECTIONS

See page 1007.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1010).

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

WEATHER OF THE WEEK ENDING AUGUST 24

Abnormally cool weather continued for the third consecutive week over the Great Lakes region and the Northeast and for the second week over other central and eastern portions of the Nation. Beneficial rains came to most of the Corn Belt.

**TEMPERATURE:** Hot weather continued over Texas and the Far Southwest. Unseasonal coolness continued over the Great Lakes region, the Northeast, and the Midwest. Unusually cool air from the Pacific Ocean spread over the Northwest and moved into the upper Mississippi River Valley. The cool air pushed into the northern Great Plains, the Great Lakes region, and the Ohio River Valley. Midday readings on Thursday were in the 70's over the Dakotas in contrast to Wednesday's afternoon temperatures which were in the 90's or, in some cases, exceeded 100°. The cool weather continued over most of the eastern half of the Nation. Temperatures over the Southeast increased to near normal during the latter part of the week. Temperatures averaged above normal along the Pacific coast, the Mexican border, southern Florida, and in the Washington-Baltimore vicinity, and below normal over the rest of the Nation. Some areas in California averaged 2° to 5° above normal. Wyoming, Nebraska, areas near the northern Great Lakes, and parts of northern New England averaged more than 6° below normal.

**PRECIPITATION:** As the cold front moved across the Great Plains, thunderstorms dropped much needed rain over the Corn Belt. Kirksville, Missouri, received over 3 inches of rain Thursday night and early Friday morning. Locally heavy amounts - up to 3 inches or more - fell in Nebraska, Kansas, Minnesota, Wisconsin, Iowa, and Missouri. Heavy rains at Spring Valley, Minnesota, flooded highways and halted traffic. Gusty winds up to about 70 m.p.h. damaged trees in Prairie Village, a suburb of Kansas City, Kansas. The cold front triggered general shower activity from the northern high plains of Texas southeastward across the State. Amounts ranged widely. San Saba, on the Edwards Plateau, received 8.41 inches Saturday night. Rains of 1 to 5 inches fell over much of the drought area from Oklahoma to the Great Lakes on Friday and Saturday. Although some areas over the Eastern United States received rain almost daily, the weekly totals ranged widely. Some areas received from 0.25 to 1.00 inch; others from 1 to 5 inches. Light snow accumulated on some of the higher mountains of Wyoming and Colorado. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WISCONSIN - Considerable migration into crops observed; treatment reported in Dodge and northern Trempealeau Counties; some loss to late oats reported in Door County; treatment of soybeans contemplated at a location in Walworth County. Migration into and feeding on cabbage reported in Outagamie County. Corn severely damaged in many areas, particularly fields adjacent to cut alfalfa. Melanoplus femurrubrum (red-legged grasshopper) and M. differentialis (differential grasshopper) approximately equal in numbers in field of corn where latter species dominant previous week. Noticeable feeding on needles of red and white pine noted in area. Approximately 20 percent of M. femurrubrum females contained eggs August 19; none found in M. differentialis females same date. Some grasshopper migration may be temporary; some will probably be permanent unless alfalfa becomes more palatable in some areas. (Wis. Ins. Sur.). MINNESOTA - Annual adult survey underway in western edge of State. Counts in area generally lower in alfalfa than few weeks ago, probably because of increased movement into corn and soybeans. Flights noted dropping into Minneapolis on August 16 and could be found in downtown area following day. Averaged 8 per square yard; mostly M. femurrubrum. In southwest districts, counts ranged from less than 1 to 36 per square yard (average 7); averaged 3 per square yard in northwest and 9 in west central districts. M. femurrubrum predominated in all fields surveyed. (Minn. Ins. Rpt.). NORTH DAKOTA - Adults generally noneconomic in Mountrail, Burke, Divide, Williams and Barnes Counties, except for few scattered light populations. M. femurrubrum, M. bivittatus (two-striped grasshopper) and M. sanguinipes (migratory grasshopper) dominant in northwest area; M. femurrubrum, M. bivittatus and Chorthippus longicornis dominant in Barnes County. (Brandvik). Mostly noneconomic in Eddy, Foster, Wells, Kidder, Sheridan, Stutsman and Cass Counties; light infestations found in Kidder County and in small areas of Eddy, Sheridan and Cass Counties; M. sanguinipes, M. bivittatus, M. femurrubrum, M. packardii and Camnula pellucida (clear-winged grasshopper) dominant species. C. longicornis found in Cass County. (Scholl). OHIO - M. differentialis building up throughout southwest; some feeding damage to field crops noted along grassy fence rows. (Lyon).

MISSOURI - Averaged 8-10 per square yard along highway right-of-way in northern Boone County; two-thirds M. sanguinipes and one-third M. differentialis. Averaged 0-2 per square yard in Chariton, Linn, Sullivan, Putnam, Schuyler, Adair and Macon Counties; dominant species being M. differentialis or M. sanguinipes in about equal number of fields. (Houser, Thomas, Wood). OKLAHOMA - Adult survey completed in 45 counties, of which 13 were in west central and northwest areas. Results show 38,000 acres of rangeland infested in Roger Mills, Ellis, Woods and Woodward Counties. Dominant species included Aeneotettix deorum, M. bivittatus, Mermiria maculipennis and Amphitornus coloradus. Populations light in other 9 counties surveyed. (Okla. Coop. Sur.). UTAH - More numerous than for past 12 years in Summit County, but not serious. (Moore). Extremely numerous in portions of Nephth-Levan area of Juab County, about some farms in Heber area of Wasatch County and in lower Provo Canyon in Utah County; Melanoplus sanguinipes dominant in these areas. Damaging in few small areas of Kane County. (Hatch, Knowlton). NEVADA - Heavy mixed population of M. sanguinipes, M. bivittatus and Camnula pellucida averaged 50 per square yard at Red House, Lander County. (Maloney). Populations of M. sanguinipes, M. packardii (Packard grasshopper), M. femurrubrum and Trimerotropis sp. in Douglas, Lyon, Pershing and Washoe Counties equal to or below populations present in 1963. (Cooney). ARIZONA - Heavy populations of several species present on 250,000 acres in areas of Santa Cruz, Cochise and Pima Counties. (Ariz. Coop. Sur.). CALIFORNIA - Trimerotropis pallidipennis adults medium in grassland in Burnt Ranch, Trinity County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MAINE - Moderately damaged sweet corn in York and Cumberland Counties. (Boullanger, Aug. 15). NEW YORK - Second-brood larvae mostly small in Hudson Valley; ranged to fourth stage by mid-August. About 10 percent of early whorl corn shows etching; larvae scarce in silk and ear tips. Moths still present in traps and fields. (N.Y. Wkly. Rpt., Aug. 17). MARYLAND - Stalk and tassel infestations continue to increase in maturing corn in all sections. (U. Md., Ent. Dept.). MICHIGAN - Adults, eggs, larvae and pupae

generally distributed. (Newman). WISCONSIN - Emergence about complete in southern counties. Blacklight trap catches indicated high counts for August 15-16 and probably marked peak flight. Counts high in most traps; numbers about double and week ahead of last season. Egg mass counts generally low, although 30 fresh masses per 100 plants noted in field near Arlington August 17; substantial hatch in area expected August 20. Observation of 50 plants in field near Spring Green (area more advanced than most other areas) on August 19 revealed the following: 4 fresh egg masses, 5 first stage, 16 second stage, 2 third stage and 2 fourth-stage larvae. Few fresh eggs and second-stage larvae noted on late sweet corn in western Dane County. (Wis. Ins. Sur.). SOUTH DAKOTA - Adult activity at peak in east central region; first and second-stage larvae readily found in southeast. (Hintz). MISSOURI - Infested 15-70 percent of corn plants in north central area; larvae ranged 1-3 per plant with 80 percent in stalks. In west central area, 20-80 percent of plants infested with 1-4 larvae per plant; 100 percent of larvae in stalks. (Houser, Thomas, Wood).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - ARKANSAS - Larvae girdling stalks in southeast; also noted below ground level. Few larvae now spotless. (Ark. Ins. Sur.).

CORN EARWORM (*Heliothis zea*) - NEW YORK - Eggs hatched during warmer weather earlier in month in Hudson Valley; larvae appearing at harvest most important concern to growers. Light, but comparably serious at present. All stages present; buildup to end of season expected to be medium to heavy, depending on temperature. Apparently serious in Livingston County. (N.Y. Wkly. Rpt., Aug. 17). DELAWARE - Adults increasing in blacklight trap collections in Sussex County. (Burbutis, Crossan). GEORGIA - Moderate to heavy feeding on pods of soybeans noted in Tattnall and Houston Counties. (Vanderford). Heavy damage to pods noted in Dodge County. (Bennett). ARKANSAS - No larvae noted in 10 fields of soybeans checked in Desha and Lincoln Counties; moths noted in these fields. Eggs noted on soybeans in Desha County; larvae observed in 5 of 16 fields checked in Lonoke County, but highest count was 3 per 30 feet of row. (Ark. Ins. Sur.). INDIANA - Third to fifth-stage larvae infesting corn ears in southern quarter of State; 24 percent of ears infested in southwest, 10 percent in south central and 5 percent in southeast section. (Saugstad). ILLINOIS - Moth flights and egg laying continue heavy over most of State. In central section, eggs present on 15-50 percent of ears in recently pollinated corn. In area south of State Route 6, 40-60 percent of ears of late maturing corn infested. (Ill. Ins. Sur.). WISCONSIN - Pupation underway. Blacklight trap counts indicate emergence underway in few areas. Indications are that populations will be heavier than normal this season. Some early harvested corn showed number of ears previously infested. (Wis. Ins. Sur.). NEBRASKA - Very light in field corn in southwest and southern areas. (Bergman). COLORADO - This and *Layphygma frugiperda* (fall armyworm) infesting corn ears in Prowers County. (Schweissing). UTAH - Caused moderately severe damage to sweet and field corn throughout Kane County. (Hatch, Knowlton). Infestation ranged 75-95 percent in sweet corn in Utah County home gardens. (Knowlton). MAINE - Light numbers caused light damage to sweet corn during mid-August in Auburn, Androscoggin County. (Boulanger).

ARMYWORM (*Pseudaletia unipuncta*) - MAINE - Problem was generally severe throughout State in late July. Summary by county as follows: York - populations and damage heavy to pasture grasses and corn in Berwick, Springvale, Sanford, Alfred, Saco, Kennebunk and Lebanon. Cumberland - infestation and damage heavy in hayfields at Fort Hill Road, Gorham and other locations; parasites and wilt disease attacked population at Fort Hill. Knox and Lincoln - heavy and severely damaged forage throughout both counties. Waldo - heavy numbers heavily damaged hayfields in Lincolnville, Northport and Waldo. Androscoggin and Sagadahoc - heavy populations heavily damaged grasses and other field crops in Auburn, Lisbon, Minot and Sabattus. Franklin - light to heavy infestations and damage reported primarily on corn in Farmington and vicinity; infestation varied greatly; in one area near New Sharon, sizable flocks of birds fed on larvae. Washington - numbers and damage light on grasses and corn in Jonesboro area; moderate to heavy populations caused moderate damage to grasses in Meddybemps area. (Boulanger, Aug. 15).

DELAWARE - Adult numbers continue to increase in blacklight trap collections in Sussex County; average over 15 per night. (Burbutis, Crossan). CALIFORNIA - Medium on Sudan grass in Laton, Fresno County. (Cal. Coop. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - NEW YORK - Trap catches relatively high in Hudson Valley; 15 moths taken August 13 at Poughkeepsie; such numbers not usually taken until September. All stages present; larvae and leaf etching continue to appear in small percentage of pretassel plants. (N.Y. Wkly. Rpt., Aug. 17). MARYLAND - Whorl infestations continue a problem in late corn in all sections; infestation over 55 percent in one Queen Annes County field. (U. Md., Ent. Dept.). GEORGIA - Heavy on hay crop in Lowndes County. (Kessler). OHIO - Larvae infesting corn near Batavia, Clermont County. (Hamilton, Holdsworth). WISCONSIN - Considerable feeding within whorls of late corn noted in Arlington, Theresa and Cedar Grove areas. (Wis. Ins. Sur.). COLORADO - Infested up to 50 percent of emerging tassels in some corn in eastern Prowers County. This and Heliothis zea (corn earworm) infesting ears in all areas of county. (Schweissing).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Averaged 1 per 10 peanut plants in Ft. Cobb area, Caddo County. Populations down due to pupation. (Okla. Coop. Sur.).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - OHIO - Heavy adult populations observed feeding on corn silks in field continuously in corn for 7 years in Wayne County. (Barry). INDIANA - Adult populations very low in southern quarter of State; averaged less than 5 percent of plants infested. (Saugstad). Adults feeding on silks and tips of corn ears in Franklin and Decatur Counties; ranged 1-35 per ear and averaged 9 per ear in more heavily infested fields; ranged 0-10 (average 4) per ear in Decatur County. (Matthew). MISSOURI - Light to heavy in north central area; adults feeding within ear in early planted corn causing some kernel damage; silk feeding heavy on late planted corn. (Houser, Thomas, Wood).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - MISSOURI - Adult survey completed; new county records for week ending August 22 include Putnam, Schuyler and Sullivan Counties. Infestations extremely light in all counties surveyed. (Houser, Thomas, Wood). Cass and Jackson Counties, reported in CEIR 14(34):963, also new county records. (PPC). WYOMING - Spotty infestation in Goshen County corn decreasing; adults averaged 2-3 per plant in infested fields. (Marks).

A FLEA BEETLE (Systema taeniata) - CALIFORNIA - Heavy on corn in Perris, Riverside County. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW YORK - Number apparently receding in Poughkeepsie area; no black tassels noted, although some dingy. (N.Y. Wkly. Rpt., Aug. 17). MARYLAND - Continues a problem on corn in all sections but damage to ears about over. (U. Md., Ent. Dept.). INDIANA - Adults and nymphs of little consequence on corn in southern quarter of State. Light infestations noted on 25 percent of plants in southwest, 28 percent of plants in south central and 62 percent of plants in southeast sections. (Saugstad). MICHIGAN - Populations generally declining. (Dowdy). WISCONSIN - Collapse of populations noted in most fields, although apparent increase also noted in some sweet corn where parasites and predators destroyed. Some sweet corn in Dodge County treated, and field corn in county showing serious injury. (Wis. Ins. Sur.). OKLAHOMA - Populations moderate in sorghum in Beaver, Texas and Cimarron Counties in panhandle area. (Okla. Coop. Sur.). COLORADO - Appearing in whorls of sorghum in all areas of Arkansas Valley. (Schweissing). WYOMING - Number of colonies in sorghum and corn in Goshen County decreasing. Lady beetle adults and larvae present in large numbers. (Marks). IDAHO - Populations drastically reduced in corn in southwest area during past 2 weeks. High populations of lady beetles and lacewings noted in all fields of corn. (Scott).

GREENBUG (Schizaphis graminum) - TEXAS - Found on western wheat grass during June, July and August in panhandle area; however, populations significant in only Deaf Smith and Hansford Counties. Det. by M. A. Palmer. (Daniels).

CHINCH BUG (Blissus leucopterus) - ARKANSAS - Noted inside sheaths of corn in southeast; numbers higher than for past few years. Surveyed area very dry. (Ark. Ins. Sur.). OHIO - Second-generation adults noted as heavy along grassy roadside of pasture in Highland County. (Lyon).

FALSE CHINCH BUGS (Nysius spp.) - NEW MEXICO - Spotted, light to moderate populations causing minor damage to grain sorghum in Luna County. (N.M. Coop. Rpt.).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Averaged 4 adults and 1.2 nymphs per 100 rice heads in 16 fields surveyed in Lonoke County. This is slightly lower than previous week. (Little).

CONCHUELA (Chlorochroa ligata) - NEW MEXICO - Damage to heads of grain sorghum very noticeable in many fields in Deming-Columbus area, Luna County. (N.M. Coop. Rpt.).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - CALIFORNIA - Larvae medium in corn leaves at Lemoore, Kings County. (Cal. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - COLORADO - Increasing on untreated corn in Otero, Crowley, Pueblo, Prowers and Bent Counties. Present on tenth leaf in Otero, Pueblo and Crowley Counties; well established on lower leaves in Prowers and Bent Counties. Light on lower leaves of sorghum in many Arkansas Valley fields. (Schweissing). No change in situation on corn in Weld County as reported previous week. (Urano). WYOMING - Continue feeding on corn in Goshen County fields; damage very light to moderate with mites found on highest leaves. Populations small. (Marks). MARYLAND - Spotty but potentially damaging populations on soybeans in several areas of Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Mostly T. atlanticus (strawberry spider mite), continued to increase on soybeans in many areas. (Burbutis, Crossan).

A BERMUDA-GRASS SCALE (Odonaspis ruthae) - FLORIDA - Severe on stem of Bermuda grass at Ft. Pierce, St. Lucie County. (Campbell, Aug. 4).

A BERMUDA-GRASS MITE (Aceria neocynodonis) - CALIFORNIA - Heavy on Bermuda grass in Merced, Merced County, and in Davis, Yolo County. Species causes short, stunted shoot clusters along runners. Mowing of grass does not eliminate this pest as it does some other species. Merced and Yolo Counties are new county records. (Cal. Coop. Rpt.).

WHEAT CURL MITE (Aceria tulipae) - CALIFORNIA - This species and Aculus mckenziei (a rust mite) infesting western wheat grass in Morongo Valley, San Bernardino County. (Cal. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Marked increase noted in several fields of regrowth alfalfa over past few weeks. Winged forms approaching 40 percent in some fields; remain below 10 percent in fields where parasitism evident. Averaged 23 per sweep in field of new seeding alfalfa in Brodhead area. (Wis. Ins. Sur.). SOUTH DAKOTA - Increasing in southeast region of State; nymphs and adults ranged 350-500 per 100 sweeps in Lincoln County. (Hintz). NEBRASKA - Averaged 114 and 242 per 10 sweeps in 2 fields, respectively, in Dundy County. (Kindler, Stevens). Averaged 84 per 10 sweeps in Hayes County and 330 per 10 sweeps in Furnas County. (Bergman). OKLAHOMA - Very light (1-10 per 10 sweeps) in alfalfa checked in Beaver, Harper, Blaine and Kingfisher Counties. (Okla. Coop. Sur.). COLORADO - Increasing on alfalfa in all areas of Arkansas Valley; counts varied generally 100-600 per 100 sweeps; high populations found in some Crowley County fields with 5,000-6,000 per 100 sweeps. (Schweissing). None reported on alfalfa in Weld County. (Urano). CALIFORNIA - Medium on 2,000 acres of alfalfa in Lancaster, Los Angeles County. (D. May, Ext. Serv.).

PEA APHID (*Acyrtosiphon pisum*) - MARYLAND - Ranged 20-150 per sweep on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). OHIO - Counts remain low in forage fields throughout State. (Lyon). INDIANA - Adults and nymphs generally low on alfalfa throughout southern quarter of State; averaged 4 per sweep. Maximum population observed, 25 per sweep in Gibson County. (Saugstad). MISSOURI - Ranged 5-10 per sweep on alfalfa in northwest area. Populations increasing due to cooler weather. (Houser, Thomas, Wood). WISCONSIN - Populations increasing in some fields of regrowth alfalfa; populations average 100 per sweep in few fields. (Wis. Ins. Sur.). NEBRASKA - Ranged 15-60 per 10 sweeps on legumes in southwest and southern areas. (Bergman). WYOMING - Large populations present earlier in Goshen County alfalfa tapering off. Averaged 785 adults and nymphs per 100 sweeps in third hay crop. (Marks). COLORADO - Populations on alfalfa declining in Arkansas Valley; predator numbers increasing. (Schweissing). UTAH - Moderately damaged several fields of alfalfa in Wasatch and Summit Counties. (Knowlton).

POTATO LEAFHOPPER (*Empoasca fabae*) - MARYLAND - Light to moderate on alfalfa in Frederick and Queen Annes Counties and on soybeans in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). OHIO - Increasing in alfalfa in Darke County; averaged 1.3 per sweep. (Lyon). INDIANA - Adults and nymphs averaged 4 per sweep on alfalfa in southern quarter of State. (Saugstad). MICHIGAN - Adults ranged 4-8 per sweep in 5 fields of alfalfa in Oakland, Washtenaw and Livingston Counties. (Newman). MISSOURI - Averaged 2 per sweep in northwest area alfalfa. (Houser, Thomas, Wood). NEBRASKA - Averaged 22 per 10 sweeps in Chase County alfalfa. (Bergman).

TARNISHED PLANT BUG (*Lygus lineolaris*) - OHIO - Averaged 29 per 25 sweeps in Highland County alfalfa; this most abundant plant bug species on alfalfa in area. (Lyon).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - OHIO - Averaged 10 per 25 sweeps of alfalfa in Auglaize County; predominant plant bug in west central area. (Lyon).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Adults and nymphs averaged 87 per 100 sweeps in Goshen County alfalfa. (Marks). NORTH DAKOTA - Some buildup in alfalfa in southwest observed; 2-3 per sweep counted near Lidgerwood. (Frye, Gage).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MARYLAND - Adults generally below 1 per sweep on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). INDIANA - Adult counts per 10 sweeps on alfalfa averaged 4 in south central and 18 in south eastern sections. (Saugstad).

GREEN CLOVERWORM (*Plathypena scabra*) - OHIO - Seriously damaged soybeans in Seneca County. (Gamble). Light to moderate damage noted on soybean foliage throughout most fields in northwest and west central sections; little or no feeding occurred on pods, indicating treatment is questionable. (Lyon). MARYLAND - Light on alfalfa in Frederick and Queen Annes Counties and on soybeans in Worcester County. (U. Md., Ent. Dept.). NEW JERSEY - Survey of soybeans in Cranbury area, Middlesex County, showed low numbers in every field examined. (Ins.-Dis. Newsltr.).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - Increasing on alfalfa throughout State; larvae ranged 125-150 per 100 sweeps. (Ariz. Coop. Sur.). MISSOURI - Averaged 0.5-1 larva per sweep on southwest area alfalfa. (Houser, Thomas, Wood).

VARIEGATED CUTWORM (*Peridroma saucia*) - ARIZONA - Increased in alfalfa following recent rains; heavy damage noted in fields in Graham and Gila Counties. (Ariz. Coop. Sur.).

GARDEN WEBWORM (*Loxostege similalis*) - ARIZONA - Infestations in alfalfa apparently spreading on Yuma Mesa and in Yuma Valley of Yuma County; ranged light to moderate. Light populations occurring in Graham County. (Ariz. Coop. Sur.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - GEORGIA - Defoliation moderate on soybeans in Gordon County (Johnson) and moderate to heavy on same crop in Tattall and Houston Counties (Vanderford).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - DELAWARE - Larvae infesting alfalfa in Kent and Sussex Counties; adults very numerous in blacklight trap collections in Sussex County. (Burbutis, Crossan). ARKANSAS - Small numbers continue to be noted in soybeans; numbers have been fewer this late in season during past years than now present. (Ark. Ins. Sur.).

A LOOPER (Trichoplusia sp.) - GEORGIA - Caused light to moderate defoliation of soybeans in Gordon County (Johnson), and moderate to heavy defoliation in Effingham and Chatham Counties (Vanderford).

ALFALFA WEEVIL (Hypera postica) - UTAH - Larvae caused moderate damage to alfalfa in several Wasatch and Summit County second-crop fields. (Knowlton). WYOMING - Second-generation larvae averaged 325 per 100 sweeps in Goshen County alfalfa. (Marks). MARYLAND - Adults and larvae light on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - IDAHO - New adults averaged 1 per 2 sweeps in many fields of red clover in Canyon County. (Waters).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Caused moderate to heavy defoliation of soybeans in Tattall and Houston Counties. (Vanderford).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults increasing on soybeans on lower Eastern Shore. (U. Md., Ent. Dept.).

BLISTER BEETLES - MARYLAND - Adults of Epicauta spp. light on soybeans in Worcester County and on alfalfa in Queen Annes County. (U. Md., Ent. Dept.). WISCONSIN - E. pennsylvanica (black blister beetle) populations high in many alfalfa fields in southern area; ranged 1-12 per sweep. Feeding on corn silks common in some fields. Cows in Fond du Lac County reported to refuse chopped feed containing this pest. (Wis. Ins. Sur.). NORTH DAKOTA - Heavy feeding by E. pennsylvanica on corn silks noted near Havana and Lidgerwood. (Frye, Gage). MISSOURI - Adults averaged 1-3 per sweep in alfalfa in northwest; E. pennsylvanica comprised two-thirds of population and Epicauta sp. one-third. (Houser, Thomas, Wood). OKLAHOMA - Unspecified species moderate in alfalfa in Mayes County. (Okla. Coop. Sur.).

THRIPS (Frankliniella spp.) - OKLAHOMA - Abundant on peanuts in Caddo County. (Okla. Coop. Sur.).

SUNFLOWER MOTH (Homoeosoma electellum) - NORTH DAKOTA - Larvae feeding on sunflower seed in Galchutt area, Richland County. (Frye, Gage).

#### FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - MINNESOTA - Second-generation larvae noted entering fruit in Minnetonka area, Hennepin County. (Minn. Ins. Rpt.). WISCONSIN - Second-brood moths active in Door County; 5 taken in light trap August 14-17. Blacklight trap catches in Dane County indicate greater activity. (Wis. Ins. Sur.). MICHIGAN - Few adults still present in southwest area. (Dowdy). INDIANA - Adults continue to appear in bait traps in Vincennes area; flight remains heavy. (Cleveland). NEW YORK - Summer-brood flight heavy since August 3 in eastern area with apparent peak August 10; fresh larval entries common on unsprayed apples. Emergence continues slow in Niagara County. (N.Y. Wkly. Rpt., Aug. 17).



FALL WEBWORM (Hyphantria cunea) - PENNSYLVANIA - Obvious on cherry and other trees in southern Chester County. (Cole, Aug. 7). Very heavy on cherry near Susquehanna River in northern York County. (Sleesman).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MAINE - Appreciable damage by first and second broods reported in several southwestern area orchards. (Boulanger, Aug. 15). WISCONSIN - Noticeable feeding by second-brood larvae reported in Sheboygan area. (Wis. Ins. Sur.).

PEACH TREE BORERS - MICHIGAN- Sanninoidea exitiosa (peach tree borer) and Synanthedon pictipes (lesser peach tree borer) larvae caused major injury to peaches near ground level in southwest area generally; similarly damaged sweet cherries, tart cherries and plums to lesser degree. This is perennial problem in area. (Carpenter, Conrad).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Larvae medium in peach fruit locally in Bakersfield, Kern County. (Cal. Coop. Rpt.).

APPLE APHID (Aphis pomi) - MAINE - Still troublesome with strong population increases in several areas. Increased rapidly during early August on untreated McIntosh and Red Delicious foliage in Monmouth area, Kennebec County. (Boulanger, Aug. 15).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - All stages severe on stem and bark of peach at Glen St. Mary, Baker County. (Collins, Aug. 5).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - All stages severe on stem and bark of persimmon at Glen St. Mary, Baker County. (Collins, Aug. 5).

APPLE MAGGOT (Rhagoletis pomonella) - MAINE - Peak emergence occurred July 17; adult emergence in cages declined steadily after late July. (Boulanger, Aug. 15). MASSACHUSETTS - Adults more abundant than usual on early apple varieties in Bristol, Middlesex, Worcester and other eastern counties. (Wave). NEW YORK - Fly emergence continues at low level in eastern area; emergence moderate in one of two traps in Niagara County with female numbers still high; infested McIntosh apples found August 13 in semicommercial orchard in Clinton County. (N.Y. Wkly. Rpt., Aug. 17). MICHIGAN - Low adult populations generally distributed throughout fruit areas; 20 flies taken on 2 sticky-board traps in Oakland County during week ending August 17. (Carpenter, Siefert). WISCONSIN - Adults active in unsprayed early apple varieties in Door County, but activity in cages in area indicates emergence from soil has dropped to nearly zero. Catches in ammonia bait traps in Dane County very low. (Wis. Ins. Sur.). MINNESOTA - Adult activity decreasing. (Minn. Ins. Rpt.).

VINEGAR FLIES (Drosophila spp.) - MICHIGAN - Numbers of adults increasing about some fruit establishments in Berrien County. (Belter).

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - All stages present and populations still high in some southwest area apple and plum orchards; miticides and cool weather generally reduced high populations present in many orchards 2-3 weeks ago. Egg hatch reduced and recently deposited eggs located on twigs, calyx end of apples and on foliage. (Carpenter, Conrad). INDIANA - Active on peach; ranged up to 50 mites per leaf in scattered orchards in southwest. (Cleveland). NEW YORK - Declined from previous high levels in some commercial orchards in Clinton County due to tremendous amounts of acaricides and probably aided by subnormal temperatures. Continues chief problem in many Niagara County orchards, especially prune, which show considerable bronzing; population appears on down grade. (N.Y. Wkly. Rpt., Aug. 17). MASSACHUSETTS - Bronzing foliage in some eastern area apple orchards. (Wave). MAINE - Activity variable in scattered locations; numbers increased in some orchards but decreased in others. Cool, wet period in early August should begin population reductions. (Boulanger, Aug. 15).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MICHIGAN - Populations on apples generally reduced in southwest area by miticidal sprays against Panonychus ulmi (European red mite). Infestations on peaches and tart cherries more common than usual. (Carpenter).

A SPIDER MITE (Tetranychus mcDanieli) - UTAH - Damaging in some apple and cherry orchards in Weber County. (Knowlton).

PEACH SILVER MITE (Aculus cornutus) - MICHIGAN - Caused leaf bronzing on tart cherries in southwest area orchards. Controls not recommended because of sporadic nature of infestations and delayed season injury. (Carpenter).

WALNUT CATERPILLAR (Datana integerrima) - MICHIGAN - Young larvae and webbing noted on black walnut near Frankenmuth, Saginaw County. (Berlein).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Causing light to medium damage to almond fruit in Arbutle, Colusa County. (Cal. Coop. Rpt.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - CALIFORNIA - Adults and nymphs on pecan medium in Little Rock, Los Angeles County; light in Visalia, Tulare County; and medium in Carmichael, Sacramento County. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - FLORIDA - Severe on stem of Citrus sp. at Apopka, Orange County. (Musgrove, Aug. 10).

Citrus Insect Situation in Florida - Mid-August - CITRUS RUST MITE (Phyllocoptura oleivora) infested 48 percent of groves (norm 64 percent); 32 percent economic (norm 49 percent). Summer peak occurred at mid-August and was below normal level. A decreasing trend will prevail until late September and will be more evident from the leaf infestation. Some infestations on fruit will increase. Highest districts are west and south. CITRUS RED MITE (Panonychus citri) infested 57 percent of groves (norm 51 percent); 37 percent economic (norm 29 percent). TEXAS CITRUS MITE (Eutetranychus banksi) infested 59 percent of groves (norm 38 percent); 33 percent economic (norm 19 percent). These spider mites are slightly above normal abundance but will continue to decrease to low level. Scattered moderate to heavy infestations may be expected in north and east districts. Abundance of PURPLE SCALE (Lepidosaphes beckii), GLOVER SCALE (L. gloverii), CHAFF SCALE (Parlatoria pergandii), YELLOW SCALE (Aonidiella citrina), and BLACK SCALE (Saissetia oleae) slightly lower than reported at end of July. (See CEIR 14(34): 967-970). East district has populations of Glover, chaff and black scales in high range. Black scale also high in south district. A SNOW SCALE (Unaspis citri) and a LESSER SNOW SCALE (Pinnaspis strachani) are above normal abundance but infestations are spotty and are important only in limited areas. WHITEFILES infested 65 percent of groves (norm 53 percent); 31 percent economic (norm 15 percent). Population will continue to be above normal. Adults will become numerous in late August. Increase in transparent larval form on undersides of leaves, which is honeydew excreting stage, expected in mid-September. MEALYBUGS will show marked decrease in all districts. Population will be above normal low level for September. APHIDS will appear briefly on new growth but are not expected to be of much importance. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Few adults present. New adult brood expected in late August or early September. (Carpenter).

LEAFHOPPERS - NEVADA - Populations heavy on grape and apple in Reno area of Washoe County. (Bechtel).

TRUCK CROP INSECTS

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Larvae on navy beans in thumb area of Lower Peninsula greatly reduced in numbers. Survey in Saginaw County on August 18 revealed only few larvae where large populations present earlier; adults and pupae present in fields on same date but varied greatly among fields checked. Counts highest on late maturing bean varieties with succulent foliage. (Wells, Vasold, Baker, Bortel). NEW YORK - Extensive area of bean acreage infested in western part of State. Infestation has not been as heavy nor outbreak so general in many years; red and white kidney beans apparently most affected. Larvae eating holes in leaves, snapping off newly set buds and eating holes in more mature buds. Damage difficult to determine, but severely infested fields probably should be treated. Most concentrated feeding on foliage and pods of red and white kidney beans in Orleans County; only leaf injury noted on pea and black turtle beans. Several fields treated show good control. Larvae found in every field of beans inspected in Livingston County; damage appears most severe on red and white kidney beans; some of difference apparently due to more advanced maturity of other varieties. Damage somewhat less in fields sprayed 2-4 weeks ago. (N.Y. Wkly. Rpt., Aug. 17). NEW JERSEY - Infested lima beans in Cape May County earlier in month, but infestations not sufficient to justify controls. (Ins.-Dis. Newsltr.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MAINE - Infestation and damage light on kidney bean planting in Woolwich, Sagadahoc County. (Boulanger, Aug. 15). NEW YORK - More numerous than in 1963 in Livingston County, but relatively few bean fields justify controls. (N.Y. Wkly. Rpt., Aug. 17). RHODE ISLAND - Adults appearing in gardens in Pawtucket, Providence County. (Sorensen, Mathewson). MICHIGAN - Pupae and newly emerged adults numerous in spots in some fields of navy beans in Saginaw County; some recently laid egg masses noted but larvae rare in area. (Wells, Vasold). COLORADO - Larvae noted on bean plants in Otero and Pueblo Counties; damage not serious in fields observed. (Schweissing). UTAH - Damage well below normal in Heber Valley area, Wasatch County. (Knowlton).

A THRIPS (Sericothrips variabilis) - DELAWARE - Common to very abundant on some lima beans in areas of Sussex County. (Burbutis, Crossan).

SEED-CORN MAGGOT (Hylemya platura) - MAINE - Caused heavy damage to snap beans at Canton, Oxford County. Injury occurred earlier in season and not reported until mid-August. (Boulanger).

TOMATO FRUITWORM (Heliothis zea) - UTAH - Causing some damage to tomatoes in canning-crop area of central and northern parts of State. Peak egg deposition occurred August 15; counts decreased recently. (Dorst, Knowlton).

BLACK CUTWORM (Agrotis ipsilon) - COLORADO - Damaging potato tubers in Gilcrest area, Weld County. (Felton).

HORNWORMS (Protoparce spp.) - NEW MEXICO - Continue a problem on tomato plantings in home gardens in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.). MINNESOTA - Observed feeding on foliage of fruit of tomato in St. Paul area. (Minn. Ins. Rpt.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - Infestation rather heavy during late July in New Sharon area, Franklin County, but no damage estimate made. Infestation and damage light in Portland area, Cumberland County. (Boulanger, Aug. 15). MARYLAND - Light to moderate numbers of larvae noted on 15 acres of tomatoes in Salisbury area, Wicomico County. (U. Md., Ent. Dept.). WISCONSIN - Few noted on potatoes in Waushara County after systemics apparently became ineffective. (Wis. Ins. Sur.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - CALIFORNIA - Heavy on eggplant in El Cajon, San Diego County. (Cal. Coop. Rpt.).

POTATO APHID (Macrosiphum euphorbiae) - OHIO - Heavy infestations building up on potatoes in central section. Severe infestation noted in Licking County. (Wagner).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Increasing slightly in late potato-growing area of Weld County. Controls appear very effective. (Urano, Berry). DELAWARE - Common on pepper in Kent and Sussex County. (Burbutis, Crossan). MARYLAND - Light to moderate on commercial peppers in Worcester County. (U. Md., Ent. Dept.).

Aphids on Potatoes in Maine - Although still very small, total aphid numbers increased somewhat during week ending August 22 on foliage of untreated potatoes at Presque Isle and vicinity in Aroostook County. There area bout 4 Macrosiphum euphorbiae (potato aphid) and 4 Myzus persicae (green peach aphid) on 3 leaves per plant (top, middle, bottom), with trace numbers of Aphis nasturtii (buck-thorn aphid) and Acyrtosiphon solani (foxglove aphid). By the 3-leaf method, 80 percent of plants infested with Macrosiphum euphorbiae, 45 percent with Myzus persicae, and 91 percent by all species combined. Activity of entomogenous fungi - light during early part of period - increased substantially during past few days. (Shands et al.).

A MEALYBUG (Phenacoccus solani) - CALIFORNIA - Nymphs and adults medium on tomato planting in Tustin, Orange County. (Cal. Coop. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Increased from 0-2 per 100 sweeps to 2-4 per 100 sweeps on borders of potato fields in Rio Grande County. Controls applied to most fields. (Jenkins). WYOMING - Numbers decreasing on Goshen County potatoes; averaged less than one adult per 100 sweeps. (Marks).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MAINE - Numbers and damage on cucumbers were light during mid-July in Sanford and Portland areas of York and Cumberland Counties, respectively, and to gourds in Orono area, Penobscot County. Populations and damage to cucumbers were light in Portland area in early July. (Boulanger). MARYLAND - Adults evident on late cucumbers in Worcester County. (U. Md., Ent. Dept.).

MELON APHID (Aphis gossypii) - MARYLAND - Continues serious on cantaloups and late cucumbers on Eastern Shore. (U. Md., Ent. Dept.).

SQUASH BUG (Anasa tristis) - MARYLAND - Heavy on garden squash at Sudlersville, Queen Annes County. (U. Md., Ent. Dept.).

IMPORTED CABBAGEWORM (Pieris rapae) - MAINE - Light populations caused light damage to cabbage in late July in Monmouth, Kennebec County. (Boulanger).

CABBAGE APHID (Brevicoryne brassicae) - DELAWARE - Appearing on young cabbage in eastern Kent County. (Burbutis, Crossan).

A FLEA BEETLE (Systema taeniata) - CALIFORNIA - Heavy on sugar beet in Perris, Riverside County. (Cal. Coop. Rpt.).

ONION THRIPS (Thrips tabaci) - COLORADO - Increasing on onions in Prowers and Bent Counties; populations ranged 50-60 per plant. (Schweissing). UTAH - Caused moderate to normal damage in northern area. (Knowlton). IDAHO - Probably this species damaging onion fields in southwest area. (Scott).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MAINE - Populations and injury on lettuce moderate during mid-July in Portland area, Cumberland County. (Boulanger).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - FLORIDA - Larvae and pupae found in 12 of 15 sweetpotato plants inspected August 12 at Goulds, Dade County. (Brown).

CARROT RUST FLY (Psila rosae) - MAINE - Infestation and damage heavy on carrots in mid-July in Isleboro, Waldo County. (Boulanger).

CUTWORMS - IDAHO - Serious in several hopyards near Wilder, Canyon County. Few third-stage larvae present, but majority in first and second stages; eggs still hatching. Populations quite general throughout any one yard; average about 30 per plant. (Scott).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEBRASKA - Infesting strawberries in Thayer County. (Bergman).

RED-NECKED CANE BORER (Agrilus ruficollis) - MAINE - Moderate populations caused moderate to heavy damage to raspberries in Farmington and vicinity of Franklin County. (Boulanger, Aug. 15).

A GROUND BEETLE (Harpalus pennsylvanicus) - CALIFORNIA - Causing light damage to strawberry at Chicago Park, Nevada County. (Cal. Coop. Rpt.).

GRASSHOPPERS - UTAH - Damaged raspberries in Heber-Midway area of Wasatch County. (Knowlton).

CYCLAMEN MITE (Steneotarsonemus pallidus) - MAINE - Infested strawberries in home plantings in Franklin County; no degree of infestation or damage given. (Boulanger, Aug. 15). MINNESOTA - Damage to everbearing strawberry varieties in Excelsior and Hopkins areas severe. (Minn. Ins. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Scarce on lima beans and pumpkin-squash in Sussex County and on cabbage in Kent County. (Burbutis, Crossan). MARYLAND - Generally increasing on tomatoes and crucifers on lower Eastern Shore. (U. Md., Ent. Dept.).

BEET LEAFHOPPER (Circulifer tenellus) - COLORADO - Ranged 10-50 per 100 sweeps on sugar beets and tomatoes in all areas of Arkansas Valley. (Schweissing)

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Adults and nymphs very numerous on some lima beans in Sussex County. (Burbutis, Crossan). MARYLAND - Light to moderate on beans, tomatoes and squash on Eastern Shore. (U. Md., Ent. Dept.).

VINEGAR FLIES (Drosophila spp.) - MICHIGAN - Adult numbers building up and causing annoyance around some vegetable establishments in Berrien County. (Belter).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MAINE - Reported on strawberries in home plantings in Franklin County; degree of infestation and damage not reported. (Boulanger, Aug. 15). OHIO - Infesting pole and bunch beans in Adams County. (Mowbray, Holdsworth). FLORIDA - Infested 25,000 strawberry plants August 3 and 8,000 of 10,000 plants August 17 at Plymouth, Orange County. (VanPelt).

SPIDER MITES (Tetranychus spp.) - COLORADO - Heavy populations damaging goose-berry plants in Loveland area, Larimer County. (Hantsbarger). MARYLAND - Infestations noticeable on tomatoes in Anne Arundel County. (U. Md., Ent. Dept.).

#### TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light to heavy infestations continue on tobacco in all sections. Winged forms numerous. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - MARYLAND - Few scattered, light infestations noted on tobacco in St. Marys County. (U. Md., Ent. Dept.).

HORNWORMS (Protoparce spp.) - MARYLAND - Second brood light to date on tobacco in all sections. (U. Md., Ent. Dept.).

**TOBACCO FLEA BEETLE (*Epitrix hirtipennis*)** - MARYLAND - Adults continue to increase on late tobacco in southern areas. (U. Md., Ent. Dept.).

### COTTON INSECTS

**BOLL WEEVIL (*Anthonomus grandis*)** - OKLAHOMA - Infestation light to moderate in Jackson, Greer, Tillman and Choctaw Counties; ranged 6-13 percent. (Okla. Coop. Sur.). MISSOURI - Found in only one field in Dunklin County; 25 percent of squares punctured. (Harrendorf, Jones). MISSISSIPPI - Infestations up in many fields in delta counties; some localized migration occurring; where control programs underway, population remains low or nonexistent. (Pfrimmer et al.). TENNESSEE - Continues to increase in southern counties and conditions very favorable for buildup. Migration occurring from fields "cutting out" into those fields where squares and young bolls plentiful. Some fields not infested all season now have infestations ranging 1-32 percent punctured squares. Counts in infested fields averaged 21 percent punctured squares compared with 12 percent previous week. Control underway in many fields for first time this season. (Locke). GEORGIA - Punctured squares ranged 8-88 percent (average 44 percent) in 18 fields checked in northwest, north and northeast sections. (Johnson). In 1,436 fields checked in 21 counties, percent punctured squares ranged 1-10 in 22 percent of fields, 11-25 in 32 percent of fields, 26-50 in 12 percent of fields and over 50 in 8 percent of fields. (Jordan). SOUTH CAROLINA - Continues to build up in most fields due to emergence of second-generation weevils and shortage of squares in older cotton. Percent punctured squares in well treated fields continues extremely low, even in areas where untreated fields average 50-100 percent damage. (Cott. Lett., Aug. 17). In Florence area, peak emergence of second generation now past, although large number of adults now in field; untreated fields practically 100 percent infested. Controls should be continued through August. (Taft et al., Aug. 20). NORTH CAROLINA - Under control in areas where good insecticidal program followed. (Cott. News Lett., Aug. 17).

**A WEEVIL (*Anthonomus* sp.)** - ARIZONA - Populations increasing in Aztec and Hyder areas of Yuma County and in Stanfield and Quartz areas of Pinal County. (Ariz. Coop. Sur.).

**BOLLWORMS (*Heliothis* spp.)** - CALIFORNIA - Populations evident throughout cotton-growing area; larvae ranged 1-12 per 100 terminals. (Leigh, Aug. 14). Economic levels common throughout Kern County; problems serious in Rosedale area; conventional terminal counts not adequate as many eggs laid on lateral terminals, hence complete inspection of plants necessary to adequately evaluate population during week ending August 6. Populations continued higher in Rosedale area during week ending August 13; larval counts of 15-18 per 100 terminals common, but average probably 4-6. (Black). ARIZONA - Damage continues heavy in Pima, Pinal and Maricopa Counties. Lighter but economic infestations present in Cochise, Greenlee, Graham and Yuma Counties. (Ariz. Coop. Sur.). NEW MEXICO - Number of eggs on cotton plants in southern Dona Ana County increased; larval damage spotted, with only few growers applying controls. (N.M. Coop. Rpt.). OKLAHOMA - Infestations light (3-9 percent) in Jackson, Tillman, Greer and Osage Counties; reported as heavy in Choctaw County. (Okla. Coop. Sur.). MISSOURI - Eggs range 0-23 and larvae 0-22 per 100 terminals in 72 percent of fields scouted. Controls applied to 220 fields. (Harrendorf, Jones). ARKANSAS - Moth flight continues heavy at Kelso in southeast area and at Morrilton in central area. Number of moths taken in light trap at Kelso slightly higher than previous week; number collected at Morrilton approximately twice number collected previous week. (Ark. Ins. Sur.). MISSISSIPPI - Light trap catches in delta counties decreasing after peak of August 15-16. Egg deposition continued; many eggs laid down in plant. Small larvae in blooms and under dried blooms on boll, as well as in terminals and squares. (Pfrimmer et al.). TENNESSEE - All stages continue a problem in rank cotton in western area. Larvae and eggs ranged 1-18 per 100 terminals in infested fields, compared with 1-11 previous week. (Locke). GEORGIA - Eggs ranged 6-27 (average 16) and larvae ranged 3-12 (average 6) per 100 terminals. (Johnson). In 1,436 fields checked

in 21 counties, eggs per 100 terminals ranged 1-10 in 39 percent of fields, 11-25 in 39 percent of fields, 25-50 in 14 percent of fields and over 50 in 8 percent of fields. (Jordan). SOUTH CAROLINA - Larvae appearing in many fields; should be easily controlled in fields where 5-day schedule still being maintained. (Cott. News Lett., Aug. 17). Larval infestations in Florence area ranged 0.1-2 percent in treated plots and 9-26 percent in untreated fields. (Taft et al., Aug. 20). NORTH CAROLINA - Increasing in some areas. (Cott. News Lett., Aug. 17).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Larvae and exit holes becoming numerous in most cotton fields between Solomon and Safford in Graham County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - MISSISSIPPI - Disease destroyed populations in many fields in delta counties; some larvae still present in many fields but populations not economic in most instances. (Pfrimmer et al.). GEORGIA - Light in 18 fields checked in northwest, north and northeast areas. (Johnson). SOUTH CAROLINA - Presently not a problem in most of State. (Cott. Lett., Aug. 17).

BEE TERN (Spodoptera exigua) - CALIFORNIA - Severe, widespread infestation developed in Tulare Lake area of Kings County. Only occasional larvae found in other areas. (Leigh, Aug. 14).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARKANSAS - Small numbers continue to be taken in cotton. In past years, fewer specimens have been seen this late in season than now present. (Ark. Ins. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - General in Yuma County; some infestations heavy. Very light in Graham County. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Light infestations observed in areas of Pinal and Graham Counties. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae common in some fields in Shafter area, Kern County; feeding in terminals, squares and small bolls. (Leigh, Aug. 14).

APHIDS - CALIFORNIA - Present in practically all fields in Kern County; not of major concern, although slight amount of honeydew observed in few fields. (Black, Aug. 13). MISSISSIPPI - Light in fields throughout delta counties. (Pfrimmer et al.). TENNESSEE - Present in most rank cotton in western area. (Locke). SOUTH CAROLINA - Occasional infestation noted in Florence area. (Taft et al., Aug. 20).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Increasing in some Kern and Tulare County fields; ranged 2-15 per 50 sweeps. (Leigh, Aug. 14). Economic levels found in scattered fields throughout Kern County week ending August 6; serious nymphal populations developing in some fields that did not show substantial adult populations earlier. Populations generally same during week ending August 13; approaching economic level in many fields but extremely high counts not encountered. (Black). ARIZONA - Populations remain heavy in most cotton-growing areas; some decrease noted in Pinal, Maricopa and Graham Counties. (Ariz. Coop. Sur.).

STINK BUGS (Chlorochroa spp.) - NEW MEXICO - Mostly C. ligata (conchuela), with few C. sayi (Say stink bug), damaging cotton in Columbus area, Luna County; occasional adults also noted in cotton in southern Dona Ana County. (N.M. Coop. Rpt.).

PLANT BUGS - ARIZONA - Nymphs of Adelphocoris superbus (superb plant bug) appearing in damaging numbers in Solomon area of Graham County; averaged 35 per 100 sweeps. (Ariz. Coop. Sur.). MISSOURI - Several species ranged 0-34 per 100 terminals in southeast area cotton. (Harrendorf, Jones).

SPIDER MITES - CALIFORNIA - Abundant in many Kern County fields during week ending August 8. Tetranychus telarius (two-spotted spider mite) readily found in tops of plants in many fields. Few fields still have T. atlanticus (strawberry spider mite) as evidenced by bottom defoliation. Spider mite populations increased in many fields during week ending August 13 and infestations in upper portions of plant evident throughout county. (Black). MISSOURI - Tetranychus spp. found in only 10 percent of fields scouted; infestations noneconomic. (Harrendorf, Jones). MISSISSIPPI - Infestations scattered over delta counties, with heavy populations developing in many spots. Recommended controls continue satisfactory. (Pfrimmer et al.). TENNESSEE - Continue major problem over western area; further increase expected where controls not applied. Some infestations severe and considerable damage occurring. (Locke). SOUTH CAROLINA - Present in many counties but suppressed or controlled in most instances. (Cott. Lett., Aug. 17). Occasional infestation noted in Florence area. (Taft et al., Aug. 20).



FOREST, ORNAMENTAL AND SHADE TREE INSECTS

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - OREGON - Three centers of epidemic defoliation occurred near Antelope Mountain, King Mountain and Gold Hill on the Malheur National Forest. Defoliation of true firs and Douglas-fir ranged from light to severe. Surveys underway to determine need for control in 1965. (Lund).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - About 75 percent of eggs in Douglas County on August 12 had hatched. Egg parasitism appears less than in 1963. Browning of tops due to feeding of recently hatched larvae in untreated trees in Gordon area. (Wis. Ins. Sur.).

PANDORA MOTH (Coloradia pandora) - OREGON - Adults in flight attracted to lights in large numbers at Chemult, August 1-7. Eggs laid on shingles, lighted signs and other places. This flight is 5 miles against the prevailing wind from known infestation center. (Lund).

AN OLETHREUTID MOTH (Eucosma gloriola) - NEW YORK - Damage to Scotch pine light at Little Genesee, Allegany County; restricted to lateral shoots on most trees. (N.Y. Wkly. Rpt., Aug. 17).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - VERMONT - Abundant and defoliating pines in plantations in areas of Chittenden and Franklin Counties. (MacCollom, Aug. 17). MICHIGAN - Larval numbers and damage light to moderate on 5 to 15-year-old pines near Channing, Dickinson County. (Mattson). WISCONSIN - Occasional colonies of nearly full-grown larvae on jack pine in Burnett, Washburn and Douglas Counties, week of August 10. (Wis. Ins. Sur.). MINNESOTA - Seventy percent of infested trees in east central and northeast show feeding completed. (Minn. Ins. Rpt.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - NEW YORK - Serious on some red and Scotch pines in Christmas tree plantings at Little Genesee, Allegany County. Sooty mold heavy on infested trees. (N.Y. Wkly. Rpt., Aug. 17). WISCONSIN - Many areas previously infested appear to have been controlled by various coccinellids this summer. (Minn. Ins. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - VERMONT - Severely damaged elm foliage in many areas of State. (MacCollom, Aug. 17). OHIO - Severe feeding on elms in Miami County. All stages present. (Lyon). OKLAHOMA - Heavy in Cherokee, Haskell, Mayes, Dewey and Kingfisher Counties. Light in Beaver County. (Okla. Coop. Sur.). ARIZONA - Very numerous and damaging trees in Globe area of Gila County. (Ariz. Coop. Sur.). COLORADO - Damaging elms in Pueblo and Fremont Counties. (Haines, Svedman). UTAH - Injury continues serious in parts of Kane County. (Hatch, Knowlton).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEBRASKA - Collected from elms in Buffalo County. This is a new county record. (Bergman).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - PENNSYLVANIA - Feeding on landscape size hosts in King of Prussia, Chester County, August 6. (Cole). Heavy damage on a block of yew in Luzerne County, August 4. Several dead and dying plants. (Andreychik).

CARPENTERWORM (Prionoxystus robiniae) - COLORADO - Attacking elms in Washington County. (Travis).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - RHODE ISLAND - No evidence of larvae in areas of Washington County where found previous several years. (Mathewson).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - No males found. (Lindy). PENNSYLVANIA - Collections as follows: 2 males from 1 trap at Lackawaxen, Pike County, July 27; 1 male in trap and 3 egg masses at Kresgeville, Monroe County, August 3; and 1 male in trap in Pike County, August 17. (Campbell). MASSACHUSETTS - Moths still taken at Sagamore and Wareham. (Tomlinson).

A GALL WASP (Neuroterus saltatorius) - CALIFORNIA - Heavy on oak in several locations in Sacramento, Sacramento County, and in Sanger, Fresno County. Unusually heavy in yards. (Cal. Coop. Rpt.).

WALKINGSTICK (Diaperomera femorata) - WISCONSIN - Reported plentiful in Wisconsin Rapids area. Few specimens noted received from widely scattered areas from Rock to Douglas Counties. (Wis. Ins. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - MARYLAND - Collected from chrysanthemums at La Vale, Allegany County, August 11, 1964, by C. W. McComb. This is a new State record and apparently a new record for eastern United States. Det. by K. O'Neill. (U. Md., Ent. Dept.).

A WALNUT HUSK FLY (Rhagoletis suavis) - DELAWARE - Adults very abundant on English walnut trees. Freshly laid eggs observed in husks, Aug. 19, 1964. Collected by P. P. Burbutis and L. P. Kelsey in Felton, Kent County. This is a new State record. (Burbutis, Crossan).

BAGWORM (Thyridopteryx ephemeraeformis) - MARYLAND - Heavy on arborvitae at Corsica Neck, Queen Annes County. (U. Md., Ent. Dept.). OHIO - Several shrubs infested in Columbus, Franklin County. (Jones). NEBRASKA - Moderate to heavy and quite widespread on southern and eastern evergreens. (Bergman). OKLAHOMA - Moderate to heavy on evergreens in Mayes and Cherokee Counties. Light in Texas County. (Okla. Coop. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Medium larval populations on geraniums in Chico, Butte County. (Cal. Coop. Rpt.).

MIMOSA WEBWORM (Homadaula albizziae) - MARYLAND - Moderate to heavy on honeylocust and mimosa in all sections. (U. Md., Ent. Dept.). OHIO - Populations quite conspicuous on honeylocusts in southwest. Few small trees had total leaf browning. (Lyon).

LILAC BORER (Podosesia syringae syringae) - NORTH DAKOTA - Moderate infestation in nursery at Valley City. (Frye, Gage).

A LEAF ROLLER (Anchylopera spireaefolina) - NORTH DAKOTA - Heavy leaf rolling on spirea in most southeastern areas. (Frye, Gage).

FALL WEBWORM (Hyphantria cunea) - MARYLAND - Conspicuous webs on several hosts in central areas. (U. Md., Ent. Dept.). NORTH DAKOTA - Larvae abundant on walnut, apple and crabapple in Hankinson area. (Bergman).

CATALPA SPHINX (Ceratomia catalpae) - OHIO - Severe feeding on catalpa trees at several locations throughout southwest. Larvae ready to pupate. (Lyon).

GARDEN WEBWORM (Loxostege similalis) - GEORGIA - Heavy damage to amaranth on Capitol grounds. (Johnson).

COCCIDS - PENNSYLVANIA - Fiorinia externa infesting all hemlocks in a nursery in King of Prussia, Chester County, August 6. (Cole). MARYLAND - Toumeyella liriodendri (tuliptree scale) heavy on tuliptrees on properties in Frederick and Prince Georges Counties. (U. Md., Ent. Dept.). GEORGIA - Icerya purchasi light to moderate on several plants in a nursery in Berrien County. (Ratcliffe). FLORIDA - In Hillsborough County: Icerya purchasi (cottony-cushion scale) moderate on stem of Pittosporum tobira at Limona, August 12 (Simmons); Coccus viridis (green scale) severe on Ixora coccinea, and Pinnaspis strachani severe

on hibiscus at Plant City (Custead, Aug. 13). Pseudaonidia clavigera light on Camellia sp. at Tampa, Hillsborough County. This is new locality in county. (Hale, Miller, Aug. 14). INDIANA - Infestations of Florinia theae (tea scale) on rhododendron in La Porte and Elkhart Counties. (Favinger, Clark). CALIFORNIA - Pseudococcus aurilanatus heavy locally on araucaria trees in park in Encinitas, San Diego. (Cal. Coop. Rpt.).

APHIDS - DELAWARE - Macrosiphoniella sanborni (chrysanthemum aphid) present to fairly common on chrysanthemums in most areas of State. (Burbutis, Crossan). RHODE ISLAND - Undetermined species on many willows in Middletown, Newport County. (Sorensen, Mathewson).

LACE BUGS - NEW YORK - Heavy on azaleas in Nassau County and damaging andromeda in Suffolk County. (N.Y. Wkly. Rpt., Aug. 17). NEW JERSEY - Heavy on many ornamental plants, shrubs and shade trees. (Ins.-Dis. Newsltr.). OHIO - Heavy populations feeding on underside of hackberry leaves in Fairfield, Butler County. (Schenck, Aug. 10).

### INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - MARYLAND - Generally light, 0-12 per head, on dairy cattle in Frederick County. (U. Md., Ent. Dept.). OHIO - Population increases on beef and dairy animals in Highland County. Counts of 15 flies per dairy animal and 25 per beef animal in several herds. Pinkeye common. (Wolfer). INDIANA - Averaged 3 per face in southwest, 4 in south central and 2.5 in southeast. (Saugstad). ILLINOIS - In western area, 5-10 adults per animal on pastured cattle. (Ill. Ins. Rpt.). WISCONSIN - Continues a problem in Ashland County and less of a problem in Bayfield County than previous week. Affecting cattle in Langlade County. (Wis. Ins. Sur.). NORTH DAKOTA - Averaged less than 10 per cow and less than 5 per calf in sandhill area of southeast. (Noetzel).

HOUSE FLY (Musca domestica) - NORTH DAKOTA - Populations from farm to farm quite variable. Highest counts less than 10 per square yard. A considerable number on range cattle in sandhill area of southeast. (Noetzel). COLORADO - Considerable irritation to livestock in Fremont, Teller, Park, Custer and Pueblo Counties. (Gilmore, Jenkins).

A FLY (Musca sp.) - NEW MEXICO - Very annoying in and around homes at Albuquerque, Bernalillo County, and in Las Cruces, Dona Ana County. (N.M. Coop. Rpt.).

HORN FLY (Haematobia irritans) - WYOMING - Continues to annoy livestock in Goshen County. Estimated 100-150 adults per animal. (Marks). UTAH - Moderately numerous on Wasatch and Summit County herds. (Knowlton). COLORADO - Considerable irritation to livestock in Fremont, Teller, Park, Custer and Pueblo Counties. (Gilmore, Jenkins). OKLAHOMA - Populations moderate in Osage, Payne, Mayes and Haskell Counties. (Okla. Coop. Sur.). NEBRASKA - Counts of 50-750 per animal in Furnas, Chase, Hayes, Hitchcock and Red Willow Counties. (Bergman). NORTH DAKOTA - Counts of less than 100 per cow in untreated herds and less than 5 in treated herds in sandhill area of southeast. (Noetzel). GEORGIA - Counts of 100-1,000 (average of 600 per cow) in a herd in Chatham County. (Vanderford). MARYLAND - Ranged 8-44 per head on dairy cattle in Frederick County. (U. Md., Ent. Dept.). INDIANA - Counts of 75 per head on cattle in southwest, 50 in south central and southeast. (Saugstad). ILLINOIS - In western area, 0-20 flies per animal on pastured cattle. (Ill. Ins. Rpt.).

TABANIDS - NORTH DAKOTA - Counts of less than 1 per animal of Tabanus lineola in sandhill area of southeast. High counts in 1965 appear remote at this time. (Noetzel). OKLAHOMA - Tabanus spp. heavy on livestock in Choctaw County. (Okla. Coop. Sur.). COLORADO - Tabanus sp. and Chrysops sp. caused considerable irritation to livestock in Fremont, Teller, Park, Custer and Pueblo Counties. (Gilmore, Jenkins). UTAH - Undetermined species annoying horses and cattle in areas of Utah, Wasatch and Summit Counties. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - In western area, counts of 0-4 per animal on pastured cattle. (Ill. Ins. Rpt.). NORTH DAKOTA - Counts of 10-30 in sandhill area of southeast. Highest counts from dairy animals and stock kept near buildings. (Noetzel). COLORADO - Considerable irritation to livestock in Fremont, Teller, Park, Custer and Pueblo Counties. (Gilmore, Jenkins). MARYLAND - Counts of 3-50 per head on dairy cattle in Frederick County. (U. Md., Ent. Dept.). WISCONSIN - Reported as number one fly problem. (Wis. Ins. Sur.).

MOSQUITOES - COLORADO - Considerable irritation to livestock caused by Culex sp., Aedes sp. and Anopheles sp. in Fremont, Teller, Park, Custer and Pueblo Counties. (Gilmore, Jenkins). UTAH - Undetermined species annoying in areas of Millard, Summit and Wasatch Counties. (Knowlton). MINNESOTA - Metropolitan Mosquito Control District's collections as follows: 541 larval samples of which Aedes vexans found in 329 and Culex tarsalis in 43; 701 females taken in light traps of which 298 were A. vexans and 127 C. tarsalis; in evening and daytime biting collections, A. vexans was dominant. (Minn. Ins. Rpt.).

SHEEP KED (Melophagus ovinus) - UTAH - Moderately numerous in farm flocks at Heber, Wasatch County. (Knowlton).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy on cattle in Haskell, Cherokee and Choctaw Counties. (Okla. Coop. Sur.).

BLACK WIDOW SPIDER (Latrodectus mactans) - UTAH - Reports from homes in Weber and Salt Lake Counties. (Knowlton).

WASPS - MARYLAND - Annoying to several homeowners in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). NEW JERSEY - Of concern to homeowners. (Ins.-Dis. Newsltr.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

EUROPEAN EARWIG (Forficula auricularia) - MAINE - Continued troublesome to homeowners in Portland area and generally throughout coastal region of Cumberland County. Light around homes in Rockland area, Knox County; annoyance level low. (Boulanger, Aug. 15). RHODE ISLAND - Still common statewide, but numbers decreasing. (Sorensen, Mathewson). UTAH - Abundant and generally annoying in Heber area of Wasatch County. (Knowlton).

LARDER BEETLE (Dermestes lardarius) - MICHIGAN - Household infestations in Gratiot and Ingham Counties. (Berlien).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - NORTH DAKOTA - Adults abundant in homes in eastern areas. (Frye, Gage).

A SOLPUGID (Eremobates tuberculatus) - CALIFORNIA - Heavy adult populations in a residence in Sacramento, Sacramento County. These have been more prevalent this season than for several years. (Cal. Coop. Rpt.).

#### STORED-PRODUCT INSECTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - RHODE ISLAND - Infestation in grain in box car in Woonsocket, Providence County. Purchaser refused to accept. (Mathewson).

#### BENEFICIAL INSECTS

CICADA KILLER (Sphecius speciosus) - OKLAHOMA - Numerous in Cimarron and Texas Counties. (Okla. Coop. Sur.).

A PELECINID PARASITE (*Pelecinus polyturator*) - WISCONSIN - Eight adults of this hymenopterous parasite of scarabaeid beetles collected along a 300 foot stretch of pine windbreak near Merrill, Lincoln County, August 13. All beetles were within 4 feet of ground. (Wis. Ins. Sur.).

LADY BEETLES - OKLAHOMA - *Hippodamia convergens* (convergent lady beetle) numerous in sorghum in panhandle counties. Light in alfalfa in Beaver, Harper, Blaine and Kingfisher Counties. (Okla. Coop. Sur.). WYOMING - Adults and larvae of several species averaged 78 per 100 sweeps in alfalfa, 63 in sugar beets, 46 in beans and 5-8 per plant in corn fields of Goshen County. (Marks).

DAMSEL BUGS (*Nabis* spp.) - WYOMING - Adults averaged 56 per 100 sweeps in alfalfa, 62 in sugar beets and 50 in bean fields of Goshen County. (Marks).

#### MISCELLANEOUS INSECTS

EUROPEAN CHAFER (*Amphimallon majalis*) - PENNSYLVANIA - Survey in Philadelphia, Harrisburg and Pittsburgh negative. In Erie County, 76 chafers collected by nets and traps at numerous sites over 4,500 acres. This extension of last year's infestation is 10 miles east of Erie in a band, 1-3 miles wide, along the New York Central Railroad. (Campbell).

#### CORRECTIONS

CEIR 14(16):346 - CATALPA SPHINX (*Ceratoma catalpae*) should read (*Ceratomia catalpae*).

CEIR 14(34):963 - SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - MISSOURI - Should read: "Second-generation moth population increasing in southeastern area. (Harrendorf, Jones)."

CEIR 14(34):974 - BOLL WEEVIL (*Anthonomus grandis*) - MISSOURI - Should read: "First adults of season taken in 12 fields in Dunklin County. (Harrendorf, Jones)."





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

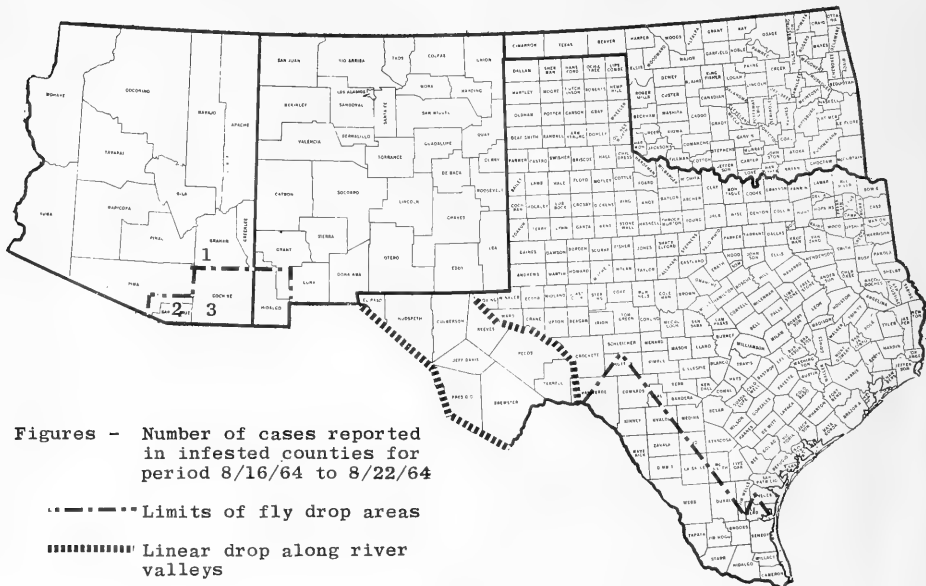
During the period August 16-22, no screw-worm infestations were reported in the Southwestern Screw-worm Eradication Area. Six cases were reported in ARIZONA counties: Cochise (3), Santa Cruz (2) and Graham (1). The Republic of Mexico reported 61 cases from following States: Sonora (20), Chihuahua (22), Durango (9), Tamaulipas (8), San Luis Potosi (1) and Puebla (1). A total of 103,328,650 sterile screw-worm flies was released: 22,235,450 in Texas; 1,000,000 in New Mexico; 7,720,000 in Arizona; and 72,373,200 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	740	33,188	30	2,227	2,466.6:100	1,490.2:100
1963	58	2,447	81	4,637	71.6:100	52.7:100
1964	0	107	66	4,279	0.0:100	2.5:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases with cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).







UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

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Ent.  
VOL. 14 No. 36

September 4, 1964

*Cooperative*  
**ECONOMIC INSECT  
REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREEN CLOVERWORM increased sharply on soybeans in southern Louisiana and damaging same crop in Maryland and Virginia. (p. 1013). THREE-CORNERED ALFALFA HOPPER increased in alfalfa throughout Arizona, with heavy damage evident in many fields. (p. 1015). RED-LEGGED GRASSHOPPER comprises about 90 percent of populations in nearly all areas of Wisconsin; is most abundant grasshopper species in southwest Ohio and appears to be building up; also of importance in Minnesota and Maryland. (pp. 1015-1016). Several GRASSHOPPER species damaging young fruit trees in Valencia County, New Mexico, and *Melanoplus yarrowii* feeding on citrus in Yuma County, Arizona. (p. 1020). FALL ARMYWORM heavy in pastures over Louisiana, building up on pastures and lawns in Mississippi, heavy in southwest Arkansas, infestations high in corn in Wisconsin, and heavy reoccurrence noted on Daniel Island, South Carolina. (pp. 1016-1017). HESSIAN FLY larval numbers high in spring wheat in Weston County, Wyoming. SPIDER MITES causing conspicuous but spotty damage to soybeans over wide area of Maryland Eastern Shore. (p. 1019).

MELON APHID populations heavy and damaging melons in Safford Valley of Arizona. CABBAGE LOOPER damaged cabbage in Wisconsin and of concern on several crops in Maryland and on Eastern Shore of Virginia. EUROPEAN CORN BORER and TOMATO FRUITWORM infesting large acreage of purple-hulled peas in Missouri. (p. 1022). GREEN PEACH APHID damaging tobacco in Maryland and Virginia. (p. 1023).

BOLL WEEVIL infestations increased in areas below the Cap Rock of Texas; also becoming of some concern in Louisiana, Mississippi, Tennessee, Alabama, Georgia and South Carolina. BOLLWORM populations at economic levels in Fresno County, California, and continue to be of concern on cotton in areas of Arizona. (pp. 1024-1025).

DETECTION

New State records reported were NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) in Maryland (p. 1018), FACE FLY (*Musca autumnalis*) in Alabama (p. 1029) and a WEEVIL (*Hexarthrum ulkei*) in Kansas (p. 1030). New county records included SPOTTED ALFALFA APHID (*Therioaphis maculata*) in Campbell, Brown and Deuel Counties, South Dakota (p. 1014); NORTHERN CORN ROOTWORM in Howard County, Maryland, and Allen, Bourbon, Coffey, Johnson, Linn, Lyon, Miami, Osage and Woodson Counties, Kansas (p. 1018); WESTERN CORN ROOTWORM (*D. virgifera*) in Atchison, Coffey, Douglas, Harvey, Johnson and Osage Counties, Kansas (p. 1018); a LEAF ROLLER MOTH (*Ptycholoma peritana*) in Fresno County, California (p. 1020); ELM LEAF BEETLE (*Galerucella xanthomelaena*) in Kiowa, Comanche, Clark, Norton, Phillips and Seward Counties, Kansas (p. 1027); and MIMOSA WEBWORM (*Homadula albizziae*) in Mercer, Darke, Champaign and Miami Counties, Ohio (p. 1028).

CORRECTIONS and ADDITIONAL NOTES

See page 1031.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1035).

Hawaiian Insect Notes. (p. 1036).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Corn for Grain and Wheat in Kansas During 1963. (pp. 1037-1038).

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Reports in this issue are for the week ending August 28, unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

SEPTEMBER 1964

The Weather Bureau's 30-day outlook for September calls for temperatures to average above seasonal normal over the northeast quadrant of the Nation and also in the south-central region with hottest weather over Texas. Below normal averages are predicted west of the Continental Divide and also over the Northern Plains and along the south Atlantic coast. In regions not specified near normal temperatures are in prospect. Precipitation is expected to exceed normal across the northern third of the Nation from the Great Lakes westward to the Pacific coast. Subnormal amounts are anticipated in a zone from New England southwestward to Mississippi and also over the Southern Plains and Far Southwest. Elsewhere precipitation should total about normal.

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 AUGUST 31

Cool weather continued over the northern and central Rocky Mountains and most of the Great Plains. Hurricane Cleo produced 2 to 10 inches of rain along the Atlantic coast from Florida to southern Virginia. Light to heavy thundershowers dotted the Corn Belt States.

**TEMPERATURE:** From the central portions of Washington and Oregon eastward to the Dakotas and Nebraska temperatures averaged from 6° to 11° below normal. Over much of the area, it was the third week with below normal temperatures. Early morning readings were mostly in the 40's and 50's. Afternoon temperatures reached the 90's at a few western stations during the first part of the week. Pierre, South Dakota, registered 95° on Wednesday. After Wednesday, afternoon temperatures over the northwestern quarter of the Nation were mostly in the 60's and 70's. Maximums in the 90's or higher occurred almost every day from the interior valleys of California eastward to Florida. Tallahassee, Florida, registered 96° on August 30. Temperatures averaged above normal from Texas eastward to the western half of the Florida Peninsula. Temperatures averaged warmer than normal over the Ohio River Valley northeastward to New England, as afternoon temperatures over this area climbed to the 80's and 90's during the latter part of the week. The temperatures over Pennsylvania averaged higher than in any week since the end of July. Few stations in New England had registered 90° in August prior to the 30th.

**PRECIPITATION:** Hurricane Cleo produced heavy rains in the South Atlantic States. Scattered thunderstorms brought 2 inches or more to areas in Kansas, Oklahoma, Missouri, Arkansas, and Kentucky. Much of the Nation, especially the western half, received less than 0.5 inch of rain during the week. California, Nevada, and parts of nearby States received no rain. Snow fell in the northern Rocky Mountains, reaching a depth of 8 inches north of Steamboat Springs, Colorado. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREEN CLOVERWORM (Plathypena scabra) - SOUTH DAKOTA - Ranged 2-16 per 100 sweeps in alfalfa throughout eastern part of State. (Hintz). WISCONSIN - Larvae ranging from newly emerged to nearly full grown continue to be collected in fairly high numbers in some alfalfa, principally regrowth fields. (Wis. Ins. Sur.). MICHIGAN - Larvae ranged 15-45 per 25 feet of row in soybeans in Monroe County; very little pod damage noted. Averaged 3 larvae per 25 feet of row in 5 fields of alfalfa sampled in Monroe, Livingston and Oakland Counties. (Newman). DELAWARE - All larval stages common on soybeans throughout State; averaged 2-3 per sweep in eastern Kent County. (Burbutis, Crossan). MARYLAND - Larvae causing moderate injury to soybeans in Wicomico and Worcester Counties. Averaged about 1 per sweep on alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). VIRGINIA - Severe on soybeans in Isle of Wight County. (Tarpley). None detected on soybeans checked in King George, Essex, Middlesex and Gloucester Counties; averaged 2-3 per dump of soybean plants in Isle of Wight County and less in Nansemond, Southampton, Greensville and Brunswick Counties. (Vest, Aug. 19-20). LOUISIANA - Increased sharply on soybeans in southern half of State. (Tynes, Bagent, Aug. 24). OKLAHOMA - Averaged 9 per 10 sweeps in irrigated alfalfa in Greer County. (Okla. Coop. Sur.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - LOUISIANA - Sharp increase noted on soybeans in southern half of State. (Tynes, Bagent, Aug. 24). ALABAMA - New generation appearing in moderate numbers in large field of soybeans in Mobile County. (Seibels, Fairley). SOUTH CAROLINA - Increasing on soybeans in Marlboro County and present on same host in Marion County. (Nettles et al., Aug. 25).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae heavy in most alfalfa in Graham, Cochise, Pima, Maricopa and Pinal Counties; ranged 150-200 per 100 sweeps. Light to moderate on alfalfa in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Adults noted in most alfalfa checked in Valencia, Bernalillo and Sandoval Counties; only occasional larva found. (N.M. Coop. Rpt.). UTAH - Light to moderate in alfalfa in Spanish Fork-Goshen area, Utah County (Aug. 24); light in Millard and Carbon County alfalfa seed fields. (Knowlton). WISCONSIN - Larvae increasing in many alfalfa fields; counts as high as 2 per sweep. (Wis. Ins. Sur.). MICHIGAN - Larval numbers low in alfalfa in Oakland, Livingston and Monroe Counties. (Newman).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Infestations of 20-30 larvae per 100 sweeps remain prevalent in Graham County alfalfa. (Ariz. Coop. Sur.).

GRANULATE CUTWORM (Feltia subterranea) - ALABAMA - Previously reported populations causing additional damage to peanuts in Barbour County. (Walton).

VARIEGATED CUTWORM (Peridroma saucia) - ARIZONA - Moderate to heavy populations continue to damage alfalfa in Graham, Gila and areas of Maricopa Counties. (Ariz. Coop. Sur.).

LOOPERS - LOUISIANA - Infestations increased sharply on soybeans in southern half of State. (Tynes, Bagent, Aug. 24). ALABAMA - Moderate numbers of Trichoplusia ni (cabbage looper) present in large field of soybeans in Mobile County. (Seibels, Fairley). SOUTH CAROLINA - Disease killed entire population of loopers on soybeans in Allendale County and large percentage of populations in several other counties. (Nettles et al., Aug. 25).

WEBWORMS (Loxostege spp.) - SOUTH DAKOTA - Averaged 6 per 100 sweeps in alfalfa in north central and northeastern regions. (Hintz). NEBRASKA - Occasional larvae of L. similalis (garden webworm) noted in alfalfa in eastern third of State. (Bergman). TEXAS - What is probably L. similalis required control measures on alfalfa in Eastland County. (Cooper).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Populations on peanuts increasing in Caddo County. Third-generation larvae feeding on pegs and stems. (Okla. Coop. Sur.).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Light to moderate (up to 10 percent infestation) in peanuts in Garvin, Bryan and Caddo Counties. (Okla. Coop. Sur.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - LOUISIANA - Infestations on soybeans increased sharply in southern half of State. (Tynes, Bagent, Aug. 24). SOUTH CAROLINA - Decreased on soybeans in Marlboro County. (Nettles et al., Aug. 25).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Increasing rapidly on soybeans in Clarendon County; decreasing in Marlboro and Williamsburg Counties. (Nettles et al., Aug. 25). NORTH CAROLINA - Adults and larvae averaged 2 per foot of row in 12 fields of soybeans checked in Johnston and Wayne Counties. Only species found consistently in these fields. (Mount).

ALFALFA WEEVIL (Hypera postica) - OREGON - Infestations in Jackson County alfalfa much lower than in 1963. (Winters). WYOMING - Adults averaged 16 and larvae 128 per 100 sweeps in alfalfa in Carbon, Sweetwater, Uinta, Lincoln, Teton and Sublette Counties. (Marks). MISSOURI - Survey of alfalfa in Greene, Webster, Christian, Douglas, Ozark, Taney and Stone Counties (southwest area) negative. (Houser, Thomas, Wood). MARYLAND - Larvae ranged 0-3 per sweep in 16 fields of alfalfa checked in Frederick County. (U. Md., Ent. Dept.).

CLOVER ROOT CURCULIO (Sitona hispidula) - NEBRASKA - Adults averaged 11 per 10 sweeps in alfalfa in Dodge and Saunders Counties. (Bergman). UTAH - Few adults noted in alfalfa in Miller Creek area of Carbon County. (Knowlton).

BLISTER BEETLES - SOUTH CAROLINA - Present in many soybean fields in Lee County and feeding on soybean foliage in Edgefield County. (Nettles et al., Aug. 25). MARYLAND - Epicauta spp. adults light to moderate on alfalfa and soybeans at several locations on Eastern Shore. (U. Md., Ent. Dept.). ILLINOIS - Counts as high as 4 per sweep noted in alfalfa in northern area; several species involved. Population sufficiently high in several instances to cause dairy cattle to refuse green, chopped hay for feed. (Ill. Ins. Rpt.). MINNESOTA - Primarily E. pennsylvanica (black blister beetle), numerous in many fields. (Minn. Ins. Rpt.). SOUTH DAKOTA - Epicauta spp. readily found throughout north central and northeastern regions; averaged 450 per 100 sweeps in alfalfa. (Hintz). NEBRASKA - E. pennsylvanica ranged 3-20 (average 8) per 10 sweeps in alfalfa in Colfax, Dodge, Madison, Platte, Saunders and Washington Counties. (Bergman). UTAH - Moderate numbers of E. maculata (spotted blister beetle) noted in alfalfa in Delta-Sutherland area of Millard County and in Miller Creek area of Carbon County. (Knowlton).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Light, local infestations observed in soybeans in Baldwin County; migrating from fence rows and idle land. (Cunningham).

SPOTTED ALFALFA APHID (Therioaphis maculata) - SOUTH DAKOTA - Averaged 4 per 100 sweeps in Campbell, Brown and Deuel Counties. These are new county records. (Hintz). WISCONSIN - No change noted in situation previously reported in CEIR 14(35):992. Adults of Trioxys utilis (a parasitic braconid) averaged 3 per sweep in field near Mazomanie; about 30 percent of aphids appeared parasitized. Although high percentage of aphids winged, no sexual forms noted. (Wis. Ins. Sur.). MISSOURI - Very light on alfalfa in southwest and south central areas; averaged 10 per 10 sweeps. (Houser, Thomas, Wood). OKLAHOMA - Heavy (500 per 10 sweeps) in irrigated alfalfa in Greer County; light (up to 60 per 10 sweeps) in other fields checked in southwest. Counts of 120 per 10 sweeps reported in field in Caddo County. (Okla. Coop. Sur.). KANSAS - Ranged from less than 1 to 200 per sweep in north central and southwest areas; generally, higher counts on alfalfa ready to cut. (Peters). NEBRASKA - Populations very low to



nonexistent in eastern area; averaged 2 per 10 sweeps in Platte County. (Bergman). COLORADO - None found in alfalfa checked in Weld and Larimer Counties. (Jenkins). NEW MEXICO - Light to moderate in alfalfa in western Valencia County; damage minor. Winged adults very numerous. (N.M. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Very heavy in some alfalfa in north central Kent County; averaged approximately 400 per 10 sweeps. Present on same crop elsewhere in State. (Burbutis, Crossan). MARYLAND - Populations of 100-500 per sweep common in several alfalfa fields in Frederick County. (U. Md., Ent. Dept.). INDIANA - Adult and nymphal populations generally low on alfalfa throughout central area; averaged 43 per 10 sweeps in Wabash, Cass, Tippecanoe, Grant, Delaware and Madison Counties. (Bram). WISCONSIN - Ranged 30-500 per sweep in regrowth alfalfa in parts of Fond du Lac, Washington, Dodge and Sheboygan Counties. About 10-30 percent of populations in many fields diseased or parasitized. Adults of Praon simulans (a parasitic braconid) appearing on Dane County alfalfa; Nabis ferus, various lady beetles and lacewing larvae common in many fields. (Wis. Ins. Sur.). WYOMING - Adults and nymphs averaged 475 per 100 sweeps in alfalfa in Carbon, Sweetwater, Uinta, Lincoln, Teton and Sublette Counties. (Marks). OREGON - Ranged 60-80 per sweep in Umatilla County forage alfalfa week of August 18; Aphidius spp. (parasitic braconids) averaged 3 and 4 per sweep. (Halfhill).

PLANT BUGS - DELAWARE - Lygus lineolaris (tarnished plant bug) increased on alfalfa in most areas. Adelphocoris lineolatus (alfalfa plant bug) adults and nymphs present on alfalfa in Kent and Sussex Counties. (Burbutis, Crossan). MARYLAND - Moderate numbers of L. lineolaris evident in most alfalfa surveyed in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). WYOMING - A. lineolatus adults and nymphs averaged 37 per 100 sweeps in alfalfa in Carbon, Sweetwater, Uinta, Lincoln, Teton and Sublette Counties. (Marks).

LYGUS BUGS (Lygus spp.) - OREGON - As high as 20 per sweep in some alfalfa in Malheur County; numbers much lower in other fields. (Goeden). UTAH - Moderate numbers of adults and nymphs noted in some alfalfa seed fields in western Millard County and in Miller Creek area of Carbon and Emery Counties. (Knowlton). WYOMING - Adults and nymphs averaged 86 per 100 sweeps in alfalfa in Carbon, Sweetwater, Uinta, Lincoln, Teton and Sublette Counties. (Marks). OKLAHOMA - Ranged 3-7 per 10 sweeps in alfalfa in Kiowa, Greer, Tillman and Caddo Counties. Mostly L. lineolaris (tarnished plant bug). (Okla. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - SOUTH DAKOTA - Adults averaged 46 per 100 sweeps in alfalfa in north central and northeastern areas. (Hintz). MICHIGAN - Averaged 4 adults per sweep in alfalfa in Oakland, Livingston and Monroe Counties August 25. (Newman, Wells). INDIANA - Adults and nymphs averaged 11 per 10 sweeps on alfalfa throughout central portion of State. (Bram). MARYLAND - Generally light, but injury noted to occasional field of alfalfa in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increased in alfalfa throughout State; ranged 200-1,000 per 100 sweeps. Heavy damage evident in many fields. (Ariz. Coop. Sur.). SOUTH CAROLINA - Present in many fields of soybeans in Lee County. (Nettles et al., Aug. 25).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Damage to seed alfalfa appeared about one month earlier in Jackson County than in 1963; may have been due to miticide applications in early July. (Winters).

GRASSHOPPERS - UTAH - Infestations and damage over much of Davis County worse in several years. (Rogers, Knowlton). Infestations this year in Carbon County considered worse in 10 years; adults still numerous generally. Damage continues in many parts of State. (Knowlton). KANSAS - Surveys showed light populations of 3-7 per square yard on range and cropland in Sheridan, Decatur, Rush, Rooks, Smith, Russell, Jewell, Seward, Kingman, Pratt, Ford, Gray, Hodgeman, Reno,

Wichita and Logan Counties; moderate counts of 8-14 per square yard noted in Wallace, Comanche and Hodgeman Counties; and heavy populations of 15 per square yard found at one location in Clark County. All other counts noneconomic. Dominant species included Melanoplus sanguinipes (migratory grasshopper), Ageneotettix deorum, M. femurrubrum (red-legged grasshopper), M. differentialis (differential grasshopper), Amphitornus coloradus, Opelia obscurus and Phoetalites nebrascensis. (Warnke). MISSOURI - Ranged 5-10 per square yard in margins and 0-4 in fields in south central and most of southwest area; M. femurrubrum dominant in these areas. Higher counts of 10-20 in margins and 5-10 in fields recorded in portion of southwest, including Dade, Barton, Jasper, Lawrence, Newton and Barry Counties. M. femurrubrum dominant in some fields, M. differentialis dominant in others. No treatment warranted in either area. (Houser, Thomas, Wood). SOUTH DAKOTA - Populations light to moderate in north central and north-eastern regions; major portion of population confined to soil bank land and alfalfa. (Burge). NORTH DAKOTA - Adult populations noneconomic in Logan County, mostly noneconomic to light in Emmons County; infestation moderate in west central and southwestern Emmons County. M. differentialis, M. femurrubrum, M. bivittatus (two-striped grasshopper) and M. packardii (Packard grasshopper) dominant. (Brandvik). Mostly noneconomic to light in Dickey and McIntosh Counties; light to moderate in eastern edge of McIntosh County. M. femurrubrum, M. bivittatus and M. sanguinipes dominant. (Scholl). MINNESOTA - Counts continue lower than expected in alfalfa. Checks in corn and soybeans confirm dispersal from alfalfa, roadsides and field margins. High numbers reported in margins of corn and soybeans; damage severe to these crops in some instances. Grasshoppers have dispersed generally throughout fields of corn and soybeans. Feeding damage not so noticeable when spread over entire field. In southwest and south central districts, counts generally 3-7 per square yard, with occasional field having as high as 9-36 per square yard. Averaged 3 per square yard in most fields in northwest. M. femurrubrum predominated in all districts surveyed. Mites present in some fields; in one Brown County field of alfalfa, mites present on 10 percent of grasshopper population. (Minn. Ins. Rpt.). WISCONSIN - M. femurrubrum comprises nearly 90 percent of populations in nearly all areas of State. Some females have eggs ready to be laid; egg laying probably underway although not observed. M. differentialis females developing eggs, although percentage with eggs low; development in initial stages. Considerable movement in alfalfa, corn and roadside grasses occurring in many areas; damage to alfalfa somewhat less evident due to recent rains and renewed growth; some fields completely defoliated, however; 30 percent defoliation reported in some Wakesha County alfalfa. Silk feeding and gouged ear tips most pronounced damage in corn. Threatening grasshopper populations noted in southern Sauk, southern Adams and all of Portage Counties; damage to alfalfa and red clover heavy in some instances. Parasitism high in some areas. (Wis. Ins. Sur.). OHIO - M. femurrubrum most abundant species along fence rows and other grassy areas in southwest. Populations appear to be building up; slight feeding damage to green field crops appearing due to severe drought conditions, resulting in killing of grasses in many areas. (Lyc.). MARYLAND - M. femurrubrum common on large acreage of late sweet corn in Queen Annes County. (U. Md., Ent. Dept.).

FALL ARMYWORM (Laphygma frugiperda) - TEXAS - Reported light to moderate on Bermuda grass pastures in Cass County. (Hatter, Aug. 21). Controls applied to moderate infestations on late grain sorghum in Hunt County. (Turney). Light infestations appearing on pastures and forage crops over wide areas in eastern part of State. (Texas Coop. Rpt.). ARKANSAS - Population heavy in southwest; larvae feeding on most plants that are green. Area suffered from drought and most vegetation dead. (Barnes). Present in soybeans in Arkansas County; ranged 30-50 per 30 feet of row in some fields; not present in other fields. In one field of soybeans in Lonoke County, ranged 200-300 per 30 feet of row. (Boyer). LOUISIANA - Heavy in pastures over State. (Tynes, Bagent, Aug. 24). MISSISSIPPI - Again building up in pastures and lawns. Controls needed in some instances. (Bennett, Young). SOUTH CAROLINA - Noted infesting several spots in dairy pasture at Clemson August 18; controls applied. Moth populations increased sharply in same area August 16-22. Heavy reoccurrence noted on Daniel Island; controls effective. (Nettles, et al.). NORTH CAROLINA - Larvae damaging 400

acres of Coastal Bermuda grass on farm in Harnett County; degree and extent of damage not given. (Jones). VIRGINIA - Severe in field corn at a location in Spotsylvania County (Amos, Kash, Aug. 14); light to heavy in late corn in Remington section of Fauquier County, with early corn showing some damage but not to same extent as late corn (Tudor, Aug. 13); medium in garden corn in Cloverdale, Botetourt County (Tarpley, Keesee, Aug. 22). WISCONSIN - Second to fifth-stage larvae prevalent in corn still in whorl stage in Sheboygan, Fond du Lac and Green Lake Counties; as high as 50 percent of plants infested. Most fields free of weeds; many larvae pupating. (Wis. Ins. Sur.).

ARMYWORM (*Pseudaletia unipuncta*) - MICHIGAN - Larvae damaged ears of sweet corn in some plantings in Berrien, Wayne and Kalamazoo Counties earlier in season. (Newman). DELAWARE - Adult flights continue in Sussex County; counts increased to average of 30 adults per night. (Burbutis, Crossan). MASSACHUSETTS - Large numbers of adults taken in blacklight trap during week August 16-22 in southeast. (Tomlinson).

CORN EARWORM (*Heliothis zea*) - MASSACHUSETTS - Moths common in blacklight traps August 16 and 17 at Sagamore and Wareham. (Tomlinson, Aug. 22). NEW YORK - Unsprayed ears picked in variety trial in Ulster County ranged from 23 percent infested August 16 to 14 percent August 21; one moth taken August 18 and 7 taken warmer weekend of August 22-24. Development obviously slowed by cooler weather first 3 weeks of August, but sharp increase developing with advent of warmer weather. (N.Y. Wkly. Rpt.). NEW JERSEY - More abundant than light trap collections indicate; cool night temperature restricted moth flights. (Ins.-Dis. Newsltr.). DELAWARE - Adults averaged 15 per night in blacklight trap in Sussex County. (Burbutis, Crossan). MARYLAND - Heavy numbers of eggs observed on fresh silks on large acreage of sweet corn at Ruthsburg, Queen Annes County. (U. Md., Ent. Dept.). VIRGINIA - None detected in soybeans checked in King George, Essex, Middlesex, Gloucester, Isle of Wight, Nansemond, Southampton, Greensville and Brunswick Counties. (Vest, Aug. 19-20). SOUTH CAROLINA - Increasing rapidly in soybeans in Clarendon County; infesting same crop in Marion and Marlboro Counties. (Nettles et al., Aug. 25). ALABAMA - Considerable infestation and damage noted on much corn in Houston County. (Mathews). LOUISIANA - Heavy on early soybeans in Catahoula Parish; insecticides will be required in many fields; should be closely watched. (Tynes, Bagent, Aug. 24). ARKANSAS - Major outbreak occurred in soybeans in Jefferson County; large number of fields checked and all infested. Most larvae in second stage. Only few fields with as few as 25-30 larvae per 30 feet of row; counts ranged 150-350 in many fields. Outbreak detected early and controls instigated immediately in soybeans setting fruit. Lighter larval numbers noted in Lonoke County. Infestations light in some fields in Stuttgart area; only 1 larva found on Rice Branch Experiment Station east of Stuttgart. (Ark. Ins. Sur.). Of 16 fields checked in Lonoke County, 15 infested; counts ranged 1-5 per 30 feet of row in 13 fields and 6-10 in 2 fields. (Little). Present in soybean fields in Jackson and White Counties and in Conway and Yell Counties along upper Arkansas River. (Dowell). OKLAHOMA - Averaged 28 per 100 terminals in field of peanuts in Comanche County. (Okla. Coop. Sur.). OHIO - Little or no economic damage on sweet corn in central section; populations expected to build up in September. (Lyon). INDIANA - Third to fifth-stage larvae infesting less than 5 percent of corn ears throughout central part of State; 25 percent of ears noted infested in Tippecanoe County field. (Bram). MICHIGAN - No adults taken in blacklight traps located throughout State. (Newman, Snow). WISCONSIN - Few third instars noted in sweet corn in scattered areas; seldom exceeded 10 percent infestation. Eggs detected in silks as far north as Fond du Lac County; treatment underway. (Wis. Ins. Sur.). NEW MEXICO - Infesting approximately 85 percent of sweet corn ears in home gardens in Belen area, Valencia County. (N.M. Coop. Rpt.). ARIZONA - Continues to damage corn in Graham, Greenlee and Cochise Counties. (Ariz. Coop. Sur.). UTAH - Infesting 30 percent of sweet corn in home gardens in Davis County. (Rogers, Knowlton). Adults less active past 10 days in northern and central areas. (Knowlton).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NEW YORK - Found in about 1 percent of untreated ears in trial plot in Hudson Valley; moths continue to appear in light trap in declining numbers. (N.Y. Wkly. Rpt., Aug. 24). DELAWARE - Blacklight trap collections indicate flight at peak in Sussex County; averaged 25 moths per night. (Burbutis, Crossan). MARYLAND - Moth numbers increased sharply in blacklight trap at Centreville. (U. Md., Ent. Dept.). NORTH CAROLINA - Infesting 50 percent of stalks in 3 acres of corn in Lincoln County. (Stoudemore). INDIANA - Second-generation larvae infesting 6 percent of corn-stalks throughout central area. (Bram). MICHIGAN - Numerous males and females continue to be taken at blacklight traps although weather not conducive to flight. Young larvae, mostly first stage, present in 3 Monroe County corn fields checked August 25. (Newman, Snow). WISCONSIN - Egg masses difficult to find in sweet corn and oviposition nearly ceased in field corn in Spring Green area; some fifth stage, second-generation larvae noted in this field corn as well as second and third stage larvae; field 50 percent infested. Dissections east of Ripon and Theresa showed only fifth instars present; no empty pupal cases noted. Dissections in Princeton area showed one fifth instar to 4 empty pupal cases. Late field corn near Green Lake with 4 percent egg masses and 2 percent third instars. Late sweet corn planting near Cedar Grove showed 10 percent infestation of fifth instar. Infestation 20 percent in sweet corn near Mazomanie; mostly third instar; mostly in ear tips in earlier field. Infestation 12 percent in similar field but none in field recently silked. (Wis. Ins. Sur.). NORTH DAKOTA - Pupation 46 percent at Fargo; emergence 3 percent. *Sympiesis viridula* (a parasitic eulophid) found near one dead larva. (Frye, Gage). NEBRASKA - Development ranges second to fifth stage in eastern third of State; mostly fifth stage in Washington County. (Bergman). MISSOURI - Third-generation borers in extreme southern area and second-generation borers in central and northern areas entered stalks or tassels. Infestations range 20-90 percent in southern area to 10-80 percent in central and northern areas. (Houser, Thomas, Wood).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - Heavy populations in sugarcane reported from several localities. (Tynes, Bagent, Aug. 24).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - MARYLAND - Adults collected on silks of sweet corn at Westminster, Carroll County, August 18 by H. Rinehart and T. L. Bissell. Det. by G. Vogt. Surveys August 25 showed pest present on 6 farms in Carroll and Howard Counties; considerable numbers taken by sweeping foxtail and other grasses at edges of fields. This is a new State record. (U. Md., Ent. Dept.). NEW YORK - Caused extensive damage in field of processing sweet corn in Monroe County; plants stunted and lodged. Adults feeding heavily on silks and ear tips. (N.Y. Wkly. Rpt., Aug. 24). OHIO - Check made of 210 farms in 21 northwest and west central counties during past 3 weeks to determine abundance. Populations sporadic throughout area; heaviest in untreated fields continuously in corn. Population still abundant in late-planted corn in Mercer County. Averaged 5 per ear on numerous plants in one field; more beetles flying from leaf to leaf within field; however, majority of observations showed beetles left ears due to maturity of corn. (Lyon, Polivka). Damage extensive in 5-acre bottomland field of corn on Adams-Highland county line (west central); crop will have to be used as silage. (Mowbray, Holdsworth). INDIANA - Adults no longer of concern on corn in central area; only 1 percent of ears examined were infested. (Bram). KANSAS - Survey conducted during period August 24-28 showed this species present in Allen, Bourbon, Coffey, Johnson, Linn, Lyon, Miami, Osage and Woodson Counties. These are all new county records. (Burkhardt, Biery, Peters).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - KANSAS - Survey made during period August 24-28; collected for first time in Atchison, Coffey, Douglas, Harvey, Johnson and Osage Counties. (Burkhardt, Biery, DePew, Peters). NEBRASKA - Adults remain abundant in north Platte area, Lincoln County, with emergence complete; oviposition underway. (Pruess). Adults present in eastern and southern areas; causing light damage to kernels at ear tips. (Bergman).

CORN SAP BEETLE (Carpophilus dimidiatus) - VIRGINIA - Averaged 3-4 per ear in field corn from Fredericksburg south to Suffolk, and west to Brunswick County. (Vest, Aug. 19-20).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Adults remain hidden and difficult to find in Berrien County research plots where high populations present earlier in season. (Ruppel, Ring).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Damaged some barley and wheat in irrigated areas of Davis County; damage to wheat less than that to barley. (Rogers, Knowlton). NEBRASKA - Populations on corn and sorghum considerably reduced in northeast, east and southeast. (Bergman). INDIANA - Adults and nymphs continue present to some degree on all corn throughout central portion of State; up to 40 percent of plants infested in scattered fields. (Bram). MICHIGAN - Populations greatly reduced in Ingham and Shiawassee Counties. High but declining numbers observed in Livingston, Oakland and Monroe Counties. (Newman). VIRGINIA - Heavy, spotted infestations found on 10 acres of field corn in Forest, Bedford County (Amos, Boone, Aug. 13) and on sweet corn on farm in Culpeper County (Amos, Heltzel, Aug. 8). MARYLAND - Natural control greatly reduced populations on corn in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Adults averaged 4 and nymphs 1.4 per 100 heads in 16 fields of rice checked in Lonoke County. This about same as previous week. (Little).

HESSIAN FLY (Phytophaga destructor) - WYOMING - High numbers of larvae found in spring wheat near Newcastle, Weston County; 50-80 percent lodging noted in spring wheat experimental plots. (Marks).

SORGHUM MIDGE (Contarinia sorghicola) - NEW MEXICO - Heavy in bluestem grass and grain sorghum near Los Lunas, Valencia County. (N.M. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - UTAH - Damaged corn at Green River, Emery County. (Horn, Knowlton). COLORADO - Populations high and on eighth leaves of corn in Weld and Larimer Counties; causing considerable bronzing of leaves. Controls not recommended as most infested corn will soon be cut for silage. (Jenkins). MARYLAND - Continue to cause conspicuous but spotty damage to soybeans over wide area of Eastern Shore. Some pod damage noted in Wicomico County. (U. Md., Ent. Dept.).

CHINCH BUGS (Blissus leucopterus ssp.) - LOUISIANA - Damaging St. Augustine grass lawns in Caddo and St. John the Baptist Parishes. (Tynes, Bagent, Aug. 24). MISSISSIPPI - Approaching; heavy populations in St. Augustine grass; one count in Leflore County showed 450 per square foot. (Bennett, Young).

A SPITTLEBUG - ALABAMA - An unusually high buildup of immature forms in Bermuda grass and St. Augustine grass lawns in Mobile County. (Baskin).

#### FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - In combination with Tetranychus mcDanieli (a spider mite) causing considerable damage to foliage of apple in untreated and improperly treated orchards in Valencia, Bernalillo and Sandoval Counties. (N.M. Coop. Rpt.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Appearing sporadically in number of Monroe County orchards; however, no commercial problem. (N.Y. Wkly. Rpt., Aug. 24).

YELLOW-NECKED CATERPILLAR (Datana ministra) - NORTH DAKOTA - Heavy defoliation of 3 to 4-year-old apple observed in nursery at Valley City, Barnes County. (Frye, Gage).

SAN JOSE SCALE (Aspidiotus perniciosus) - NORTH CAROLINA - Infesting 20 percent of apple trees in Sampson County orchard; causing tips of some branches to die. (Futrell, Mount).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - UTAH - Caused very little damage to ripening fruits so far this season. (Knowlton, Aug. 24).

GRASSHOPPERS - NEW MEXICO - Melanoplus packardii (Packard grasshopper), M. differentialis (differential grasshopper) and M. sanguinipes (migratory grasshopper) damaging leaves of fruit trees in young orchards near Belen, Valencia County. (N.M. Coop. Rpt.). ARIZONA - M. yarrowii feeding on citrus in Yuma area of Yuma County. (Ariz. Coop. Sur.).

APPLE MAGGOT (Rhagoletis pomonella) - RHODE ISLAND - Adults numerous on fruit in neglected orchard in Exeter, Washington County; concentrated on few individual trees to relative exclusion of other varieties. (Sorensen, Mathewson). NEW YORK - No emergence observed in seeded cages in Monroe County during past 10 days. (N.Y. Wkly. Rpt., Aug. 24). MICHIGAN - In Oakland County, 12 adults taken on sticky-board traps week ending August 25; in Antrim County, 23 flies taken and 7 collected in Grand Traverse County. (Siefert, McManus). MINNESOTA - Flies continue active; protective sprays should be continued on late maturing varieties. (Minn. Ins. Rpt.).

PEAR-SLUG (Caliroa cerasi) - UTAH - Causing light to moderate damage to cherry foliage and to some susceptible ornamentals in Farmington, Davis County, and in Perry, Box Elder County. (Knowlton).

ORCHARD MITES - NEW YORK - Continue a problem in some orchards in Monroe County. (N.Y. Wkly. Rpt., Aug. 24). UTAH - Spider mites, particularly Tetranychus mcdaniell, damaging apple and other orchard foliage in Davis County. (Knowlton, Rogers).

FALL WEBWORM (Hyphantria cunea) - OREGON - Populations higher than normal on black walnut in Malheur County. Very few webs noted on trees in Willamette Valley. (Goeden, Larson). MINNESOTA - Reported on some apple trees; should be of no concern where regular spray schedule followed. (Minn. Ins. Rpt.).

WALNUT CATERPILLAR (Datana integerrima) - NEBRASKA - Moderate to heavy on walnut in Burt, Douglas, Sarpy and Washington Counties; colonies ranged 2-5 per tree, with considerable defoliation. (Bergman).

PECAN WEEVIL (Curculio caryae) - TEXAS - Little adult emergence reported from central and north central areas; however, recent rain expected to stimulate emergence and activity in these areas. (Texas Coop. Rpt., Aug. 21). Low adult numbers appearing in Cooke and Denton Counties following recent rains. (Turney).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ARIZONA - Heavy infestations again appearing on pecans in Graham County. (Ariz. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - OREGON - Surveys throughout State showed heavy infestations in Medford, Jackson County; Ontario and Nyssa, Malheur County; and in Umatilla County. Small numbers found in Hood River County. The Willamette Valley, where walnuts grown commercially, apparently remains free of this pest. (Larson). CALIFORNIA - Larvae medium in peach fruit locally in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Larvae becoming numerous on citrus in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Larvae light on citrus plantings in Fresno, Fresno County. This is a new county record for this pest. (Cal. Coop. Rpt.).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Medium on navel orange locally in Arlington, Riverside County. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Eggs and adults light to moderate on citrus at South Daytona, Volusia County. (Pott, Aug. 4).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Total of 17 marked, sterile males trapped; 2 near Tecate and 1 in National City, both in San Diego County. Latter recovery 8.5 miles north of United States-Mexican border, which is most northerly fly capture in program area in State to August 28. (Cal. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Survey in eradication areas of Livermore, Alameda County, and in Kerman, Fresno County, remain negative. Fourth and final treatment of season at Livermore scheduled for early September. To August 28, more than 25,000 host plants treated on 4,000 properties. (Cal. Coop. Rpt.).

BLUEBERRY MAGGOT (Rhagoletis mendax) - MASSACHUSETTS - Adults still active in southeast area; more numerous this season than for several years. Several complaints of "wormy" berries received from consumers. (Tomlinson, Aug. 22).

#### TRUCK CROP INSECTS

POTATO FLEA BEETLE (Epitrix cucumeris) - VIRGINIA - Caused extensive damage to potato tubers on Eastern Shore; responsible for loss of grade and rejection of out of State shipments. Damage not observed until after July 10, indicating second-brood larvae mainly responsible. (Hofmaster).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Light to moderate on eggplant at Pasadena, Anne Arundel County. (U. Md., Ent. Dept.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Survey August 25 in 4 Monroe County fields known infested in 1963 revealed no signs of infestation this season. (Newman).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Under control on potatoes in most instances in late potato area of Weld County; ranged 95-309 per 6-7 leaves in 2 fields checked. (Urano). MARYLAND - Probably this species heavy on eggplant in Anne Arundel County and on garden squash at several locations over State. (U. Md., Ent. Dept.). DELAWARE - Continues numerous on some peppers in Sussex County. (Burbutis, Crossan).

Aphids on Potatoes in Maine - Populations small on untreated potato foliage at Presque Isle, Aroostook County, week ending August 29. Overall numbers decreased about 20 percent. Macrosiphum euphorbiae (potato aphid) and Myzus persicae (green peach aphid) about equal in numbers; only trace numbers of Aphis nasturtii (buckthorn aphid) and Acyrtosiphon solani (foxglove aphid) noted. Entomogenous fungi chiefly responsible for decline in aphid populations. Fall migrations of Acyrtosiphon solani and Macrosiphum euphorbiae started about August 14-15 and August 23, respectively; this is about usual time of year for these species. (Shands et al.).

EGGPLANT LACE BUG (Gargaphia solani) - MARYLAND - Moderate on eggplant at Pasadena, Anne Arundel County. (U. Md., Ent. Dept.).

BEET LEAFHOPPER (Circulifer tenellus) - UTAH - Population not high; 2-10 percent of tomatoes damaged by curly top in Davis County. (Knowlton).

POTATO PSYLLID (Paratrioza cockerelli) - NEBRASKA - Abundant on potatoes and tomatoes in North Platte area, Lincoln County, with considerable amount of purpletop present. (Pruess).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Caused considerable amount of injury to cantaloup in northern Anne Arundel County. (U. Md., Ent. Dept.).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy populations damaging melons in Safford Valley of Graham County. (Ariz. Coop. Sur.). MARYLAND - Heavily damaged cantaloup on 2 farms in Anne Arundel County. (U. Md., Ent. Dept.).

SQUASH BUG (Anasa tristis) - MARYLAND - Heavy on garden squash at Centreville, Queen Annes County. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - WISCONSIN - Heavily damaged cabbage in Outagamie County and nearly all market cabbage in Kenosha County shows some degree of feeding damage. Commercial cabbage planting near Arlington noted to have been noticeably damaged prior to setting head; most larvae now full grown, with considerable pupation underway. (Wis. Ins. Sur.). VIRGINIA - Present on cole crops throughout Eastern Shore area; continued hot weather will intensify problem. (Hofmaster, Aug. 19). MARYLAND - Serious infestations common and widespread on broccoli, cabbage and other crucifers. (U. Md., Ent. Dept.). DELAWARE - Very numerous on cabbage and broccoli in areas of Kent County. (Burbutis, Crossan).

IMPORTED CABBAGEWORM (Pieris rapae) - OHIO - Caused severe damage in many home gardens throughout State; larvae destroying leaves of cabbage and boring into heads in many instances. Adults heavy in adjacent forage fields. (Lyon). RHODE ISLAND - Common on garden cabbage in Peace Dale, Washington County. (Sorensen, Mathewson).

GREEN CLOVERWORM (Plathypena scabra) - NEW YORK - Continues to cause considerable concern on beans in Monroe County; controls appear satisfactory in many fields checked. Damage just becoming apparent; estimates ranged 10-30 percent reduction in yield. Spray applications expected to be continued. Larvae found in nearly every bean field in Monroe County; numerous growers treating. Under control where applications applied in Livingston County. (N.Y. Wkly. Rpt., Aug. 24).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MISSOURI - Larvae infesting 70-90 percent of plants in 3 fields (500 acres) of purple-hulled peas; 30-35 percent of pods contained larvae. (DeCarlo, Keaster).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - NORTH CAROLINA - Damaging stems of young snap beans at a Hertford County location. (Register, Mount).

TOMATO FRUITWORM (Heliothis zea) - MISSOURI - Larvae found in 11 percent of pods in 3 fields (500 acres) of purple-hulled peas. (DeCarlo, Keaster). DELAWARE - Adults numerous in most lima bean fields in Sussex County; young larvae noted in lima beans August 27. (Burbutis, Crossan).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEW MEXICO - Moderate to heavy populations skeletonizing leaves of bean plants in home gardens in Belen and Los Lunas, Valencia County. (N.M. Coop. Rpt.). WISCONSIN - All stages heavy on planting of snap beans in Madison area. (Wis. Ins. Sur.). MARYLAND - Larvae extremely damaging to garden lima and snap beans in several areas over State. (U. Md., Ent. Dept.). DELAWARE - Larvae and adults common in large field of lime beans in northeastern Sussex County. (Burbutis, Crossan).

PEA APHID (Acyrtosiphon pisum) - UTAH - Damage to canning peas light to moderate in northern and central areas. (Knowlton, Aug. 24).

BEAN APHID (Aphis fabae) - DELAWARE - Alates common in several late planted fields of snap beans in Sussex County. (Burbutis, Crossan).

A LOOPER (Pseudoplusia includens) - LOUISIANA - Moderately heavy populations feeding on sweetpotato foliage. Infestations heavy in St. Landry Parish. (Tynes, Bagent, Aug. 24).



BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Adult populations increasing on sweetpotatoes. (Tynes, Bagent, Aug. 24).

THRIPS - NEW YORK - Numerous in some lettuce fields in Oswego, Onondaga and Cayuga Counties, particularly where certain chlorinated hydrocarbon applied for control. (N.Y. Wkly. Rpt., Aug. 24).

RASPBERRY CROWN BORER (Bemisia marginata) - MICHIGAN - Adults active in Missaukee County; first moths of season noted August 18. This one of most serious pests of raspberries in area. (Bosserman).

CYCLAMEN MITE (Steneotarsonemus pallidus) - MINNESOTA - Severe on Ogallala variety strawberries at Center City, Chisago County. (Minn. Ins. Rpt.).

BEE WEBWORM (Loxostege sticticalis) - UTAH - Moths continue moderate in black-light traps at Salem, Utah County, and at Ogden, Weber County. (Knowlton, Aug. 24).

CUTWORMS - UTAH - Damaging foliage of sugar beets at Fielding, Box Elder County. (Knowlton). WISCONSIN - Agrotis ipsilon (black cutworm) severely damaged potato tubers in Washington County. (Wis. Ins. Sur.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VIRGINIA - Noted on several crops on Eastern Shore, indicating 3 broods this season. Normally, 3 broods do not occur in area, but unusually cool weather appears to have been favorable. (Hofmaster, Aug. 19).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Numerous in untreated dry bean fields in Livingston County. (N.Y. Wkly. Rpt., Aug. 24). OHIO - Infesting sugar beets in Sandusky County. (Zielke, Blair).

APHIDS - MINNESOTA - Unusually high populations of unspecified species noted on rhubarb in St. Paul area. (Minn. Ins. Rpt.). MICHIGAN - Colonies of unspecified species caused considerable damage to celery in Ottawa County; cool weather made control difficult. (Wells). MARYLAND - Brevicoryne brassicae (cabbage aphid) moderate to heavy on garden cabbage in Anne Arundel and Queen Annes Counties. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - MICHIGAN - Heavier than usual on beans in thumb area of Lower Peninsula. (Newman, Wells). MARYLAND - Heavy on cowpeas, snap and lima beans and squash at several locations over State. Heavy on eggplant at Pasadena, Anne Arundel County. (U. Md., Ent. Dept.).

LEAF MINER FLIES (Liriomyza spp.) - MARYLAND - Mines of Liriomyza sp. conspicuous on snap and lima beans at several locations on Eastern Shore. (U. Md., Ent. Dept.). CALIFORNIA - L. munda larvae heavy in leaves of tomato in Chowchilla, Madera County. (Cal. Coop. Rpt.).

LEAF MINERS - NORTH CAROLINA - More abundant on cucumbers, okra and edible southern field peas in northeastern corner of State than in 1963. (Reid).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Very destructive to lima beans at several locations over State; also heavy on cowpeas in Anne Arundel County and on cantaloup at Salisbury, Wicomico County. (U. Md., Ent. Dept.).

#### TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Heavy populations damaging several fields of late tobacco in Anne Arundel and Prince Georges Counties. Cool weather favorable for buildups. (U. Md., Ent. Dept.). VIRGINIA - Severe on flue-cured tobacco at a location in Stuart, Patrick County. (Tarpley, Olinger).

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Adults continue abundant on late tobacco in all areas. (U. Md., Ent. Dept.).

#### COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Infestations increased below Cap Rock in Dickens, southern Motley, Kent and in scattered plantings in Garza Counties. Total of 52 additional plantings found infested on high plains; 3 fields in Hall, 5 in Dickens, 10 in Floyd and 34 in Crosby Counties. Infestations light in majority of plantings, but 10-36 percent punctured squares found in 11 plantings. (Texas Coop. Rpt.). OKLAHOMA - Punctured squares ranged 0-35 percent in cotton checked in southwest; counts light in Bryan County, but heavy (35-40 percent) in Jefferson County. (Okla. Coop. Sur.). LOUISIANA - Infestations increased sharply in areas where rain has occurred. (Tynes, Bagent, Aug. 24). MISSISSIPPI - Infestations high in some delta county fields where controls not adequate. Local migration occurring and weevils found in nearly all fields still attractive. (Pfrimmer et al.). TENNESSEE - Migration about at peak in infested portion of cotton-growing area of State. Adults common in blooms for first time this season; as high as 6 adults noted in single bloom. Most fields so close to maturity, little damage expected. Heaviest weevil concentrations in late, rank fields. Punctured squares ranged 3-76 percent in infested fields; counts much higher due to scarcity of squares. Migrating weevils appearing in counties that have had no infestations this season. Control very difficult due to migration and rank cotton. (Locke). ALABAMA - Heavy buildup, "hatchout" and over-lapping of generations continue throughout central and southern areas. Weather conditions most favorable for survivals. Weevils migrating from older cotton which has "cut out" to younger cotton still fruiting and blooming. Infestations in Sand Mountain and Tennessee Valley areas continued light, although infestations ranged 12-45 percent in few isolated fields in Colbert and Madison Counties. Where infestations high, many half-grown and older bolls severely damaged by feeding and egg laying. (McQueen). GEORGIA - No square counts made due to scarcity of squares. Heavy populations feeding and depositing eggs in immature bolls. (Johnson). SOUTH CAROLINA - Weevils destroying all squares and blooms in cotton not being protected in all counties except uppermost tier in Piedmont area. Few weevils found in protected fields elsewhere but damage held to minimum where 3-5 day schedule maintained. (Cott. Lett., Aug. 25). Large number of adults still in field in Florence area. Absence of squares makes accurate and meaningful counts difficult. Young bolls should be protected in some fields to obtain maximum yields. (Taft et al., Aug. 26). NORTH CAROLINA - Punctured all squares in field examined in Robeson County and field in Duplin County. (Johnson, Federonko).

BOLLWORMS (*Heliothis* spp.) - CALIFORNIA - Populations at economic levels in most areas of Fresno County; many small larvae found in Clovis area and in Sanger river bottom. (Stromberg, Aug. 19). Very small larvae evident in some fields in Rosedale and Shafter areas, Kern County. (Burton, Aug. 19). ARIZONA - Large populations continue of concern on cotton in Maricopa, Pinal and Pima Counties. Increased populations found in Graham County and areas of Cochise County. Generally light in Yuma County. (Ariz. Coop. Sur.). TEXAS - Light in most localities; light to occasionally medium in Garza, Dickens, Crosby, Floyd and Hall Counties. Sharp increase noted in Midland County. Accumulated damage noticeable in many plantings, indicating light populations over considerable period. (Texas Coop. Rpt.). OKLAHOMA - Counts ranged from zero in Kiowa and Comanche Counties to 45 percent in Greer County; higher counts of 12-45 percent found in irrigated cotton with low counts of 0-7 percent found in dryland cotton. (Okla. Coop. Sur.). MISSOURI - Eggs ranged 1-50 and larvae 1-32 per 100 terminals in southeast area cotton; controls applied to 144 fields (4,110 acres). (Harrendorf, Jones). ARKANSAS - Moth flight decreased, but still heavy. Larval determinations totaled 157 *H. zea*; this brings season average to 1.76 percent *H. virescens*. (Ark. Ins. Sur.). LOUISIANA - Egg laying increased sharply over State; fields should be watched closely and controls applied as needed. (Tynes, Bagent, Aug. 24). MISSISSIPPI - Infestations range light to medium generally

over State; larval numbers reported heavy in some counties. Egg deposition continues; rains keeping cotton attractive for egg alying. (Bennett, Young). Light trap collections in delta counties indicate sharp decrease in moth flight. Eggs still found on succulent, growing cotton; larvae present in nearly all fields. Where controls properly timed, loss to cotton being held to minimum. (Pfirmer et al.). TENNESSEE - Continue a problem over western area in rank cotton; counts ranged 1-21 eggs or larvae per 100 terminals; average 8 eggs or larvae. Many larvae at stage (large and inside bolls) where control almost impossible. (Locke). SOUTH CAROLINA - Large numbers present throughout State; damage less in fields where controls still underway than where control programs have been discontinued. (Cott. Lett., Aug. 25). Adult activity very heavy, even in treated fields in Florence area; fairly high infestations noted in many fields. (Taft et al., Aug. 26). ALABAMA - Considerable increase in activity noted in central and northern parts of State; moth flights heavy in young and succulent cotton. (McQueen). GEORGIA - Few eggs and larvae found in terminals; however, many bolls found infested in most fields. (Johnson, Aug. 27). In fields scouted, eggs per 100 terminals ranged 1-10 in 35 percent of fields, 11-25 in 46 percent, 26-50 in 18 percent and over 50 in 1 percent of fields; larvae were absent in 2 percent of fields, range 1-3 per 100 terminals in 47 percent, 4-10 in 37 percent, 11-25 in 10 percent and over 25 per 100 terminals in 4 percent of fields. (Jordan).

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) - ARIZONA - Increasing populations noted in Pinal, Maricopa and Yuma Counties. Some controls necessary. (Ariz. Coop. Sur.).

VARIEGATED CUTWORM (*Peridroma saucia*) - ARIZONA - Moderate populations damaging leaves and young bolls of cotton west of Safford, Graham County. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (*Estigmene acrea*) - ARIZONA - Light numbers appearing in Yuma County; light to moderate populations causing light damage in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CABBAGE LOOPER (*Trichoplusia ni*) - LOUISIANA - Heavy in some fields in Madison and Caddo Parishes. (Tynes, Bagent, Aug. 24). MISSISSIPPI - Field population appears to be less in most delta county fields; however, heavy flight underway and new larvae may appear at any time. (Pfirmer et al.). ALABAMA - Larvae appeared in isolated fields throughout central and southern areas; numbers range light to medium. Not considered serious problem; no controls being applied. (McQueen).

COTTON LEAFWORM (*Alabama argillacea*) - LOUISIANA - Damaging cotton in some fields in Caddo Parish. (Tynes, Bagent, Aug. 24). ALABAMA - Considerable numbers appeared in Geneva County; completely defoliated 30-acre field. Infestations occurring where no controls used. Some young cotton being damaged where bolls not matured. (McQueen).

APHIDS - TENNESSEE - Light numbers present in rank cotton in western area; could become problem in advent of cooler weather as cotton begins to open in very rank fields. (Locke). SOUTH CAROLINA - Buildups reported in several Piedmont counties. Not serious generally throughout State. (Cott. Lett., Aug. 25). Some spotty infestations noted in rank cotton in Florence area where humid conditions exist. (Taft et al., Aug. 26).

LYGUS BUGS (*Lygus* spp.) - CALIFORNIA - Counts of 10-15 per 50 sweeps common in many areas throughout Fresno County. (Stromberg, Aug. 19). ARIZONA - Continue to decrease in nearly all areas; however, numbers still sufficient to cause economic damage to squares in top crop. (Ariz. Coop. Sur.).

PLANT BUGS - CALIFORNIA - Reported in cotton in Five Points area and along San Joaquin River in Firebaugh area in Fresno County. (Stromberg, Aug. 19). MISSOURI - Several species ranged 0-28 per 100 terminals in 57 percent of fields scouted in southeastern area. (Harrendorf, Jones).

SPIDER MITES - CALIFORNIA - Except for isolated fields, these pests not a problem on cotton in Fresno County. Populations increasing on east side of valley; reports indicate fields treated in June do not require retreatment generally. Fields not initially treated until July need retreatment; this indicates better miticide coverage is attained when plants are small. (Stromberg, Aug. 19). OKLAHOMA - Light to moderate on cotton in Bryan County; very light to absent in fields checked in southwest. (Okla. Coop. Sur.). MISSOURI - Spotty, noneconomic infestations found in 37 fields (4.7 percent of fields scouted); no treatments applied. (Harrendorf, Jones). MISSISSIPPI - Infestations quite variable; range light to medium on many farms. (Bennett, Young). Situation unchanged in delta counties. (Pfrimmer et al.). TENNESSEE - Infestations increasing in rank cotton in western area. (Locke). ALABAMA - Infestations increased considerably in Sand Mountain and Tennessee Valley areas, but reports indicate infestations much lighter than during previous few years. Some controls being applied in these areas. Although present in isolated fields, have not been serious problem in central and southern areas of State. (McQueen). SOUTH CAROLINA - Present in some fields; defoliating rank cotton. Present throughout whole fields in only few counties. (Cott. Lett., Aug. 25).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Populations of second-stage larvae high on mugo pines near Boltonville, Washington County. (Wis. Ins. Sur.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Third-generation adult emergence 39 percent complete on untreated checks in Payne County. Damage ranged up to 20 percent of tips; 33 percent of new tips damaged. Larvae moderate on pines in Choctaw County. (Okla. Coop. Sur.).

PANDORA MOTH (Coloradia pandora) - OREGON - Collected in large numbers at black-light traps among pines in northern Klamath County, week of August 7. (Hanna).

A BARK BEETLE - MINNESOTA - An unidentified species boring in tips and buds of pine in north central district; locally serious in one small area near Cross Lake. (Minn. Ins. Rpt.).

FALL WEBWORM (Hyphantria cunea) - RHODE ISLAND - Apparently lighter than usual this year except for previously reported concentration in Jamestown, Newport County. (Mathewson). OHIO - Heavy on wild cherry and walnut in northeast. One walnut tree in Wayne County contained 25 webs. (Lyon).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OREGON - Damage to elms high all over State but hardest hit areas appear to be in south. (Larson). COLORADO - Defoliating elms in southwest Fort Collins, Larimer County, and in area near south end of Horsetooth Reservoir. Heavy larval, pupal and adult populations. No eggs found. (Kintzley, Thatcher). UTAH - Damaged foliage of many trees in Salt Lake City-Cottonwood area of Salt Lake County. Light to severe injury in some Davis and Weber County localities (Knowlton); 90 percent of elms in Green River area of Emery County severely injured (Knowlton, Horn). TEXAS - Light, local populations damaging elms in Dalhart area of Dallam County. (Tate). OKLAHOMA - Moderate on elms in Cleveland and Garvin Counties. (Okla. Coop. Sur.). KANSAS - Three to 6 per leaf on Siberian elm in Johnson County. This is a new county record. A light infestation in Wyandotte County. (Guldner). In July, all stages found in following counties: Kiowa, Comanche, Clark, Lane, Norton, Phillips and Seward. These are new county records except Lane County. (Martinez). INDIANA - Adult populations active on elm and entering homes throughout State. (Bram, Clark, Lehker). NORTH CAROLINA - Damaging elm locally in Jackson County. (Gibson, Jones).

LARGER ELM LEAF BEETLE (Monocesta coryli) - ALABAMA - Larvae completely defoliated numerous elms along streams in Lee, Chambers and Tallapoosa Counties. (McQueen).

TWIG PRUNER (Elaphidion villosum) - NEW YORK - Heavy on pin oak in nursery east of Port Jefferson, Suffolk County; also heavy in adjacent blocks of London plane-tree and European beech. Apparently common throughout county this year. (N.Y. Wkly. Rpt., Aug. 24). RHODE ISLAND - Common statewide. (Mathewson).

TWIG GIRDLER (Oncideres cingulata) - KANSAS - Activity starting on elms in Riley County. This is an early record of activity. (Knutson).

LOCUST BORER (Megacyllene robiniae) - UTAH - Damage severe in Salt Lake County, moderately severe in Centerville-Bountiful area and some injury at Farmington in Davis County. (Knowlton, Rogers).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - COLORADO - Numerous on trees defoliated by elm leaf beetle in Larimer County. (Kintzley, Thatcher).

LACE BUGS (Corythucha spp.) - MARYLAND - C. ciliata (symamore lace bug) heavy on sycamores in several areas over State. (U. Md., Ent. Dept.). NORTH DAKOTA - In northeast, C. arcuata (oak lace bug) caused severe browning of oak foliage. (Frye, Gage).

APHIDS - VIRGINIA - Undetermined species heavy on willows and causing death of young growth locally in Abingdon, Washington County. (Derting). MINNESOTA - Heavy populations of undetermined species on locust in Lindstrom area. (Minn. Ins. Rpt.). UTAH - Pemphigus spp. galls more common and numerous than normal on poplars in Duchesne, Uintah, Utah, Rich, Carbon, and Weber Counties. (Knowlton, Horn). Pterocomma spp. abundant on weeping willows at Price and Carbonville, Carbon County. (Knowlton).

A GALL MIDGE (Cecidomyia verrucicola) - NEW YORK - Heavily infested basswood in Watertown area, Jefferson County; adults and larvae nuisance around camp sites. (N.Y. Wkly. Rpt., Aug. 24).

AZALEA CATERPILLAR (Datana major) - ALABAMA - Heavy populations defoliating azaleas locally in Mobile County. (Seibels, Simms).

IRIS BORER (Macronoctua onusta) - Infesting iris in Fairfield County, August 21. (Taylor, Holdsworth). GEORGIA - Heavy on iris, Bartow County. (Holland).

MIMOSA WEBWORM (Homadula albizziae) - OHIO - Light to moderate on honeylocust in Mercer, Darke, Champaign and Miami Counties. These are all new county records. (Lyon).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Medium on bird-of-paradise shrubs in Walnut Creek, Contra Costa County. This species occurred more often on miscellaneous hosts this season than for past years. (Cal. Coop. Rpt.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - NEW YORK - Much more abundant this year in nurseries and home plantings of Taxus spp. across State. (N.Y. Wkly. Rpt., Aug. 24).

A TWIG BORER - NEW MEXICO - Over 95 percent of young Populus spp. nursery stock infested in Valencia County nursery; almost every twig damaged. (N.M. Coop. Rpt.).

AZALEA LACE BUG (Stephanitis pyrioides) - ALABAMA - Considerable infestations and damage noted on azaleas in Jefferson County. (Hagler, Bright).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - This species and other leafhoppers severely discoloring Virginia-creeper in Price-Helper area of Carbon County. (Knowlton).

COCCIDS - MARYLAND - Unaspis euonymi heavy on euonymus at Baltimore. (U. Md., Ent. Dept.). FLORIDA - Pseudaulacaspis pentagona (white peach scale) severe on catalpa at Titusville, Brevard County, August 20. (Levan).

SPIDER MITES - DELAWARE - Oligonychus bicolor populations heavy on oaks in an area of New Castle County. (Mellott, MacCreary). WISCONSIN - Very high populations of Tetranychus telarius on Norway spruce and globe arborvitae in Bayfield County. (Wis. Ins. Sur.). OKLAHOMA - Tetranychus spp. heavy on various ornamentals in Choctaw County. (Okla. Coop. Sur.). COLORADO - Undetermined species damaging ornamental currants in Boulder County. (Hantsbarger).

#### INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Haematobia irritans) - LOUISIANA - Moderate to heavy on cattle in East Feliciana and St. John the Baptist Parishes. (Tynes, Bagent, Aug. 24). OKLAHOMA - Moderate to heavy on cattle in Garvin, Cotton and Haskell Counties. (Okla. Coop. Sur.). INDIANA - Adults averaged 66 per head on cattle throughout central area of State. (Bram). NEBRASKA - Numbers reduced considerably on beef and dairy animals in eastern areas. Counts of 10-200 per animal. (Bergman). WYOMING - Annoying livestock in Star Valley, Lincoln County, and in Teton County. Estimate of 100-150 per animal. (Marks). SOUTH DAKOTA - Found throughout

eastern area of State where counts ranged 75-300 per side per animal. (Hintz). GEORGIA - Averaged 225 per animal on untreated herd in Spalding County. (Roberts). Ranged 20-100 per animal in De Kalb County. (Vanderford).

FACE FLY (Musca autumnalis) - ALABAMA - On 4 beef herds and 1 dairy herd in Cherokee County, August 11 and 12. Counts of 2-10 flies per animal. None found on 3 herds checked in Jackson and De Kalb Counties. Det. by C. W. Sabrosky. This is a new State record. (Ledbetter, Roberts). INDIANA - Adults increasing on cattle slightly throughout central portion of State. Averaged 7 per face; exceeded 10 per face on scattered herds in Wabash, Huntington and Clinton Counties. (Bram). WISCONSIN - Problem on cattle grazing in lowland pastures in Columbia County. A few cases of pinkeye attributed to face fly reported from Rock County. (Wis. Ins. Sur.). SOUTH DAKOTA - Moderate to high populations throughout eastern area. Counts of 5-70 per face on cattle in pasture. (Hintz). NEBRASKA - Populations low in eastern area; 0-5 per animal. (Bergman).

HOUSE FLY (Musca domestica) - MICHIGAN - Adults increased markedly around some Ottawa and Ingham County farmsteads recently. (Wells). WISCONSIN - Populations a problem in one area of Sauk County. (Wis. Ins. Sur.).

MOSQUITOES - DELAWARE - Aedes sollicitans (salt-marsh mosquito) annoying in some areas of eastern Sussex County. (Burbutis, Crossan). LOUISIANA - Unspecified species heavy in Cameron Parish. (Tynes, Bagent, Aug. 24). FLORIDA - In traps operated August 7 and 11 in areas of 6 counties, nearly 6,000 Aedes taeniorhynchus were collected. The highest number of A. sollicitans over 32 taken was 44 in Walton County. (Fla. St. Board Health). OHIO - Following trapped in Toledo, Lucas County: Aedes vexans 55, Culex pipiens 306, C. territans 1, Anopheles punctipennis 4, A. quadrimaculatus 3, Uranotaenia sapphirina 5 and Culiseta inornata 2. (Cook). WISCONSIN - Mosquitoes more active and biting on increase in certain southern areas. (Wis. Ins. Sur.). MINNESOTA - During week ending August 22, Metropolitan Mosquito Control District collected 250 larval samples of which the majority were Aedes spp. Of 1,461 females taken in light trap collections, 738 were Aedes vexans, 153 Culex tarsalis and 69 Culiseta inornata. In daytime and evening bite collections, A. vexans was the chief species found; however, only 4 Culex tarsalis were taken in evening collections. Following very heavy rains on August 20, 22 and 24, a moderately heavy brood of A. vexans was produced. Mosquito annoyance expected to increase weekend of September 6. (Minn. Ins. Rpt.). UTAH - Undetermined species moderate in Delta-Sutherland area of Millard County and Miller Creek area of Carbon-Emery Counties. (Knowlton). ARIZONA - Recent rains instrumental in heavy increases of mosquito populations in most areas of State. Controls applied in many areas. (Ariz. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Dominant fly species annoying cattle. (Wis. Ins. Sur.). NEBRASKA - Counts of 7-20 per animal in eastern areas. (Bergman).

BLACK BLOW FLY (Phormia regina) - UTAH - Larvae infesting wounds of dehorned cattle in Boulder area of Garfield County. (Lindsay, Knowlton, Hanson). This species unusually abundant past spring and summer in many parts of State. (Knowlton).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - MISSOURI - Reported feeding on humans in home in Drury, Douglas County. (Houser, Thomas, Wood).

BED BUG (Cimex lectularius) - KANSAS - Causing problems in poultry house in Anderson County. (Knutson). A problem in poultry house and home in Riley County. (Gates).

BROWN DOG TICK (Rhipicephalus sanguineus) - IDAHO - Collected from dog in Caldwell, Canyon County. (Bechtolt).

FOWL TICK (Argas persicus) - VIRGINIA - Severely infesting chickens on farm in Leesburg, Loudoun County. Some chickens dead. (Amos, Brown, Aug. 17).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Populations heavy on cattle in Choctaw, Pushmataha and Haskell Counties. (Okla. Coop. Rpt.).

CHICKEN MITE (Dermanyssus gallinae) - RHODE ISLAND - House infestation in Providence, Providence County. (Mathewson).

#### HOUSEHOLD AND STRUCTURAL INSECTS

A WEEVIL (Hexarthrum ulkei) - KANSAS - Found in framing of house in Sedgwick County and loose board in dirt in Lane County. Det. by R. E. Warner. This is a new State record. (Martinez).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - MICHIGAN - Adults entering dwellings and causing annoyance in Dickinson and Iron Counties. (Mattson, Kaven). WISCONSIN - Most areas report a decrease in activity in and around homes. Common in tips of field corn ears in Marquette County where it was believed they were seeking shelter. (Wis. Ins. Sur.).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Complaints continue. (Mathewson).

FIELD CRICKETS (Gryllus spp.) - OKLAHOMA - A nuisance around homes in Cotton County. (Okla. Coop. Sur.).

CICADA KILLER (Sphecius speciosus) - VIRGINIA - Abundant and creating a nuisance locally in Hampton by digging burrows beneath a home trailer. (Amos, Adams, Aug. 17).

#### BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Extremely heavy feeding of Olla abdominalis on aphids in a pecan grove located in large soybean field in Mobile County. (Seibels, Fairley). MARYLAND - Adults of several species common on aphid infested corn in Queen Annes County. (U. Md., Ent. Dept.). MICHIGAN - Late instars, pupae and adults numerous in and around aphid colonies on corn. These appear to be most common predators affecting aphids on corn. (Newman, Thompson). WYOMING - Adults of several species averaged 36 per 100 sweeps and larvae 12 per 100 sweeps in alfalfa fields of Carbon, Sweetwater, Uinta, Lincoln, Teton and Sublette Counties. (Marks).

PREDATORS - CALIFORNIA - Decreasing in cotton. This may account for increase of several pest species during previous week. (Stromberg, Aug. 19). In Kern County, minute pirate bugs, lacewings and big-eyed bugs abundant in some cotton of Rosedale area. (Burton, Aug. 19). WYOMING - In alfalfa fields of Carbon, Sweetwater, Uinta, Lincoln, Teton and Sublette Counties, Nabis spp. (damselfly bugs) averaged 48 adults per 100 sweeps and Geocoris spp. (big-eyed bugs) averaged 27 adults per 100 sweeps. (Marks).

A LACEWING (Chrysopa sp.) - IDAHO - Averaged 3 adults and 15 larvae per 10 sweeps in an alfalfa seed field near Parma that had a very high population of thrips and spider mites. Latter apparently on decline. (Waters).



MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Numerous adults in Jamestown, Newport County. Probably windborne from mainland. (Mathewson).  
MICHIGAN - Trapping continues in Battle Creek area. In addition to Calhoun County, some beetles taken in adjacent sections of Kalamazoo and Barry Counties; 7 reported from traps in Cass County along Indiana State line and in city of St. Joseph; very few taken in Detroit; none found in traps checked in Port Huron and Grand Rapids. (Ring).

THREE-LINED POTATO BEETLE (Lema trilineata) - MARYLAND - Adults very destructive to jimson-weed in several corn fields in Queen Annes County. (U. Md., Ent. Dept.).

CORRECTIONS

CEIR 14(35):995 - APPLE MAGGOT (Rhagoletis pomonella) should read (Rhagoletis pomonella).

ADDITIONAL NOTES

GEORGIA - Anticarsia gemmatalis (velvetbean caterpillar), Trichoplusia sp. Heliothis zea (corn earworm) and Epilachna varivestis (Mexican bean beetle) caused light to moderate defoliation of soybeans in southwestern and south central areas. (Johnson). Laphygma frugiperda (fall armyworm) damaged millet in Morgan County. (West). Hypera postica (alfalfa weevil) adults collected at 10 per 100 sweeps of alfalfa in Spalding County. (Tippins). Diaphania nitidalis (pickleworm) destroyed pumpkin and heavily damaged squash, Murgantia histrionica (harlequin bug) infested cabbage, and larvae and egg masses of L. frugiperda found on seedling corn in Spalding County. (Dupree). Monarthropalpus buxi (boxwood leaf miner) heavy on boxwood in Fulton County. (Woodliff).

MASSACHUSETTS - Acrobasis vaccinii (cranberry fruitworm) adults continue to be taken in numbers in blacklight trap at East Wareham, Plymouth County. This is much later than normal because of much cooler than normal temperatures that have prevailed throughout area during the summer. Forficula auricularia (European earwig) extremely abundant, with more than usual number of complaints and inquiries concerning control measures. (Tomlinson).





LIGHT TRAP COLLECTIONS

WISCONSIN (Continued)	Temperature date &	Precipitation	Type of trap	31	7	6	229	10	77	89	76	104	25	191	198	58	67	74	101	8	39	54	42	25	20	76	Major crop
Elkhorn 8/18-24			BL	31	7	6	229	10	77	89	76	104	25	191	198	58	67	74	101	8	39	54	42	25	20	76	Produce (unspecified)
Richmond 8/18-24			BL		6		179																				Produce (unspecified)
Wausau 8/18-24			BL		4		113																				Produce (unspecified)
Evansville 8/18-24			BL		9		519																				Produce (unspecified)
Cobb 8/18-24			BL		8		112																				Produce (unspecified)
Mazomanie 8/19-25	52-81		BL	9	0	5	16	2	25																		Produce (unspecified)
Madison 8/19-25			BL	3	4	3	37	6	191																		Produce (unspecified)
Middleton 8/19-25			BL	53	0	4	39	3	198																		Produce (unspecified)
Beaver Dam 8/18-24			BL		38		198																				Produce (unspecified)
Markesan 8/18-24			BL		69		235																				Produce (unspecified)
Waupun 8/18-24			BL		1		57	23																			Produce (unspecified)
De Forest 8/18-24			BL		20		181																				Produce (unspecified)
Clyman 8/18-24			BL		5		47																				Produce (unspecified)
Eden 8/18-24			BL		2		18																				Produce (unspecified)
Wayne 8/18-24			BL		2		18																				Produce (unspecified)
Theresa 8/18-24			BL		0		2																				Produce (unspecified)
Neno 8/18-24			BL		2		16																				Produce (unspecified)
Ripon 8/18-24			BL		0		9																				Produce (unspecified)
Rosendale 8/18-24			BL		3		47																				Produce (unspecified)
Waldo 8/18-24			BL		2		30																				Produce (unspecified)

\* BL = blacklight; I = incandescent; MV = mercury vapor; 0 = other

\*\* alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cast. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); mel. = melon; mus. = muskmelon; pap. = papaya; peach = peach; pec. = pecan; p. = potato; rad. = radish; soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

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

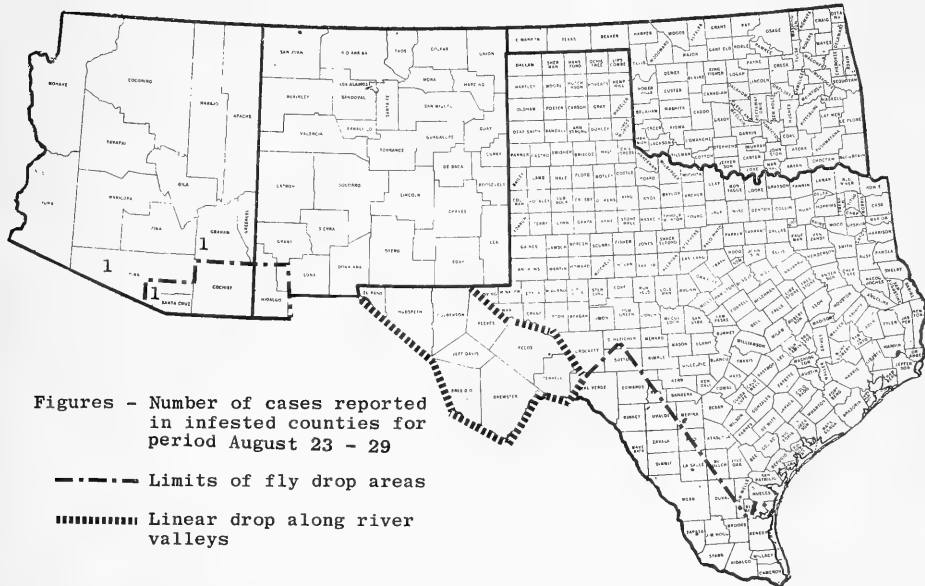
During the period August 23 - 29, no screw-worm cases were reported from TEXAS; the last positive case was in Irion County on August 2. No screw-worm cases were reported from NEW MEXICO during this period; none have been found in that State since July 25. Three cases were found in ARIZONA; one each was reported from Graham, Pima and Santa Cruz Counties. The Republic of Mexico reported 129 screw-worm cases in the States of Sonora (38), Chihuahua (62), Coahuila (3), Nuevo Leon (1), Tamaulipas (12), Durango (8), Puebla (1), San Luis Potosi (3), and Zacatecas (1). A total of 104,186,250 sterile screw-worm flies was released: 23,019,450 in Texas, 2,400,000 in New Mexico, 7,172,000 in Arizona, and 71,594,800 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative Cases**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	758	33,946	34	2,261	2,229.4:100	1,501.3:100
1963	73	2,520	70	4,707	104.2:100	53.5:100
1964	0	107	64	4,329	0.0:100	2.4:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases with cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).



HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 703rd meeting of the Hawaiian Entomological Society held July 13, 1964.

ERIOPHYID MITES - Aculus broussaisia Keifer was collected on leaves of Broussia sp. and Aceria pisoniae Keifer on Pisonia sp. by Earl Ozaki on Oahu. A. broussaisia was found July 14, 1963, at Palikea, Waianae Mountains, and A. pisoniae at Mokulei on August 25, 1963. The original descriptions of these two mites by H. H. Keifer (published in Eriophyid Studies, B-12, 1964, Cal. Dept. Agr. Bur. Ent.), constituted new State record. (S. Shiroma).

BEEF LEAFHOPPER (Circulifer tenellus (Baker)) was collected at Kahului on Atriplex semibaccata by J. W. Beardsley on June 12, 1964. This is a new record for the island of Maui. (Beardsley).

A PLANT BUG (Rhinacloa forticornis Reuter) collected at Kahului and Kula on Amaranthus sp. and Chenopodium sp. by J. W. Beardsley on June 12, 1964. This is a new record for the island of Maui. (Beardsley).

A MEALYBUG (Pseudococcus obscurus Essig) was recently identified by Dr. Beardsley from papaya from the Kapoho area of Hawaii. This is a new island record for this species which previously has been recorded from Oahu, Maui and Kauai. (J. W. Beardsley).

A TWIG BORING BARK BEETLE (Xylosandrus compactus (Eichoff)) infesting pseudobulbs of orchids of the genus Cattleya of the bifoliate type in Nuuanu, June 30, 1964. This is a new host record for State although it is common on other orchids (Dendrobium spp.). (C. R. Joyce, J. Kim).

A SCELIONID WASP (Telenomus basalis Wollaston) was reported established at Lihue, Kauai, June 26, 1964. Eighty-one percent of an egg cluster on cowpea was found parasitized. (J. Kim, S. Au).

SOUTHERN GREEN STINK BUG (Nezara viridula var. smaragdula (F.)) population explosion in Kona macadamia orchards on June 10 when 50 percent of the ground nuts were severely damaged. As many as 91 percent of the ground nuts and 49 percent of the tree nuts were heavily damaged in one 82-acre orchard, June 11-19. Damage to other orchards in Kona ranged 2-83 percent. Estimated losses from the large orchard were \$40,000. (J. Kim, C. J. Davis, H. F. Thornley).

ORIENTAL FRUIT FLY (Dacus dorsalis Hendel) males noted in large numbers on newly opened blossoms of golden shower, Cassia fistula. They apparently were not attracted to rainbow or pink or white shower tree blossoms 20 feet away. (W. C. Mitchell).

A WEEVIL (Anaballus amplicollis (Fairmaire)) was reared from coffee cherries collected May 10, 1964, at Koike Farm, Kealakekua, Kona, Hawaii. This is a new host record and island record for the State. Det. by E. C. Zimmerman. (W. C. Mitchell).

PINK SCAVENGER CATERPILLAR (Sathrobrotia rileyi (Walsingham)) also reared from the above-mentioned coffee berries. (W. C. Mitchell).

AN ANTHOCORID BUG (Buchananiella sodalis (White)) preyed upon Gynaikothrips ficorum (Cuban-laurel thrips) on University Campus, Manoa Valley, May 28, 1964. (W. C. Mitchell).

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO  
INSECTS AND RELATED ARTHROPODS ATTACKING CORN FOR GRAIN IN KANSAS DURING 1963

PEST OR PEST COMPLEX <sup>1</sup>	ACRES NEEDING CONTROL	ACRES TREATED	YIELD LOSS FOR NOT TREATING		YIELD LOSS FOR NOT TREATING		CONTROL COST		COMBINED CONTROL COST AND LOSS	
			PER ACRE	Bu.	PER ACRE	Bu.	PER ACRE	ALL ACRES	: % OF TOTAL	: CHOP VALUE
S.T.	977,450	934,200	11.00	12.10	475,750	523,325	1.20	1,121,040	1,644,365	2.4
C.E.W.	1,350,000 <sup>2</sup>	16,991	0.69	.76	919,770	1,013,080	2.00	33,982	1,047,062	1.5
E.C.B. <sup>3</sup>	84,801	5,007	3.01	3.31	240,180	264,118	1.50	7,511	271,629	0.4
TOTAL			16.17	16.17	1,635,700	1,800,523		1,162,533	2,963,056	4.3
TOTAL VALUE OF CROP (FOR GRAIN)			\$68,310,000 <sup>4</sup>							

<sup>1</sup> Pest Legend:

S.T. = Soil treatment for corn rootworms, *Diabrotica* spp.  
C.E.W. = Corn earworm, *Heliothis zea* (also fall armyworm  
of minor importance)

E.C.B. = European corn borer, *Ostrinia nubilalis*

<sup>2</sup> Acres infested with corn earworm. Chemical control costs more than the loss caused and is not recommended.

<sup>3</sup> Includes second brood loss only. Very little loss from first brood in 1963.

<sup>4</sup> Based upon December 15, 1963, price of \$1.10 per bushel

Total acres planted (all purposes) 1,730,000  
Total acres harvested (for grain) 1,350,000  
Total bushels produced 62,100,000

(Production data from Kansas Crop and Livestock Reporting Service)

Prepared by:

Leroy Peters and Chris Burkhardt

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO  
INSECTS AND RELATED ARTHROPODS ATTACKING WHEAT IN KANSAS DURING 1963

PEST OR PEST COMPLEX <sup>1</sup>	ACRES NEEDING CONTROL <sup>2</sup>	ACRES TREATED	YIELD LOSS FOR NOT TREATING PER ACRE	Bu. \$	YIELD LOSS FOR NOT TREATING ALL ACRES	Bu. \$	CONTROL COST		COMBINED CONTROL COST AND LOSS	
							PER ACRE	ALL ACRES	PER ACRE	% OF TOTAL CROP VALUE
A.c.c.	2,021,790	851,280	8.0	15.60	9,364,080	18,259,956	2.13	1,813,226	20,073,182	5.0
H.f.	2,511,340	-	0.25	0.49	638,630	1,245,329	-	-	1,245,329	0.3
G.	212,820	106,410	5.0	9.75	532,050	1,037,498	1.50	159,615	1,197,113	0.3
B.w.m.	258,810	25,881	2.3	4.49	535,737	1,044,687	3.16	81,784	1,127,635	0.3
TOTAL								2,054,625	23,643,259	5.9
TOTAL VALUE OF CROP \$361,686,000 <sup>3</sup>										

<sup>1</sup> Pest Legend:

- A.c.c. = Army cutworm, *Chorizagrotis auxiliaris*
- H.f. = Hessian fly, *Phytophaga destructor*
- G. = Grasshoppers, complex of crop species
- B.w.m. = Brown wheat mite, *Petrobia latens*

<sup>2</sup> Acres infested for Hessian fly

<sup>3</sup> Based upon December 15, 1963, price of \$1.95 per bushel

Total acres planted 10,641,000  
 Total acres harvested 8,627,000  
 Total bushels produced 185,480,000  
 (Production data from Kansas Crop and  
 Livestock Reporting Service)

Prepared by:  
 Leroy Peters and H. W. Somsen



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Hyattsville, Maryland 20781

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REPORT**



*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREEN CLOVERWORM moderate to heavy on soybeans in southeast Missouri with some severe leaf feeding noted; larval numbers greatly reduced on soybeans in Michigan. (p. 1041). LYGUS BUGS high on alfalfa in areas of Arizona, Nevada and Colorado; greatly affecting seed yields in Arizona. (p. 1042). CORN EARWORM outbreak on soybeans in Arkansas reported in CEIR 14(36):1017 has spread and is now practically statewide, with some fields severely damaged by pod feeding; third-generation larvae causing heavy pod damage to soybeans in southeastern Missouri; increases noted on this crop in areas of South Carolina. Corn earworm also of concern on corn in New Mexico, Colorado, Utah, Michigan and Alabama. (p. 1044). FALL ARMY-WORM damaging Bermuda grass pastures and lawns in North Carolina, South Carolina and Louisiana. EUROPEAN CORN BORER moth flights high in Delaware, Michigan and Missouri, and light trap catches indicate massive emergence in southwest Indiana. (p. 1045).

GREEN CLOVERWORM activity decreasing in bean-growing area of New York. (p. 1048).

BOLL WEEVIL infestations continue to increase below Cap Rock of Texas, and migration reported in Tennessee and Alabama. BOLLWORMS causing some concern in several cotton-growing States. (p. 1050). Eleven PINK BOLLWORM moths trapped in southeast Maricopa County, Arizona. (p. 1051).

DETECTION

PRIVET THRIPS (Dendrothrips ornatus) reported for first time in Delaware. (p. 1049). New county records included NORTHERN CORN ROOTWORM (Diabrotica longicornis) in Frederick County, Maryland (p. 1046); SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi) in Hettinger County, North Dakota (p. 1046); PEAR RUST MITE (Epitrimerus pyri) in Wayne County, Ohio (p. 1047); MIMOSA WEBWORM (Homadula albizziae) in Mercer, Darke, Miami, Champaign, Jackson, Vinton and Hocking Counties, Ohio (p. 1052); and ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) in Hocking County, Ohio (p. 1055).

CORRECTIONS

See page 1055.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1058).

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

WEATHER OF THE WEEK ENDING SEPTEMBER 7

Unseasonably cool weather prevailed over the far Northwest. The Northeast was cool and comfortable. Scattered thunderstorms produced some generous rains along the gulf coast and in parts of the Great Plains.

TEMPERATURE: Cool air from the Pacific moved into the Northwest early in the week. Spokane, Washington, registered 35° Monday morning, August 31, and the temperature at Winnemucca, Nevada, dropped to 29° on Wednesday. Maximum temperatures in Montana were generally in the 60's. Many Montana stations registered minimum temperatures in the 30's and 40's on 1 or 2 days. Temperatures averaged below normal northwest of a line from Yuma, Arizona, to International Falls, Minnesota. Temperatures averaged from 6° to 12° below normal over southeastern Oregon and in the interior valleys of California. The weather was generally cool and comfortable over the Northeast. The nights were cool; the days, mild and sunny. Warm, humid, gulf air flowed northward over the Great Plains. The afternoon temperatures climbed to the 90's at some stations in the Dakotas and Minnesota on Tuesday and Wednesday. Pierre, South Dakota, registered 103° Tuesday afternoon. Temperatures over parts of the central and southern Great Plains averaged from 5° to 8° above normal.

PRECIPITATION: Most of the heavy rains from hurricane Cleo, over the tidewater sections of Virginia and North Carolina had ended by Tuesday morning, September 1. Some amounts for the 24-hour period ending Tuesday morning exceeded previous record amounts, e.g., Back Bay Wildlife Refuge 14.09 inches; Naval Air Station, Oceana, 13.70 inches; Navy Norfolk, 12.32 inches; Weather Bureau Airport Station, Norfolk, 11.40 inches; Cape Henry Observatory, 10.41 inches. In the central sections, scattered light to heavy showers associated with thunderstorms occurred in the warm, humid, gulf air where it met the cooler air from the north. The most generous showers fell over an area that stretched from northeastern New Mexico to Upper Michigan and northern Lower Michigan. Local downpours over the weekend amounted to more than 3 inches in Kansas, Iowa, and Minnesota. Wide areas in Illinois, Indiana, Ohio, Kentucky, and nearby portions of other States received no rain of importance. Dryness was becoming critical in some of those areas, especially in Indiana, Ohio, and Kentucky.

HURRICANE DORA: On Wednesday morning, September 9, the center of large and dangerous hurricane Dora was approaching the upper east coast of Florida. Gale winds and heavy rains were spreading into northern Florida and southern Georgia in advance of the center, as high storm tides battered the coastline. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Larval numbers greatly reduced on soybeans; counts in Livingston County showed average of 4.5 per 25 feet of row; most in first and second stages. Little damage to soybean pods evident. Sizable numbers of adults still appearing in light traps as far north as Menominee County. (Newman). MISSOURI - Larvae of all sizes ranged moderate to heavy on soybeans in southeast. Leaf feeding noted as severe in some fields. (Houser, Thomas). OKLAHOMA - Ranged 11-25 per 10 sweeps in alfalfa in McClain, Garvin and Carter Counties; averaged 120 per 10 feet of row in Bryan County soybeans. (Okla. Coop. Sur.). ARKANSAS - New larval generation developing on soybeans; no economic populations observed or reported. (Ark. Ins. Sur.). SOUTH CAROLINA - Increasing on soybeans in Edgefield County; caused little damage to same crop in Abbeville County. (Nettles et al., Aug. 29).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - SOUTH CAROLINA - Numbers increasing on soybeans in Hampton, Jasper, Calhoun, Edgefield and Lee Counties. (Nettles et al., Aug. 29). GEORGIA - Caused light to moderate defoliation of soybean plants in northern area. (Johnson). LOUISIANA - Populations on soybeans high in southern portion of State but low in northern area. (Tynes, Bagent, Sept. 1).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Continued increases noted in alfalfa in Graham, Maricopa and Yuma Counties; larvae per 100 sweeps averaged 130 in Graham, 30 in Yuma and 120 in Maricopa Counties. (Ariz. Coop. Sur.). COLORADO - Adults numerous in alfalfa in Bent, Crowley, Otero, Prowers and Pueblo Counties; larvae not numerous. (Schweissing). WYOMING - Larvae averaged 8 per 100 sweeps in alfalfa in Washakie and Big Horn Counties. (Marks). OHIO - Heavy adult flights observed throughout southern section; no larvae collected. (Lyon). MARYLAND - Light on alfalfa checked in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).

BEE T ARMYWORM (Spodoptera exigua) - TEXAS - Larvae ranged 40-90 per 5 sweeps in alfalfa in Brazos County. (Randolph).

LOOPERS - GEORGIA - Trichoplusia sp. caused light to moderate defoliation of soybeans in northern part of State. (Johnson). LOUISIANA - Pseudoplusia inclusa larvae ranged 5-50 per 3 feet of row in soybeans in St. Landry Parish. (Tynes, Bagent, Sept. 1).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Moderate (22 per 10 sweeps) in alfalfa in McClain County and heavy (62 per 10 sweeps) in Carter County. (Okla. Coop. Sur.). NEW MEXICO - Adults, probably L. commixtalis (alfalfa webworm), very abundant in McIntosh and Willard vicinities, Torrance County; averaged 40 per 25 sweeps in one field and ranged 20-25 per 25 sweeps in other fields. No larvae noted. (N.M. Coop. Rpt.).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Averaged 28 per 100 terminals in peanuts in Carter County and 50 per 100 terminals in Bryan County. (Okla. Coop. Sur.).

A LEAF ROLLER MOTH (Platynota stultana) - CALIFORNIA - Larvae medium on peanuts in Fresno, Fresno County. (Cal. Coop. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Increasing on soybeans in Lee and Marion Counties; few noted on this crop in Williamsburg County. (Nettles et al., Aug. 29). ALABAMA - Light to medium numbers of this species and Cerotoma trifurcata (bean leaf beetle) feeding on kudzu in Randolph, Chambers, Clay, Lee and Macon Counties. (Barwood, Brackeen, et al.).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Larvae common in large field of alfalfa in Kent County; causing noticeable injury. (Burbutis, Crossan). MARYLAND - Larvae ranged from trace to 10 per sweep in 10 fields of alfalfa in

Frederick County; damage evident in several fields. (U. Md., Ent. Dept.).  
INDIANA - Adult surveys in Knox, Posey, Pike, Crawford, Floyd, Clark, Scott, Washington and Orange Counties in southern quarter of State negative. (Bram).  
ARKANSAS - Adults noted in fields of alfalfa in northeast; aestivation appears over. (Ark. Ins. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidula) - WISCONSIN - Adults very common in most alfalfa in southern counties. (Wis. Ins. Sur.).

A WEEVIL (Pantomorus taeniatulus) - ALABAMA - Large numbers noted along roadsides and field borders in Randolph, Chambers, Clay, Lee and Macon Counties; apparently feeding on various plants, including lespedeza and kudzu. (Barwood, Brackeen, Clay).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Heavy to very heavy populations severely damaged stands of alfalfa near Shiprock, San Juan County. Aphid populations being controlled by large numbers of parasites and predators. (N.M. Coop. Rpt.).  
COLORADO - Ranged 100-200 per 100 sweeps of alfalfa in Mesa, Delta and Montrose Counties (Bulla) and 12-25 per 100 sweeps in Weld and Larimer Counties (Jenkins).  
WYOMING - Adults and nymphs averaged 2,675 per 100 sweeps in alfalfa in Park, Big Horn, Washakie and Hot Springs Counties. (Marks).  
WASHINGTON - Counts per sweep in alfalfa as follows: Walla Walla County - averaged 1-5 in most fields in Walla Walla and vicinity, with maximum of 80 per sweep; Yakima County - averaged 1-2 on alfalfa 12-20 inches high in Yakima and vicinity, with maximum count of 10, and ranged 3-10 at Mabton; Franklin County - ranged 70-100 at Pasco. (Halfhill).  
INDIANA - Adults and nymphs remain generally low on alfalfa throughout State. Counts per sweep averaged 10 in north-west, 16 in north central and 5 in northeast sections and 7 throughout southern quarter of State. (Bram, Saugstad).  
OHIO - Slight buildup occurring in several south central counties, namely Lawrence, Scioto, Pike, Jackson and Gallia; however, populations in alfalfa still noneconomic. (Lyon).  
MARYLAND - Populations declining somewhat on alfalfa over previous weeks in Frederick County. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - COLORADO - Continues to increase in all areas of Bent, Crowley, Otero, Prowers and Pueblo Counties; averaged 2,000 and varied 500-6,000 per 100 sweeps in alfalfa. (Schweissing). Trace numbers (0-1 per 100 sweeps) present near Hudson, Weld County. (Jenkins).  
OKLAHOMA - Light to moderate (5-260 per 10 sweeps) in most alfalfa checked in Lincoln, McClain, Garvin, Carter and Bryan Counties; averaged 450 per 10 sweeps in one Bryan County field. (Okla. Coop. Sur.).  
KANSAS - Counts decreased on alfalfa in southeast; due mainly to cutting of alfalfa, rains and beneficial insects. (Peters).  
SOUTH DAKOTA - Collected in Lake County for first time since 1957; averaged 16 per 100 sweeps. (Hintz).  
WISCONSIN - Migrations continue, evidenced by high percentage of winged forms in most fields and newly infested fields in southern counties. No new infestations noted east of Janesville, Rock County, although many newly infested fields noted in northern Rock and Green Counties and in western Dane County. Populations decreased in many fields in Brodhead area, although a new seeding showed substantial increase since 2 weeks ago. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - NEVADA - Ranged 6-10 per sweep in alfalfa in Churchill County. (Cooney).  
ARIZONA - Remain high in seed alfalfa in Yuma County; average 250 per 100 sweeps and greatly affecting seed yields. (Ariz. Coop. Sur.).  
COLORADO - Nymphs and adults ranged 200-500 per 100 sweeps in alfalfa over most of Mesa, Delta and Montrose Counties. (Bulla).  
WYOMING - Averaged 185 adults and nymphs per 100 sweeps in alfalfa in Park, Big Horn, Washakie and Hot Springs Counties. (Marks).  
MARYLAND - L. lineolaris (tarnished plant bug) adults common in alfalfa and clover checked in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.).



ALFALFA PLANT BUG (Adelphocoris lineolatus) - WYOMING - Adults averaged 32 per 100 sweeps in alfalfa in Park, Big Horn, Washakie and Hot Springs Counties. (Marks).

GARDEN FLEAHOPPER (Halticus bracteatus) - WISCONSIN - Ranged 5-8 per sweep in several fields of alfalfa in Green County. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - INDIANA - Adults per 10 sweeps in alfalfa averaged 11 in northwest, 18 in north central and 61 in northeast sections and 2 throughout southern quarter of State. (Bram, Saugstad). MARYLAND - Adults ranged 0-2 per sweep in alfalfa checked in Frederick County. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - MISSOURI - Adults and nymphs ranged 1-5 per leaf in some fields of soybeans in southeast; leaf curl heavy in some fields. Ranged 0-3 (average 2) per sweep in most fields, with no noticeable damage. (Houser, Thomas). WISCONSIN - High populations of adults and nymphs persist in much alfalfa in Rock County. (Wis. Ins. Sur.). INDIANA - Adults and nymphs per sweep averaged 3 in northwest, 2 in north central and 1.6 in northeast sections and 2 throughout southern quarter of State on alfalfa. (Bram, Saugstad). OHIO - Continues light in alfalfa in south central sections; only 8 nymphs and adults collected in 25 sweeps in Vinton County. (Lyon).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Populations increasing in alfalfa in Yuma, Maricopa, Pinal and Graham Counties. Heavy damage noted in many fields near Wellton, Yuma County. (Ariz. Coop. Sur.). LOUISIANA - Populations low on soybeans over State. (Tynes, Bagent, Sept. 1).

GRASSHOPPERS - UTAH - Grasshoppers continue damaging in many localities and on rangelands. An estimated 1,158,900 acres infested, including 447,300 acres of cropland and 711,600 acres of rangeland. (Burnett, Knowlton). Continue damaging crop and rangelands in large area of Sanpete County (Knowlton, Purnell); populations and damage well above normal in several areas of Washington County (Knowlton, Huber). ARIZONA - Increased infestations of several species found in areas of Yavapai County, particularly in and around Chino Valley; approximately 25,000 acres infested. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 3-7 per 25 sweeps in alfalfa checked near Estancia and Willard, Torrance County; only minor damage noted. Heavier infestations a problem in home gardens in area. (N.M. Coop. Rpt.). OKLAHOMA - Several species ranged moderate to heavy in pastures in Latimer and Garvin Counties. (Okla. Coop. Sur.). SOUTH DAKOTA - Severely damaged corn in an area west of Lemmon, Perkins County, along North Dakota border; some damage also occurring south of Lemmon and in Meadow-Bison area and south of Prairie City. In Aurora County, infestation extends northwest and southwest across northern portion of county; grasshoppers moved from soil bank fields and damaged corn in some areas; some alfalfa also damaged. (Burge). NORTH DAKOTA - Generally noneconomic on cropland in eastern third of State; largely noneconomic in northwest and north central areas. Mostly light, with some moderate numbers noted in south central region; mostly light in southwest, with occasional noneconomic infestations noted. Infestations moderate on estimated 102,000 acres of cropland over State. (Brandvik). WISCONSIN - Maturation not complete, even in most advanced areas. Feeding in alfalfa and corn continues. Eggs in Melanoplus differentialis (differential grasshopper) females developing more rapidly; greater percentage of eggs in M. femurrubrum (red-legged grasshopper) females nearing stage for oviposition. (Wis. Ins. Sur.). IOWA - Survey in southern area showed populations to consist mainly of M. femurrubrum in noneconomic populations. (Iowa Ins. Inf., Sept. 1). OHIO - M. femurrubrum and M. differentialis dominant in south central section; populations vary considerably from field to field. Most frequently attacked crops located adjacent to grassy road sides and fence rows. Populations appear slightly lower than in 1963. Many predaceous blister beetles observed in these areas. (Lyon). MARYLAND - Melanoplus spp. adults caused considerable destruction to foliage and silks of corn in several fields in southeastern Frederick County. (U. Md., Ent. Dept.).

A SPITTLEBUG (Prosapia bicincta) - GEORGIA - Probably this species heavy on Bermuda grass in Lowndes County. (French, Kessler).

HARVESTER ANTS (Pogonomyrmex spp.) - ARIZONA - Populations large on rangeland in Valle area of Coconino County, west of highway to Grand Canyon; as many as 150 mounds per acre. (Ariz. Coop. Sur.).

A BERMUDA-GRASS MITE (Aceria neocynodonis) - NEVADA - Light to heavy in hybrid Bermuda grass lawns in Las Vegas area, Clark County. (Daley, Schuh).

CORN EARWORM (Heliothis zea) - ARKANSAS - Outbreak reported on soybeans previous week (CEIR 14(36):1017) has spread and is now practically statewide. This is fourth straight year this pest has become economic on soybeans; infestation has been more widespread each year. Some fields of soybeans severely damaged by pod feeding; some producers hopeful plants will produce more blooms and set some pods. (Ark. Ins. Sur.). MISSOURI - Heavy flights of second-generation adults continue in southeast. Third-generation larvae causing heavy damage to pods of soybeans in many southeastern area fields; damage light in other fields. Larval counts on soybeans ranged from 1-2 to 48-51 per 3 linear feet. Chemical controls initiated over wide portion of bootheel area. (Houser, Thomas). OKLAHOMA - Infestations moderate (11 per 10 sweeps) in alfalfa in Garvin County; heavy (39-50 per 10 sweeps) in Carter and McClain Counties. Averaged 20 per 10 feet of row in soybeans in Bryan County; controls planned on soybeans in Le Flore County. Averaged 12 per 100 terminals in peanuts in Carter County. (Okla. Coop. Sur.). LOUISIANA - Larvae ranged 0-4 per 3 feet of row on soybeans in St. Landry Parish; pod damage extensive. (Tynes, Bagent, Sept. 1). ALABAMA - Heavy on corn in Chambers County; larvae ranged 3-5 per ear. Pupation underway in older corn. (Barwood, Pitts, et al.). GEORGIA - Caused light to moderate damage to pods of soybeans in northern portion of State. (Johnson). SOUTH CAROLINA - Increasing on soybeans in Barnwell, Hampton, Jasper, Calhoun, Edgefield and Lee Counties. (Nettles et al., Aug. 29). NORTH CAROLINA - Averaged 2 larvae per 5 feet of row in 5 soybean fields in Hyde County; fields treated 5-6 days earlier; some larvae still being killed. Larvae averaged 10 per foot of row in one untreated field and all pods destroyed. Estimated 6,000 acres to be treated. (O'Neal, Mount). MARYLAND - Moth activity evident in several fields of soybeans on lower Eastern Shore; increasing numbers appearing in light traps at Centreville and Delmar. (U. Md., Ent. Dept.). NEW YORK - Activity increased sufficiently by August 24 in Suffolk County to necessitate recommendation of 3-day spray schedule on sweet corn. Moths in blacklight traps very prevalent in Geneva area. Oviposition noted on corn silks in Penn Yan area. Indications are that infestation will be substantial in western part of State from now to end of season. (N.Y. Wkly. Rpt., Aug. 31). NEW JERSEY - Increasing on corn; growers should maintain tight spray schedule. (Ins.-Dis. Newsltr.). RHODE ISLAND - Heavy in field corn grown as cover crop in large nursery in Middletown, Newport County. (Howard, Mathewson). MICHIGAN - Few adults taken in blacklight traps in Wayne, Macomb and Livingston Counties; this light but general flight comes at time when all but late planted or drought retarded corn is past silking stage suitable for egg laying. (Newman, Snow, Palmer). COLORADO - Populations high in corn in Delta, Mesa and Montrose Counties; 80-90 percent of ears infested with 2-3 larvae per ear in fields checked. (Bulla). Present to some extent in corn in all areas of Bent, Crowley, Otero, Prowers and Pueblo Counties; infestation ranged 80-90 percent in some Prowers County fields. (Schweissing). UTAH - Infested 90 percent of corn in field in Logan County; most canning corn in northern part of State treated at least once this season. (Dorst, Davis, Knowlton). Infesting 85 percent of sweet corn in field at Murray, Salt Lake County; infestations very high in Sanpete County. (Knowlton, Purnell). Damage ranged moderate to heavy in corn in Washington County. (Knowlton, Huber). NEW MEXICO - Majority of corn ears checked in Torrance, Dona Ana, Otero and Lincoln Counties contained larvae; up to 4 larvae in many ears. (N.M. Coop. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - MARYLAND - Infestations of 20 percent or more common in late corn in Frederick and Queen Annes Counties. (U. Md., Ent. Dept.). NORTH CAROLINA - Damaged Bermuda grass pastures and lawns in many areas of Coastal Plains and alfalfa in several Piedmont counties. Heavily damaged 100 acres of Coastal Bermuda grass ready to cut for hay on farm in Harnett County; another 20 acres infested with small larvae. Larvae averaged 4.5 per square foot in untreated portion of 100-acre field and 2 per square foot in 20-acre field. Larvae averaged 6.5 per square foot (ranged 1-12) in unstripped portion of heavily damaged field of alfalfa in Wake County. (Falter, Jones, Mount). SOUTH CAROLINA - Infesting Coastal Bermuda grass and lawns in Barnwell County; caused considerable damage to fields of Coastal Bermuda grass in Allendale County. Present in outbreak proportions on Coastal Bermuda grass and Dallas grass pastures in Darlington County. (Nettles et al., Aug. 29). LOUISIANA - Heavy in pastures in many areas. (Tynes, Bagent, Sept. 1). KANSAS - Infesting up to 5 percent of ear shanks in corn in Mitchell County. (Gates). ARIZONA - Light numbers appearing in late planted sorghums in Yuma County. (Ariz. Coop. Sur.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Adult collections in blacklight trap in Sussex County remain high. (Burbutis, Crossan). INDIANA - Light trap collections indicate massive emergence of second-generation adults in southwest section. (Bram). MICHIGAN - Males and females still appearing in appreciable numbers in blacklight traps; egg masses difficult to find; average of 3 egg masses per 50 feet of row found in fields in Livingston and Oakland Counties. (Newman, Wells). WISCONSIN - Most larvae noted in southern counties in third stage; fifth stage predominated in more advanced areas. Considerable boring through husks noted in field corn; few noted in ear tips of sweet corn in at least one field. (Wis. Ins. Sur.). MISSOURI - Second-generation moth flights remain heavy in southeast. Most corn being harvested. (Houser, Thomas). NORTH DAKOTA - Percent pupation and emergence, respectively, in western part of State, as follows: New England (Hettinger County) 15 and 5; Dunn Center (Dunn County) 4 and 50; Ryder (Ward County) 2 and 50; Bismarck (Burleigh County) 35 and 90. (Frye, Gage).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - ARIZONA - Medium populations damaging cornstalks in many Graham County fields. (Ariz. Coop. Sur.). MISSOURI - Highest second-generation moth flights reported September 5. (Houser, Thomas).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - NORTH CAROLINA - Heavy in many corn fields in Hyde County; infestation ranges up to 80 percent; ranged 70-80 percent in 2 fields checked near Sladesville, with 1-4 larvae per infested stalk. Corn being harvested early with high moisture content to avoid expected winds and subsequent lodging. (O'Neal, Mount).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Infestations very heavy on sugarcane throughout August. (Tynes, Bagent, Sept. 1).

A CUTWORM (Feltia sp.) - ARIZONA - Heavily damaged portions of field of sorghum near Wellton, Yuma County; portions of field plowed under. (Ariz. Coop. Sur.).

ARMYWORMS - OKLAHOMA - Larvae of unspecified species heavy in pastures in Latimer County. (Okla. Coop. Sur.). MARYLAND - Pseudaletia unipuncta (armyworm) adults at seasonal peak in blacklight trap at Centreville, Queen Annes County. (U. Md., Ent. Dept.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Heavy populations damaging summer-planted sorghums in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Adults evident in corn surveyed in Frederick County. (U. Md., Ent. Dept.).

CORN ROOTWORMS (*Diabrotica* spp.) - SOUTH DAKOTA - Adults ranged 3-7 per plant in corn fields in Brule and Lyman Counties. (Hintz). IOWA - Populations of *D. virgifera* (western corn rootworm) range moderate to heavy in some areas in central third of State; few or absent in other areas. In eastern third of State, *D. longicornis* (northern corn rootworm) showed some insecticide resistance during 1964. Use of an organic phosphate is recommended if fields are to be planted to corn again in 1965. (Iowa Ins. Inf., Sept. 1). COLORADO - *D. virgifera* adults noted in few fields of corn in Montrose County; no serious damage reported in Delta and Mesa Counties. No controls being used. (Bulla).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - MARYLAND - Adults found on fresh corn silks on 2 farms in southeastern Frederick County on August 31. This is a new county record. (U. Md., Ent. Dept.).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - NORTH DAKOTA - Adults found in moderate numbers on corn in field near New England, Hettinger County. This is a new county record. (Frye, Gage). GEORGIA - Completely destroyed crop in one field of peanuts in Stewart County. (Lowery).

CORN LEAF APHID (*Rhopalosiphum maidis*) - NEW MEXICO - Ranged light to moderately heavy in whorls of field corn near Moriarty, Torrance County. (N.M. Coop. Rpt.). OKLAHOMA - Moderate in sorghum in Cimarron County. (Okla. Coop. Sur.). WYOMING - Numbers of colonies on corn plants decreased in fields in Park, Big Horn, Washakie and Hot Springs Counties. (Marks). MICHIGAN - Numbers now very low in areas of Lake Michigan where high populations present earlier; pollen production appears to have been greatly reduced in some fields of late corn. (Newman).

SORGHUM MIDGE (*Contarinia sorghicola*) - TEXAS - Adults noted regularly in grain sorghum; infestations becoming heavier and more general. Early planting to produce blooming in late July or early August again proved best method of avoiding damage. (Rummel).

SPIDER MITES - NEVADA - Heavy on corn in Fallon, Churchill County, and in Lovelock, Pershing County. (Ferraro, Martinelli). NEW MEXICO - Spotted, light to heavy populations discoloring foliage of corn in fields near McIntosh, Torrance County. (N.M. Coop. Rpt.). COLORADO - *Tetranychus* spp. damaged corn plants as high as tenth to twelfth leaves in Bent, Crowley, Otero, Prowers and Pueblo Counties. Numbers appear to be decreasing in Otero and Pueblo Counties and populations continue high in some Bent and Prowers County fields with damage up to eight leaf. (Schweissing). Bronzed foliage of corn as high as eight to tenth leaves in Larimer and Weld Counties; populations apparently decreasing. (Jenkins). Increased on sorghum in Bent, Crowley, Otero, Prowers and Pueblo Counties; infestations present throughout leaves in many fields. (Schweissing).

#### FRUIT INSECTS

CODLING MOTH (*Carpocapsa pomonella*) - NEW MEXICO - Delicious apples arriving at packing sheds in Hondo Valley range 10-80 percent "wormy". (N.M. Coop. Rpt.). COLORADO - Pear harvest underway in Mesa, Delta and Montrose Counties, with injury low at 0-2 percent. (Bulla). MICHIGAN - Few adults still active in Livingston County; larvae reported serious in some Berrien County pear orchards. (Newman, Belter). OHIO - Approximately 10 percent fruit injury reported on 15-acre block of apples in Cuyahoga County. (Forsythe). NEW YORK - Examination of tree bands indicates second-brood emergence complete for approximately a week in Monroe County. (N.Y. Wkly. Rpt., Aug. 31).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - NEW YORK - Appeared recently in several Monroe County orchards; however, not a commercial problem at this time. (N.Y. Wkly. Rpt., Aug. 31). MICHIGAN - Numerous adults taken in black-light trap in Livingston County week ending August 30. (Newman).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Considerable numbers of adults continue to emerge; total of 112 freshly cast pupal skins recorded during weeks ending August 14, 21 and 28, from 25 trees in an Oceana County orchard. (Wooley).

RED-HUMPED CATERPILLAR (Schizura concinna) - IDAHO - Infesting backyard apples in Plummer, Benewah County. (Renfrew). OHIO - Colony noted feeding on persimmon leaves at Fredericksburg, Wayne County. (Cutwright).

SHOT-HOLE BORER (Scolytus rugulosus) - NEW MEXICO - Infesting weakened sweet cherry trees in orchard near Albuquerque, Bernalillo County. (N.M. Coop. Rpt.).

A SAP BEETLE (Carpophilus sp.) - CALIFORNIA - Heavy on and in peach fruit in Porterville, Tulare County. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Locally medium on plum trees in Nipomo, San Luis Obispo County. (Cal. Coop. Rpt.).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Rather large, general adult emergence apparently occurred over Lower Peninsula recently; prolonged dry and cool weather during August followed by rain and warming trend considered responsible. Observations and sticky-board collections in fruit areas indicate sizable adult population currently active; 76 adults taken on 2 traps in Macomb County during week ending August 31. (Wooley, Pshea, Rapp).

PEAR-SLUG (Caliroa cerasi) - COLORADO - Damaging pear foliage in Adams County. (Hantsbarger).

EUROPEAN RED MITE (Panonychus ulmi) - OREGON - Unusually abundant in some Willamette Valley pear orchards in late August; causing considerable damage. (Every). NEW YORK - Remains in evidence in many localities in Clinton County; winter eggs fairly numerous in blossom ends of apples. (N.Y. Wkly. Rpt., Aug. 31).

SPIDER MITES (Tetranychus spp.) - NEW MEXICO - Moderate to heavy in many apple orchards in Hondo Valley, Lincoln County. (N.M. Coop. Rpt.). COLORADO - Populations retarded by cool weather and occasional rains in Delta, Garfield, Mesa and Montrose Counties. (Bulla).

PEAR RUST MITE (Epitrimerus pyri) - OHIO - Recorded for first time in Wayne County, northeast. Determined from previous collections made on pear leaves on May 28, 1964. (Forsythe).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Slight increase noted on pecans, persimmons and other trees during past 10 days. Infestation still light compared with last 2 years. (McQueen).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Locally medium in navel orange fruit in Oroville, Butte County. (Cal. Coop. Rpt.).

A CICADA (Diceroprocta apache) - ARIZONA - Egg punctures caused some damage to backyard citrus in Yuma County. (Ariz. Coop. Sur.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - Original infestation found in Yuma County during fall of 1963 has increased and spread to adjoining 10-acre block of lemons; controls applied in effort to prevent further spread. (Ariz. Coop. Sur.).

A TENUIPALPID MITE (Brevipalpus phoenicis) - FLORIDA - All stages severely infesting leaves of orange at Tampa, Hillsborough County, August 18. (Hale).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - New, local infestation found in City of Fresno, Fresno County; currently under eradication treatment in another section of county. Eradication treatment applied to new

infestation and survey continues. (Cal. Coop. Rpt.). UTAH - Very light injury to grape noted occasionally in Washington County. (Knowlton, Huber).

GRAPE BERRY MOTH (Paralobesia viteana) - UTAH - Unusually severe infestations occurred in portion of Washington County. (Huber, Knowlton). MICHIGAN - Pupae, freshly laid eggs, eggs ready to hatch and small larvae reported in Van Buren County. (Pshea, Wooley).

#### TRUCK CROP INSECTS

GREEN CLOVERWORM (Plathypena scabra) - NEW YORK - Continues active in many bean fields, but activity on the wane; of several half to full-grown larvae collected August 25, all but one pupated by August 29. Larvae averaged 3-4 per plant on approximately 200 acres of kidney beans in Allegany County. Damage not too serious. (N.Y. Wkly. Rpt., Aug. 31). WISCONSIN - Larvae common along marginal rows of lima beans in one Rock County planting. (Wis. Ins. Sur.).

TOMATO FRUITWORM (Heliothis zea) - LOUISIANA - Moderate on tomatoes in East Feliciana Parish. (Tynes, Bagent, Sept. 1). ALABAMA - Larvae heavily attacking pods of cowpeas in Macon County. (Barwood, Pitts, et al.). DELAWARE - Young larvae on most limas in Kent and Sussex Counties and rather abundant on some limas in eastern Sussex County. Adult collections continue high in blacklight trap in Sussex County. (Burbutis, Crossan). COLORADO - No eggs found in 8 fields of tomato in Bent, Crowley, Otero, Prowers and Pueblo Counties. (Schweissing). UTAH - Caused moderately severe injury to tomato plantings in much of Washington County. (Huber, Knowlton).

BET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Causing medium damage to bush beans in Chula Vista, San Diego County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - WISCONSIN - Continues a problem to most cabbage growers in Outagamie County. (Wis. Ins. Sur.). COLORADO - This and Laphygma frugiperda (fall armyworm) damaged tomato foliage and fruit in Bent, Crowley, Otero, Prowers and Pueblo Counties. (Schweissing).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Severe on tomatoes in Brawley, Imperial County. (Cal. Coop. Rpt.).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - OREGON - Injured strawberry fields in Milton-Freewater area, Umatilla County, during late August. (Every).

RASPBERRY CROWN BORER (Bembecia marginata) - MICHIGAN - Large adult flight observed recently at Bridgemen, Berrien County. (Pshea).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Populations continue to increase in southern portion of sweetpotato-growing area, but infestation not general. (Tynes, Bagent, Sept. 1).

SQUASH BEETLE (Epilachna borealis) - MISSOURI - Light to moderate in fields of watermelon in southeast. (DeCarlo).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEW YORK - Causing considerable damage to beans in Allegany County. (N.Y. Wkly. Rpt., Aug. 31). NEW MEXICO - Heavy and damaging bean foliage in gardens in Bernalillo and Sandoval Counties; infestations lighter in Torrance County. (N.M. Coop. Rpt.).

COWPEA CURCULIO (Chalcodermus aeneus) - LOUISIANA - Moderate on cowpeas in East Feliciana Parish. (Tynes, Bagent, Sept. 1).

CARROT BEETLE (Bothynus gibbosus) - DELAWARE - Adults feeding on small planting of carrots in Sussex County. (MacCreary).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Adults averaged 2 per head of lettuce in Stockbridge area, Ingham County; injury to lettuce heavy in area. (Wells, Guyer).

SQUASH BUG (Anasa tristis) - UTAH - Abundant and damaging squash in Washington County. (Huber, Knowlton).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - SOUTH CAROLINA - Feeding on pods of butter beans in Greenville County. (Nettles et al., Aug. 29)

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Noticeable numbers present in lima beans in Rock County. (Wis. Ins. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Populations ranged 60-80 per 100 sweeps on sugar beets in experimental fields in Graham County. (Ariz. Coop. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - UTAH - This pest and curly top destroyed many tomato plants in Washington County this season. (Huber, Knowlton).

WYOMING - Remains very low on sugar beets in Washakie County; averaged less than 1 adult per 100 sweeps. (Marks).

TOMATO PSYLLID (Paratrioza cockerelli) - COLORADO - Damaging tomato plants in Sedgwick County. (Hantsbarger).

PRIVET THRIPS (Dendrothrips ornatus) - DELAWARE - Collected on snap beans by W. A. Connell, at Newark, New Castle County, in June 1964. This is a new State record. Det. by K. O'Neill. (Burbutis, Crossan).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - WYOMING - Damage very light to sugar beets in Washakie County. (Marks).

RASPBERRY CANE MAGGOT (Pegomya rubivora) - COLORADO - Damaging raspberry canes in Boulder County. (Hantsbarger).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Severe on beans in Porterville, Tulare County. (Cal. Coop. Rpt.).

TOMATO RUSSET MITE (Aculus lycopersici) - CALIFORNIA - Medium on tomato plants and fruit in Yolo, Yolo County. (Cal. Coop. Rpt.).

GARDEN SYMPHYLAN (Scutigerella immaculata) - WASHINGTON - Caused 30 percent cullage to 20 acres of Early Gem potatoes at Parker, Yakima County. (Landis).

#### TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults ranged 5-20 per plant on late tobacco near Mitchellville, Prince Georges County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Heavy on planting of late tobacco near Mitchellville, Prince Georges County. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Infestations range light to medium in Hamilton, Red River and Childress Counties. Infestations continue to increase below the Cap Rock in Dickens, Motley, Hall, Kent and Garza Counties, with increased movement from infested fields to new areas noted. To September 4, weevil-infested fields present above the Cap Rock in Dickens, Floyd, Crosby, Briscoe and Lubbock Counties. (Texas Coop. Rpt.). OKLAHOMA - Infestation ranged 4-16 percent in most cotton in south central area; 25 percent infestation found in one field in Johnston County. (Okla. Coop. Sur.). TENNESSEE - Migrations into counties north of southern tier of counties underway; some weevils found in counties where no infestations have occurred all season. Rank cotton with many squares and young bolls attracting migrating weevils; counts in southern counties ranged 5-94 percent punctured squares. Adults observed in almost all blooms in area. Boll damage evident in all fields surveyed in infested area. Some larval mortality due to dry weather observed in those fields not so rank. (Locke). LOUISIANA - Infestations heavy in areas receiving rain. Counts ranged 0-48 percent punctured squares in Madison Parish. (Tynes, Bagent, Sept. 1). ALABAMA - Heavy buildup, "hatchout" and over-lapping of generations continue throughout central and southern areas. Weather conditions most favorable for survival. Weevil migration underway from older fields which have "cut out" to younger cotton still fruiting and blooming. Weevil infestations ranged from 50-100 percent in southern portion of State to as high as 18 percent in few extreme northern counties. (Jones, O'Daniel, Chambers, Kennamer). GEORGIA - Punctured squares ranged 23-80 percent (average 55) in 9 of 22 fields checked in northern area. (Johnson).

A WEEVIL (*Anthonomus* sp.) - ARIZONA - Survey of one field of cotton at Aztec, Yuma County, produced 25 adults and 8 larvae in 15-minute period; considerable damage noted. (Ariz. Coop. Sur.).

BOLLWORMS (*Heliothis* spp.) - CALIFORNIA - Large problem in cotton in Fresno County; counts uniformly high. Recent restrictions on use of chlorinated hydrocarbons made control of these pests extremely difficult where vineyards or forage crops grown in vicinity of cotton. (Stromberg, Aug. 28). NEVADA - Heavy in cotton in Pahrump Valley, Nye County, week ending August 21. (Daley, Slater). ARIZONA - Populations continue high in Pima, Pinal and Maricopa Counties. Increased populations causing excessive damage to squares and bolls in Graham County. Slight increase noted in Yuma County cotton. (Ariz. Coop. Sur.). TEXAS - Late season activity increased in some areas. Light to occasional moderate populations reported in areas of Swisher, Floyd, Lubbock, Briscoe, Cottle, Wilbarger, Hall, Dickens, Garza, Lynn, Gaines, Motley, Dawson, Nolan, Pecos and Reeves Counties. Accumulated damage noticeable in many fields, indicating light populations over considerable period. (Rummel). Infestations medium in Red River County; light to medium infestations of 10 percent with approximately 10 percent damage reported in Childress County; 5-25 percent infestations reported in Midland County, with high egg counts and hatches occurring in fields where no controls applied. (Texas Coop. Rpt.). OKLAHOMA - Infestations range moderate to heavy (7-30 percent) in cotton checked in south central area; reported moderate in McCurtain County. (Okla. Coop. Sur.). MISSOURI - Eggs range 0-45 percent damage reported in 62 percent terminals in 62 percent of 791 fields checked in southeast. Controls applied on 4,424 acres in 157 fields. Heavy second-generation moth flights continue. (Harrendorf, Jones). ARKANSAS - Total larvae determined since previous week amounted to 326 *H. zea* and zero *H. virescens*; percent *H. virescens* from cotton this season now 1.51. (Ark. Ins. Sur.). TENNESSEE - Most important pests of cotton at present. Some heavy infestations found in western area. All larval stages present in most instances; causing considerable damage in late, rank cotton. Larvae ranged 1-39 per 100 terminals. Control very difficult in most instances, due to rank cotton. (Locke). LOUISIANA - Heavy in some fields in Caddo and Red River Parishes. (Tynes, Bagent, Sept. 1). ALABAMA - Considerable increase in activity noted in central and northern parts of State. Moth flights noted as heavy in young and growing cotton. (McQueen). GEORGIA - Egg counts in northern area ranged 5-14 per 100 terminals, averaged 10; larvae ranged 3-8 per 100 terminals, averaged 5. Infestations heavy in bolls of some cotton. (Johnson).



PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Numerous larvae and exit holes continue to be found in cotton east of Safford, Graham County. No larvae yet found west of Thatcher. Eleven moths trapped on farms in southeast Maricopa County. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Infestations increasing in Maricopa and Yuma Counties; counts remain light to medium, with minimum controls applied. Decreased populations apparent in Pinal County. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Increase in populations occurring in Yuma, Graham, Maricopa and Pinal Counties. Light to moderate damage found in most areas. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Light to medium in insolated fields throughout most of central and southern sections. (McQueen). GEORGIA - Light to heavy on cotton in northern area of State. (Johnson).

FALL ARMYWORM (Laphygma frugiperda) - GEORGIA - Caused very light damage to cotton bolls in Polk and Franklin Counties. (Johnson).

PLANT BUGS - CALIFORNIA - Lygus spp. ceased to be problem in Fresno County cotton. (Stromberg, Aug. 28). ARIZONA - Lygus spp. populations showed no increases in Yuma, Pinal, Pima or Maricopa Counties; some increase noted in Graham County cotton. (Ariz. Coop. Sur.). MISSOURI - Several species range 0-36 per 100 terminals in 61.4 percent of 791 fields scouted in southeast area. (Harrendorf, Jones).

APHIDS - CALIFORNIA - Less prominent in Fresno County cotton than previous week, but could increase if weather becomes cooler. Bolls opening well so that honeydew from aphids could cause serious damage. (Stromberg, Aug. 28). TENNESSEE - Some buildup noted in rank cotton in western area; infestations will probably increase due to cooler weather. Aphids could be a problem with respect to lint damage as rank cotton opens. (Locke).

SPIDER MITES - CALIFORNIA - Well under control throughout Fresno County except for few isolated spots. Some spot treatment of fields being made. (Stromberg, Aug. 28). MISSOURI - Spot infestations found in 3.6 percent of 791 fields checked; damage light and no controls being applied. (Harrendorf, Jones). TENNESSEE - Apparently decreasing over western area, with most damage confined to late cotton. (Locke). ALABAMA - Infestation increased considerably in Sand Mountain and Tennessee Valley areas, but reports indicate numbers much lighter than during previous few years. Although present in isolated fields, these pests not serious in central and southern portions of State. High infestations noted in Marion County. (Price et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - MISSOURI - On August 18, infested sawlog size shortleaf pines on a half acre of old burnt area in Ste. Genevieve County. (Gass, Capps).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MISSOURI - Scattered infestations on shortleaf pine in Laclède County, June 18. (Gass, Capps).

MIMOSA WEBWORM (Homadula albizziae) - ALABAMA - Medium to heavy on mimosas in Montgomery, Macon, Lee and other central counties. (McQueen). OHIO - Seven new counties this year as follows: Mercer, Darke, Miami, Champaign, Jackson, Vinton and Hocking. Leaves of many small honeylocusts were 95-100 percent webbed. Larvae in all stages and some pupation in Morrow County. (Lyon).

CATALPA SPHINX (Ceratonia catalpae) - ALABAMA - A general increase in infestation of catalpas; many entirely defoliated throughout central portion of State. (McQueen).

AMERICAN PLUM BORER (Euzophera semifuneralis) - NEW YORK - Population again heavy on sycamore in Plainview, Nassau County. (N.Y. Wkly. Rpt., Aug. 31).

SADDLEBACK CATERPILLAR (Sibine stimulea) - RHODE ISLAND - Numbers feeding on maple in North Kingstown, Washington County. (Mathewson). ALABAMA - Light on localized shrubs, pecan trees and other native plants over State. (Knox et al.).

WALNUT CATERPILLAR (Datana integerrima) - ALABAMA - Localized infestation on small groups of pecan and walnut trees in Covington, Chambers and Lee Counties. (Stephenson et al.).

DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis) - NEW MEXICO - Very abundant on foliage of poplar and other shade-tree nursery stock in Albuquerque area, Bernalillo County. Foliage appears ragged. (N.M. Coop. Rpt.).

ELM BARK BEETLES - IOWA - Dutch elm disease found in 8 new counties in 1964 as follows: Crawford, Decatur, Madison, Marion, Page, Ringgold, Webster and Wright. (Iowa Ins. Inf., Sept. 1). NEW MEXICO - Probably Scolytus multistriatus (smaller European elm bark beetle) feeding on 6 apparently healthy American elms in nursery near Valencia, Valencia County. Severe bleeding evident. (N.M. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Damaging elms in many areas of State. Many trees almost completely defoliated. (Okla. Coop. Sur.).

BRONZE BIRCH BORER (Agrilus anxius) - MARYLAND - Heavily damaged birches at localities in Carroll and Montgomery Counties. (U. Md., Ent. Dept.).

A LEAF BEETLE (Chrysomela sp.) - NEW MEXICO - Skeletonizing leaves of cottonwood and poplar trees in Albuquerque area, Bernalillo County. (N.M. Coop. Rpt.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Infestations heavy near Stillwater, Payne County; light in Garvin County. (Okla. Coop. Sur.).

FULLER ROSE BEETLE (Pantomorus godmani) - ALABAMA - Extremely heavy on goldenrod and black locust in Chambers and Lee Counties. (Barwood, Brackeen).

AZALEA CATERPILLAR (Datana major) - ALABAMA - Considerable infestations on localized azalea plantings in Covington County. Controls applied. (Stephenson).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Considerable damage to arborvitae and conifers throughout State. (Stephenson et al.). OKLAHOMA - Heavy on evergreens in Mayes County. (Okla. Coop. Sur.). WISCONSIN - Several infestations on spring-planted nursery stock. (Wis. Ins. Sur.).

BEET ARMYWORM (*Spodoptera exigua*) - CALIFORNIA - Medium on crapemyrtle leaves in Hanford, Kings County, and heavy on chrysanthemums in Fremont, Alameda County. (Cal. Coop. Rpt.).

FALL WEBWORM (*Hyphantria cunea*) - NEVADA - Light to medium larval infestations on chokecherry in the Jarbidge and Mountain City-Wild Horse areas of Elko County. (Bechtel, Martinelli).

A GEOMETRID MOTH (*Coryphista meadii*) - CALIFORNIA - Heavy larval infestation on Oregongrape shrubs in Fremont, Alameda County. (Cal. Coop. Rpt.).

A NOCTUID MOTH (*Catabena esula*) - ARIZONA - Larvae damaged lantana in Yuma, Yuma County. (Ariz. Coop. Sur.).

SOUTHERN ARMYWORM (*Prodenia eridania*) - FLORIDA - Severely infesting Zinnia sp. at Plant City, Hillsborough County, August 24. (Custead).

APHIDS - NEW JERSEY - Undetermined species heavy on many shade trees and flowers. (Ins.-Dis. Newsltr.). CALIFORNIA - Cavariella sp. heavy on roots and in soil of tansy ragwort in Ferndale, Humboldt County. (Cal. Coop. Rpt.).

LACE BUGS - OKLAHOMA - Corythucha sp. heavy and killing zinnias in Madill, Marshall County. (Okla. Coop. Sur.). IOWA - Undetermined species abundant on sycamore trees. (Iowa Ins. Inf., Sept. 1).

COCCIDS - MARYLAND - Aspidiotus perniciosus (San Jose scale) heavy on pyracantha at Chevy Chase, Montgomery County. Pseudaulacaspis pentagona (white peach scale) heavy on mulberry tree at Hyattsville, Prince Georges County. (U. Md., Ent. Dept.). OHIO - Undetermined species infesting magnolia in Hamilton and Vinton Counties. (Tyree, Davis, Holdsworth).

MITES - NEW JERSEY - Undetermined species quite heavy on ornamental plants and flowers throughout State. (Ins.-Dis. Newsltr.).

SPIDER MITES - OKLAHOMA - Tetranychus spp. heavy on ornamentals in Bryan County. (Okla. Coop. Sur.). CALIFORNIA - Eotetranychus lewisii heavy on poinsettia plants in Riverside, Riverside County. (Cal. Coop. Rpt.). IOWA - Undetermined species abundant on evergreens of all kinds. (Iowa Ins. Inf., Sept. 1).

#### INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (*Musca autumnalis*) - OHIO - Populations dropped off since first part of August. Counts on untreated dairy animals ranged 3-6 per face in Wayne County. Populations believed to be heavier than a year ago. (Miller). INDIANA - Populations on cattle per face averaged 2 in northwest, 3 in north central and 7 in northeast. (Saugstad). SOUTH DAKOTA - Moderate to heavy populations throughout eastern half of State. (Hintz). MISSOURI - Adults on cattle averaged 12 per head (range 5-25) in Randolph County and 1-2 per head (range 0-7) in Boone County. (Thomas).

HOUSE FLY (*Musca domestica*) - OKLAHOMA - Moderate in Mayes County and heavy (100 per head of livestock) in Pushmataha County. (Okla. Coop. Sur.). IOWA - Extremely annoying. (Iowa Ins. Inf., Sept. 1).

MOSQUITOES - NORTH DAKOTA - Considerable increase in numbers following recent rains in many areas. (Frye, Gage). OKLAHOMA - Populations of several species moderate to heavy in Payne County and light in Mayes County. (Okla. Coop. Sur.). NEVADA - Adults heavy in Fallon, Churchill County, and Reno-Sparks area of Washoe County. (Coop. Rpt.).

HORN FLY (Haematobia irritans) - INDIANA - Populations on cattle per head averaged 35 in northwest, 40 in north central and 39 in northeast. (Saugstad). LOUISIANA - Heavy on cattle in East Feliciana Parish, light in St. John the Baptist Parish. (Tynes, Bagent, Sept. 1). OKLAHOMA - Moderate to heavy in most areas of State. Some of heaviest counts were 800 per head on mature cows in Payne County and 2,000 per head on cows in Pushmataha County. (Okla. Coop. Sur.). MISSOURI - Heavy on cattle in central area where control not applied. (Thomas). SOUTH DAKOTA - Moderate to heavy throughout eastern half of State. (Hintz). WYOMING - Adults decreasing slightly on livestock in Park, Big Horn, Washakie and Hot Springs Counties. Estimated 100-150 flies per animal. (Marks).

STABLE FLY (Stomoxys calcitrans) - WYOMING - Some annoyance to livestock in Park, Big Horn, Washakie and Hot Springs Counties. Estimated 25-50 flies per animal. (Marks). OKLAHOMA - Populations averaged 5 per head on cows in Pushmataha County. (Okla. Coop. Sur.). IOWA - Extremely annoying. (Iowa Ins. Inf., Sept. 1).

TABANIDS - LOUISIANA - Number of horse flies per animal in parishes as follows: Acadia 0.7, St. Landry 1.8, West Baton Rouge 0.3 and Iberville 0.7. Deer flies heavy in Acadia Parish. (Tynes, Bagent, Sept. 1). OHIO - Farmers report heavier populations of Tabanus spp. this year in comparison with those of many previous seasons. Several beef and dairy animals throughout southern sections infested. (Lyon).

TICKS - OKLAHOMA - Undetermined species moderate to heavy in McCurtain and Pushmataha Counties. (Okla. Coop. Sur.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

CRICKETS - OHIO - Populations of undetermined species migrating into homes in Columbus, Franklin County, and Springfield, Clark County, August 31. (Delaplane). WISCONSIN - Complaints of invasions of undetermined species into houses more common in southern area. (Wis. Ins. Sur.). NORTH DAKOTA - Two reports of Ceuthophilus sp. (a camel cricket) in Fargo homes. (Post). Gryllus spp. troublesome around homes in many areas. (Frye, Gage).

TERMITES - OREGON - Winged forms of Reticulitermes hesperus (western subterranean termite) and Zootermopsis angusticollis (Pacific drywood termite) a nuisance in houses in Willamette Valley since late August. (Larson).

#### STORED-PRODUCT INSECTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - OKLAHOMA - Of concern in homes in Cotton County. (Okla. Coop. Sur.). OHIO - Infesting a bin of oats in Fairfield County. (Taylor, Holdsworth).

BEAN WEEVIL (Acanthoscelides obtectus) - OHIO - Caused one-hundred dollar loss in supermarket in Columbus, Franklin County, August 21; infested marrow-fat and red kidney and lima beans. (Galford).

#### BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Adults of several species averaged 38 per 100 sweeps in alfalfa and 24 per 100 sweeps in sugar beet fields in Park, Big Horn, Washakie and Hot Springs Counties. (Marks). OHIO - Hippodamia convergens (convergent lady beetle) is most abundant lady beetle in alfalfa fields in southern section. Counts averaged 15 beetles per 25 sweeps of alfalfa. (Lyon).

LACEWINGS (Chrysopa spp.) - OKLAHOMA - Moderate to heavy in most crops in south central area of State. (Okla. Coop. Sur.).

DAMSEL BUGS (*Nabis* spp.) - WYOMING - Adults averaged 74 per 100 sweeps in alfalfa and 64 per 100 sweeps in sugar beet fields of Park, Big Horn, Washakie and Hot Springs Counties. (Marks).

PREDATORS - CALIFORNIA - Populations in cotton are still surprisingly high for this time of year. (Stromberg, Aug. 28).

SYRPHID FLIES - OKLAHOMA - Larvae collected 5 per 10 sweeps in alfalfa field in McClain County. (Okla. Coop. Sur.).

#### MISCELLANEOUS INSECTS

FALSE CHINCH BUGS (*Nysius* spp.) - UTAH - A very large population of *N. ericae*, 98 percent nymphs, overrunning the Ouray area, Uintah County. Entered buildings and large numbers on outside walls as well as huge population on the range. (Knowlton, Day). A large movement of false chinch bugs, 98 percent nymphs, going southward through an area of North Logan, Cache County. (Knowlton). NEVADA - *Nysius* spp. heavy in weedy fields and yards in Reno, Washoe County. (Cooney). CALIFORNIA - Heavy populations of *Nysius raphanus* in yards in Campbell, Santa Clara County. (Cal. Coop. Rpt.).

GRAY GARDEN SLUG (*Deroceras reticulatum*) - IDAHO - Common and pestiferous in an alfalfa seed field in Homedale area, Owyhee County; also common in irrigated pastures for dairy animals. (Portman, Mink).

JAPANESE BEETLE (*Popillia japonica*) - MICHIGAN - Additional beetles found; generally being taken in areas where found earlier and do not represent extension of known infestations. (Ring, Carlson, Turner).

ASIATIC OAK WEEVIL (*Cyrtopistomus castaneus*) - OHIO - A new county record is Hocking. Eight adults collected in 25 sweeps of alfalfa. Adult populations heavy in Lawrence and Scioto Counties; 40 adults per 25 sweeps of alfalfa in Lawrence County. (Lyon).

#### CORRECTIONS

CEIR 14(28):773 - HOLLYHOCK WEEVIL (*Apion longirostra*) - Should read *Apion longirostre*.





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

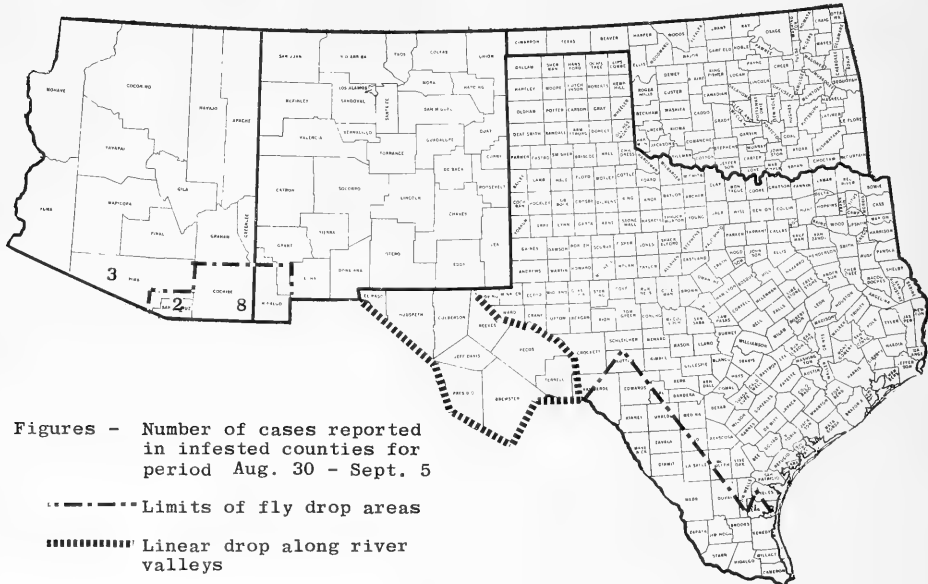
During the period August 30 - September 5, no additional screw-worm cases were reported from TEXAS, the last case there having been in Irion County on August 2. No cases have been reported from NEW MEXICO since July 25. In ARIZONA, 13 screw-worm cases were reported from 3 counties during the period as follows: Cochise (8), Pima (3) and Santa Cruz (2). The Republic of Mexico reported 323 screw-worm cases in the States of Sonora (172), Durango (18), Chihuahua (96), Tamaulipas (27), Coahuila (3), Veracruz (4) and Puebla (3). A total of 92,219,450 sterile screw-worm flies was released: 23,075,850 in Texas, 1,400,000 in New Mexico, 6,982,000 in Arizona and 60,761,600 in Mexico. The following is a comparison of specimens reported during corresponding weeks in 1962 and 1963.

Year	Positive Cases		Negative Cases*		Ratio of Cases Positive to Negative Cases**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	818	34,764	28	2,289	2,921.4:100	1,518.7:100
1963	123	2,643	79	4,786	155.6:100	55.2:100
1964	0	107	52	4,381	0.0:100	2.4:100

\* The number of cases not screw-worm is an index of the efficiency of the reporting system.

\*\* A comparison of the ratios of screw-worm cases with cases that are not screw-worm is an index of the change in number of screw-worm cases.

(Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period Aug. 30 - Sept. 5

--- Limits of fly drop areas

..... Linear drop along river valleys





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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

CORN EARWORM outbreak on soybeans in Arkansas subsiding; populations increasing and/or damaging soybeans in areas of South Carolina, Georgia and Louisiana. Corn earworm in combination with Trichoplusia spp. necessitated extensive controls on soybeans in areas of North Carolina. (p. 1061). ALFALFA CATERPILLAR increasing on alfalfa in Arizona (pp. 1061-1062), PEA APHID increasing on same crop in Michigan and Wisconsin and various PLANT BUGS numerous on soybeans and alfalfa in Missouri and alfalfa and other seed fields in Maryland, Colorado, Nevada and Idaho. (p. 1063). GRASSHOPPERS caused estimated \$2,000,000 damage to crops and range in Utah; RED-LEGGED GRASSHOPPER extremely heavy in areas of Alabama and caused conspicuous damage to foliage and silks of corn in areas of Maryland. (pp. 1063-1064). FALL ARMYWORM of concern in Arizona, Texas, Oklahoma and South Carolina. (p. 1064). SPOTTED ALFALFA APHID heavy in areas of Oklahoma and Colorado. (p. 1065).

GREEN PEACH APHID damaging various muck crops in Michigan. (p. 1068).

BOLLWORMS very active on cotton in southern Fresno County, California; populations heavy in areas of Texas and Oklahoma; causing considerable damage over cotton-growing area of Tennessee; and continue most important pest of cotton in some upper Piedmont counties of South Carolina. BOLL WEEVIL heavy in areas of Oklahoma, Louisiana and Alabama. (pp. 1070-1071).

DETECTION

A PLANT BUG (Heterotoma meriopterum) reported for first time in California. (p. 1072). New county records included NORTHERN CORN ROOTWORM (Diabrotica longicornis) in Montgomery County, Maryland (p. 1065); ELM LEAF BEETLE (Galerucella xanthomelaena) in Sandoval County, New Mexico (p. 1072); and EUROPEAN EARWIG (Forficula auricularia) in Ionia County, Michigan (p. 1072).

CORRECTIONS

See page 1075.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (pp. 1078).

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

WEATHER OF THE WEEK ENDING SEPTEMBER 14

Hurricane Dora left from 8 to more than 19 inches of rain over parts of northern Florida. Thunderstorms provided 6 to 10 inches over a small area in north-central Iowa. Temperatures over the central and northeastern sections of the Nation dropped from unseasonably warm to unseasonably cool during the week.

**TEMPERATURE:** Polar continental air lay over the Dakotas early in the week. Warm, moist gulf air lay over the central and Southern States. Afternoon temperatures climbed into the 90's in the maritime tropical air but reached only the 60's and 70's in the cool air. Chicago, Illinois, registered 90° or higher on each day, Monday to Thursday. As the polar air pushed southward, summer heat and humidity were replaced by the coolest weather of the season. The temperature at Syracuse, New York, dropped from 91° Thursday afternoon to 38° Sunday morning. Temperatures in Kansas dropped more than 40° in 2 days as the front moved across the State. Temperatures averaged above normal over the central and southern Rocky Mountains, most of Texas, and from Illinois and Michigan eastward to the Atlantic Ocean except northern New England and below normal over the rest of the Nation. Temperatures over northwestern North Dakota averaged more than 9° below normal.

**PRECIPITATION:** Hurricane Dora produced from 8 to 19 inches of rain over a small area west of Jacksonville, Florida, and lesser amounts from Apalachicola to Norfolk, Virginia. Heavy thunderstorms left 6 to 10 inches over north-central Iowa and nearby counties in Minnesota. As the cold front moved southward, it triggered showers over wide areas in Texas. The largest amounts fell in the extreme west, southwest, and south portions of the State. Heavy rains caused local flooding in the Tucson, Arizona, area. Most other parts of the Nation received no rain of importance.

**HURRICANE DORA:** Dora, the first tropical cyclone of full hurricane force on record to pass inland over the northeastern Florida coast, and the second severe hurricane to affect Florida this season, was first detected in the south-central Atlantic on September 1. Dora moved on a northwesterly, then westerly course to a position off northeastern Florida on the 9th.

Dora was a large hurricane. Increasing strong winds and high storm tides raked a broad section of coastal Florida and Georgia during the 9th. Sustained winds along the immediate coast reached an estimated speed of 100 mph. Sustained winds of 82 mph were observed at Jacksonville at 7:48 p.m. Storm tides ranged from 5 to 8 feet above normal along much of the coast from Daytona Beach into southern Georgia, with a 10-foot tide reported at St. Augustine. Heavy property damage and beach erosion resulted from tidal action. The central eye, unusually large with a 50-mile diameter, moved inland near St. Augustine shortly before midnight on the 9th. Minimum pressure there was 28.56 in. (967 mb.). Dora continued on a track slightly north of west, reaching extreme southeastern Alabama with much diminished winds on the 11th, then moved back eastward across southern Georgia on the 12th as it regained intensity, particularly over coastal sections. During the 13th, the center moved northeastward through coastal sections of the Carolinas and off shore near Hatteras and continued northeastward on the 14th, passing about 75 miles southeast of Cape Cod.

Heavy rains spread across north Florida, south Georgia, southeastern Alabama, coastal sections of South Carolina, North Carolina, Virginia, the Eastern Shore of Maryland to southern New Jersey, and extreme southeastern New England as Dora passed over or near these areas. Greatest storm totals were in northern Florida, ranging from 12 to 15 inches between the Suwannee and St. Johns Rivers north of Gainesville. About 19 inches fell at Live Oak, Florida, in this area. Widespread flooding resulted. Amounts were 6 to 8 inches as far south as Orlando and as far west as Tallahassee. From 3 to locally over 8 inches of rain fell from southern Alabama northeastward into the Hampton Roads area. One to 2 inches were generally received farther north. Preliminary reports of property damage from tides and wind indicated losses near \$200 million in Florida, and several million in Georgia. No deaths as a direct result of Dora have been reported. (Summary supplied by U.S. Weather Bureau). See page 1069 for 30-Day Outlook.

CEREAL AND FORAGE INSECTS

CORN EARWORM (*Heliothis zea*) - ARKANSAS - Current outbreak reported in CEIR 14(36):1017 and 14(37):1045 appears to be subsiding; extremely late soybeans that may still be blooming should be checked, however. Infestations noted in northeast this period. Species has increased in importance on soybeans in State during past 5 years. Survey indicates that 1, 4, 10 and 20 percent of soybean acreage has been treated for this pest during past 4 consecutive years, respectively. Acreage treated during 1964 increased tremendously. Past experience indicates main crop will probably not be reinfested. (Ark. Ins. Sur.). OKLAHOMA - Heavy in alfalfa in Kay, Osage, Pawnee, Payne, Okfuskee, Lincoln and Choctaw Counties; averaged up to 35 per 10 sweeps. Averaged 12 per 100 terminals in peanuts in Creek County and 10 per 100 heads in sorghum in Kay and Noble Counties. Heavy on sweet corn in Choctaw County. (Okla. Coop. Sur.). TEXAS - This species and *H. virescens* (tobacco budworm) moderate and damaging sesame in Burleson County. (Rivers, Hamman, Meisch). LOUISIANA - Very heavy in soybeans in Shreveport, St. Joseph and St. Landry areas. (Tynes, Sept. 8). ALABAMA - Extremely heavy in young corn in Dallas County. (McQueen). GEORGIA - Caused light to heavy damage to pods of soybeans in northeast and southeast areas of State. (Johnson). SOUTH CAROLINA - Increasing on soybeans in Colleton and Edgefield Counties; infesting soybeans in Kershaw and Orangeburg Counties. (Nettles et al., Sept. 2). NORTH CAROLINA - This species and *Trichoplusia* spp. necessitated extensive treatment of soybeans in Perquimans, Pasquotank, Camden and Currituck Counties during past 2 weeks; an estimated 30,000 acres treated in one county. *Trichoplusia* spp. most severe in Camden and Currituck Counties; ragging of leaves noticeable in many fields and 70-80 percent of leaf surface destroyed in few fields. Disease and pupation reducing *Trichoplusia* spp. population rapidly. *H. zea* in combination with 3 other species of Lepidoptera caused light ragging of leaves of peanuts in a Chowan County field. (Falter, Mount). MARYLAND - Larvae moderate to heavy in field corn in Montgomery and Frederick Counties. Moths averaged over 60 per night in blacklight trap at Delmar, Wicomico County, during first 2 weeks of September. Larvae moderate in alfalfa near Gaithersburg, Montgomery County. (U. Md., Ent. Dept.). DELAWARE - Adults average approximately 60 per night in blacklight trap collections in Sussex County. Larvae numerous in some fields of soybeans. (Burbutis). NEW JERSEY - Many larvae noted in fields of sweet corn; down in silks and in ears. (Ins.-Dis. Newsltr.). MICHIGAN - Adults widely distributed over Lower Peninsula; heavy flights occurred on warm evenings of September 7, 8 and 9. Many adults noted in flight in fields of late sweet corn in southeast during daylight hours as controls were being applied. (Newman, Snow). ARIZONA - Averaged 30 per 100 sweeps in alfalfa in Graham County. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (*Plathypena scabra*) - ARKANSAS - Heavy in many fields of soybeans in northeast; not economic at present. No bloom or pod feeding observed. (Ark. Ins. Sur.). MISSOURI - Larvae averaged 2 per 10 sweeps on soybeans in central and east central areas; leaf feeding damage light. (Houser, Thomas). SOUTH CAROLINA - Infestations increasing in soybeans in Edgefield County. Present in soybeans in Orangeburg County. (Nettles et al., Sept. 2). MARYLAND - Light to moderate in alfalfa in central Montgomery County. (U. Md., Ent. Dept.).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - SOUTH CAROLINA - Increasing on soybeans in Colleton and Edgefield Counties; infesting same crop in Kershaw and Orangeburg Counties. (Nettles et al., Sept. 2). GEORGIA - Caused light to moderate defoliation of soybeans in northeast and southeast areas. (Johnson). FLORIDA - Considerable feeding damage on leaves of untreated soybeans noted at Gainesville, Alachua County. (Kuitert, Sept. 4). LOUISIANA - Light to moderate on soybeans in southern part of State. (Tynes, Sept. 8).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - Larvae increasing in alfalfa in Graham, Maricopa, Pinal and Gila Counties. Counts per 100 sweeps ranged from 110 in Gila County to 900 in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Larvae in alfalfa per 25 sweeps averaged 1-2 near Corrales, Sandoval County, and 2-4 in Bernalillo County. (N.M. Coop. Rpt.). MICHIGAN - Larvae averaged

8 per 25 sweeps in 6 fields in 3 southeast counties September 8; first and second stages predominated. (Dowdy). ILLINOIS - Larval counts per 100 sweeps during week August 30-September 3, by district, were as follows: West 0-40, southwest 40-220 and west-southwest 0-10. (Ill. Ins. Rpt.). MARYLAND - Larvae ranged light to moderate on alfalfa in central Montgomery County; adults active in alfalfa in same county. (U. Md., Ent. Dept.).

BEE T ARMYWORM (*Spodoptera exigua*) - ARIZONA - Infestations continued medium in alfalfa in areas of Graham and Maricopa Counties; averaged 30 per 100 sweeps in fields with heaviest infestations. (Ariz. Coop. Sur.). TEXAS - Occasional specimen found on sesame in Burleson County. (Rivers, Hamman, Meisch).

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - MARYLAND - Small larvae common in central Montgomery County. (U. Md., Ent. Dept.).

LOOPERS - LOUISIANA - Populations of unspecified species heavy in soybeans in many areas. Fungus and virus diseases exerting control in some areas. (Tynes, Sept. 8). ALABAMA - *Trichoplusia ni* (cabbage looper) heavy on soybeans in Dallas County; some controls necessary. (McQueen). GEORGIA - *Trichoplusia* spp. caused light defoliation of soybeans in northeast and southeast areas of State. (Johnson). SOUTH CAROLINA - Unspecified species increasing on soybeans in Edgefield County. (Nettles et al., Sept. 2).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Counts of 72 per 100 terminals noted in field of peanuts in Creek County; infestation moderate in Bryan County. (Okla. Coop. Sur.).

WEBWORMS (*Loxostege* spp.) - MARYLAND - Several full-grown larvae collected from alfalfa near Gaithersburg, Montgomery County. (U. Md., Ent. Dept.). OKLAHOMA - Light in alfalfa in north central area; ranged 2-15 per 10 sweeps. (Okla. Coop. Sur.). TEXAS - Light to moderate populations of *L. similalis* (garden webworm) damaging alfalfa in localized areas of Hunt County. (Turney).

ALFALFA WEEVIL (*Hypera postica*) - MARYLAND - Larvae ranged 0-2 per sweep on alfalfa in central Montgomery County. (U. Md., Ent. Dept.). ARKANSAS - Surveys negative in Carroll and Marion Counties. As far as known, pest still occurs only in 9 northeastern and central counties. (Ark. Ins. Sur.). UTAH - Larvae much less numerous in northern and central area alfalfa than at same time in 1963. (Knowlton). NEW MEXICO - Counts, probably this species, averaged 1 adult and 1-3 larvae per 25 sweeps in alfalfa in Corrales area, Sandoval County. (N.M. Coop. Rpt.).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - IDAHO - Newly emerged adults averaged approximately 4.5 per sweep in field of first-year red clover southwest of Parma, Canyon County, and 5 per sweep in field 10 miles southwest of New Plymouth, Payette County. (Waters). OHIO - Heavy numbers appearing in clover seed being brought to cleaning mills at Mount Gilead, Morrow County. (Dalrymple, Holdsworth).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - SOUTH CAROLINA - Increasing on soybeans in Dillon County; considered a threat to crop. (Nettles et al., Sept. 5). GEORGIA - Caused light defoliation of soybeans in northeast and southeast areas. (Johnson).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Adults noted in soybeans at several locations in Worcester County. (U. Md., Ent. Dept.).

BLISTER BEETLES (*Epicauta* spp.) - NEW MEXICO - Adults averaged 2-3 per 25 sweeps in alfalfa in Sandoval County. (N.M. Coop. Rpt.). GEORGIA - Heavy infestations noted on kudzu in Cobb County. (Vanderford).



PEA APHID (*Acyrtosiphon pisum*) - MICHIGAN - Adult and nymphal populations increased markedly in regrowth alfalfa in Ingham and Livingston Counties; averaged 40 per sweep September 8. Very few winged females present. (Dowdy). WISCONSIN - Continues to increase; populations heavy in alfalfa in Calumet and Outagamie Counties. (Wis. Ins. Sur.). NEW MEXICO - Very light in Bernalillo County alfalfa. (N.M. Coop. Rpt.). COLORADO - Ranged 200-300 per 100 sweeps in western area, where third cutting of alfalfa underway. (Bulla). WYOMING - Small populations noted in alfalfa in Goshen County; nymphs and adults averaged 750 per 100 sweeps. (Marks). NEVADA - Averaged 6 per sweep in alfalfa in southern Washoe County. (Cooney).

PLANT BUGS - MARYLAND - *Lygus lineolaris* (tarnished plant bug) adults ranged from 1 to over 5 per sweep on alfalfa in Montgomery County. (U. Md., Ent. Dept.). MICHIGAN - Adults of *L. lineolaris* ranged 7-30 per 25 sweeps in alfalfa and red clover in Ingham and Livingston Counties. (Dowdy). MISSOURI - Several species, predominantly *Adelphocoris rapidus* (rapid plant bug), ranged 2-5 per 10 sweeps on soybeans and 5-10 per 10 sweeps on alfalfa in central and east central areas. (Houser, Thomas). WYOMING - *A. lineolatus* (alfalfa plant bug) averaged 22 adults and nymphs per 100 sweeps in alfalfa in Goshen County. (Marks).

LYGUS BUGS (*Lygus* spp.) - COLORADO - Numbers high in seed alfalfa where no controls applied in western area; ranged 300-500 per 100 sweeps. (Bulla). WYOMING - Adults and nymphs average 46 per 100 sweeps in Goshen County alfalfa. (Marks). IDAHO - Adults and nymphs ranged 1-20 per sweep in various seed fields checked in northern Canyon County. (Waters). NEVADA - Varied 7-15 per sweep in alfalfa in southern Washoe County. (Cooney).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MICHIGAN - Adults ranged 13-34 per 25 sweeps in alfalfa in Ingham and Livingston Counties September 8; averaged 85 adults per 25 sweeps in field of red clover in Livingston County. (Dowdy). OHIO - Adults ranged light to medium in forage fields throughout central section; averaged 14 per 25 sweeps of alfalfa in Licking County. Counts lower in most fields checked. (Lyon). MARYLAND - Adults general in alfalfa in Montgomery County. (U. Md., Ent. Dept.).

GREEN STINK BUG (*Acrosternum hilare*) - MISSOURI - Adults on soybeans ranged 0-4 per 10 sweeps in central and east central areas. (Houser, Thomas).

POTATO LEAFHOPPER (*Empoasca fabae*) - MARYLAND - Large populations causing yellowing of 2 fields of alfalfa in central Montgomery County. (U. Md., Ent. Dept.). ILLINOIS - Counts per 100 sweeps by district during week August 30-September 3 were as follows: West 30-220, southwest 480-740 and west-southwest 300-370. (Ill. Ins. Rpt.). MICHIGAN - Up to 50 adults per 25 sweeps taken in Ingham County alfalfa September 8. (Dowdy).

LEAFHOPPERS (*Empoasca* spp.) - ARIZONA - Averaged 200 per 100 sweeps in alfalfa in Gila Valley of Yuma County. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Most populations decreased or remained static in alfalfa throughout State; damage evident in Yuma, Graham and Maricopa Counties. (Ariz. Coop. Sur.).

GRASSHOPPERS - UTAH - Grasshoppers more serious in Salt Lake County than for several years; controls applied to protect farms, gardens and flowers. Controls also being applied in parts of Box Elder County. (Knowlton, Finch). Damage to crops and range estimated at \$2,000,000 this season; crop damage would have been greater except for late spring and summer rains keeping most range areas greener than usual. (Knowlton, Burnett). ARIZONA - Several species averaged 30 per square yard in many areas around Mammoth and Bakersville, Pinal County. (Ariz. Coop. Sur.). NEW MEXICO - Adults per 25 sweeps in alfalfa in Corrales area, Sandoval County, were as follows: *Melanoplus differentialis* (differential grasshopper) 2-4, *M. bivittatus* (two-striped grasshopper) 2-3 and *M. sanguinipes* (migratory grasshopper) 3-4. Nymphs of various species ranged 10-12 per 25

sweeps. (N.M. Coop. Rpt.). SOUTH DAKOTA - Grasshopper infestations on rangeland decreased in size and intensity compared with 1963. Cropland infestations remain about same as those present in 1963; infestations decreased in western area but increased in south central and eastern areas. (Burge). MINNESOTA - Fungus disease appearing in Kandiyohi County, but affecting only M. differentialis as of September 8. Grasshopper populations in southeast counties show decided increase over those present in 1963. M. femurrubrum (red-legged grasshopper) dominant species throughout State, with alfalfa principal habitat. M. bivittatus and M. differentialis present in low numbers at scattered locations, mostly in western and east central counties. Some damage to corn and soybeans, mostly in field margins, present in fields adjacent to alfalfa with high grasshopper populations. Grasshoppers and drought caused heavy damage to hay crops in some areas. Controls were very limited. (Minn. Ins. Rpt.). WISCONSIN - M. femurrubrum adults continue to feed along field margins of corn; populations remain high in many areas. Injury to tomato fruit reported in Richland County. (Wis. Ins. Sur.). ILLINOIS - Counts of unspecified species per 100 sweeps by district during week August 30-September 3 were as follows: West 0-20, southwest 40-60 and west-southwest 10-20. (Ill. Ins. Rpt.). INDIANA - Grasshoppers generally noneconomic throughout State; however, some isolated populations reached maximum of 5 per square yard. (Bram). LOUISIANA - Unspecified species heavy in pastures in St. Landry and Avoyelles Parishes. (Tynes, Sept. 8). ALABAMA - M. femurrubrum and other species extremely heavy in pastures, along roadsides and in grass hay crops in Henry, Barbour, Lee and Macon Counties. (Ledbetter et al.). MARYLAND - M. differentialis and M. femurrubrum caused conspicuous foliage and silk injury to corn in several fields in Montgomery and Frederick Counties. (U. Md., Ent. Dept.).

FALL ARMYWORM (Laphygma frugiperda) - ARIZONA - Medium to heavy populations damaging alfalfa and sorghum in areas of Maricopa and Pinal Counties. (Ariz. Coop. Sur.). TEXAS - Light infestations continue to appear on pastures and forage crops over wide areas in eastern portion of State. (Texas Coop. Rpt.). OKLAHOMA - Ranged moderate to heavy (30-50 per 10 sweeps) in alfalfa and moderate in soybeans in Choctaw County. (Okla. Coop. Sur.). LOUISIANA - Infestations heavy in pastures and forage crops in Caddo Parish. (Tynes, Sept. 8). ALABAMA - Few full-grown larvae noted in whorls and ears of late corn. (McQueen). GEORGIA - Light to medium on Coastal Bermuda grass, grain sorghum and millet in several areas of State. (Johnson). Moderate on lawn grasses in Atlanta area. (Blasingame). SOUTH CAROLINA - Numerous on lawns in Charleston and Columbia; heavily damaged Coastal Bermuda grass pasture in Oconee County. Widespread on lawns in Sumter County and heavily damaged lawn in Seneca, Oconee County. (Nettles et al., Sept. 3). NORTH CAROLINA - Larvae continue of concern on pastures and lawns in Piedmont and Coastal Plains areas. (Mount). NEW JERSEY - Numerous larvae noted in fields of sweet corn; mostly in tassels. (Ins.-Dis. Newsltr.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MICHIGAN - Adult numbers in blacklight traps decreasing; survey of corn in Wayne, Oakland and Livingston Counties showed all larval stages present. (Snow, Newman). NEW JERSEY - Numerous larvae noted in sweet corn; many in ears. (Ins.-Dis. Newsltr.). DELAWARE - Flight remains very large in Sussex County; blacklight trap catches averaged approximately 30 moths per night September 3-9. (Burbutis). GEORGIA - Light on corn in Putnam, Jones and Gwinnett Counties. (Brightwell, Vanderford). ALABAMA - Few full-grown larvae noted in late corn in Dallas County. (McQueen).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Infestations scattered and light in rice area of State. (Tynes, Sept. 8).

RICE STALK BORER (Chilo plejadellus) - LOUISIANA - Scattered, light infestations noted in rice-growing area. (Tynes, Sept. 8).

SORGHUM WEBWORM (Celama sorghiella) - ALABAMA - Light in grain sorghum in Dallas and Elmore Counties. (McQueen).

SKIPPERS (Lerodea spp.) - ARIZONA - Light to medium larval populations causing moderate damage to few sorghum fields in Yuma County. (Ariz. Coop. Sur.).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - MARYLAND - Adults collected from corn silks and by sweeping field borders on 4 farms in Frederick County and 2 farms in Montgomery County. Montgomery County is a new county record. (U. Md., Ent. Dept.). MICHIGAN - Adult population high and feeding on ear tips of corn in Washtenaw County field. (Wells, McCrory).

CORN ROOTWORMS (Diabrotica spp.) - OHIO - Adults of D. undecimpunctata howardi (southern corn rootworm) easily collected in forage fields in Muskingum and Guernsey Counties; averaged approximately 4 per 25 sweeps. (Lyon). ILLINOIS - No adults of D. virgifera (western corn rootworm) noted in Jo Daviess, Carroll and Whiteside Counties where corn, red clover and wild flowers growing along fencerows and roadsides beside fields of corn were surveyed. D. longicornis (northern corn rootworm) was abundant and D. undecimpunctata howardi was common in these areas. (Ill. Ins. Rpt.). MISSOURI - D. undecimpunctata howardi adults averaged 20 per 10 sweeps in field of drilled soybeans having immature pods in Callaway County; ranged 0-5 per 10 sweeps in other fields of soybeans in central and east central areas. (Houser, Thomas). NEBRASKA - Adult survey indicated D. virgifera to be dominant species in all areas, except in some northeast area fields. In Cedar, Dixon and portions of Boyd and Knox Counties, D. longicornis composed majority of corn rootworm population. (Bergman). WYOMING - Only occasional adults of D. virgifera found in corn in Goshen County. (Marks).

CORN SAP BEETLE (Carpophilus dimidiatus) - ALABAMA - Large numbers of this species and other sap feeding beetles observed in ears of corn previously injured by other insects. Also, quite common on injured cotton bolls, peaches, apples and other decaying fruits and vegetables. (McQueen).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Continues to damage untreated sorghum in areas of Yuma County. (Ariz. Coop. Sur.).

TEN-LINED JUNE BEETLE (Polyphylla decemlineata) - IDAHO - Larvae reported infesting approximately 2 acres of corn in Canyon County. (Bechtolt).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Light to moderate in alfalfa checked in Sandoval and Bernalillo Counties. (N.M. Coop. Rpt.). COLORADO - Continues to increase on alfalfa in Arkansas Valley; counts ranged 1,000-6,000 per 100 sweeps. New plantings of alfalfa can be seriously damaged. (Schweissing). Only trace numbers noted on alfalfa in Weld and Larimer Counties. (Jenkins, Urano, Daniels). Ranged 1-20 per 100 sweeps in western area, where third cutting of alfalfa underway. (Bulla). OKLAHOMA - Heavy (320-550 per 10 sweeps) in alfalfa checked in north central area of State and in Lincoln and Okfuskee Counties. Light (10-100 per 10 sweeps) in Tillman and Choctaw Counties. (Okla. Coop. Sur.). ARKANSAS - Surveys negative in Carroll and Marion Counties. (Ark. Ins. Sur.). ILLINOIS - Counts per 100 sweeps by district during period August 30-September 3 were as follows: West 120-380, southwest 260-320 and west-southwest 240-420. (Ill. Ins. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - IDAHO - Building up on corn in Canyon County. (Bechtolt).

A DELPHACID PLANTHOPPER (Sogata furcifera) - FLORIDA - Light to medium numbers collected from rice on farms in Belle Glade, South Bay and La Belle areas. (Weaver, Faircloth, Sept. 2-3).

ARMYWORMS (Pseudaletia spp.) - SOUTH CAROLINA - P. unipuncta (armyworm) present in outbreak numbers in Richland County. (Nettles et al., Sept. 2). ARKANSAS - Pseudaletia sp. caused heavy damage to pastures in Washington County. (Ark. Ins. Sur.).

ASIATIC GARDEN BEETLE (Maladera castanea) - OHIO - Larval populations higher than usual in Wellsville area, Columbiana County. Counts averaged 3 grubs per square foot. (Polivka).

A SPITTLEBUG (Prosapia bicincta) - ALABAMA - Extremely heavy, annoying and potentially damaging on centipede grass lawns in Henry County, on native weeds throughout central area of State and locally on Coastal Bermuda grass and other plants. Nymphs in frothy masses ranged 50-75 per square yard in many fields. Adults extremely heavy on other crops and on grasses and many other plants. (Hartzog, Dennis, Barefield, Buttram, et al.).

RHODES-GRASS SCALE (Antonina graminis) - FLORIDA - Caused wilting of Bermuda grass variety on golf green at Largo, Pinellas County, September 3. (Allen).

#### FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - MICHIGAN - Larval entries continue to appear in southwest apple orchards, especially outside rows and exposed trees. (Carpenter). COLORADO - Light traps indicated no flights occurred in Mesa County. Continued cool weather should diminish moth activity on apples and late pear varieties. (Bulla).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CALIFORNIA - Larvae light on peaches in Fresno, Fresno County. (Cal. Coop. Rpt.). MICHIGAN - Larvae infesting fruits caused very few problems in commercial orchards in southwest; better spray programs during recent years greatly reduced losses. (Carpenter, Conrad).

RED-HUMPED CATERPILLAR (Schizura concinna) - MARYLAND - Larvae caused minor damage to young apple trees in Cecil and Washington Counties. (U. Md., Ent. Dept.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Moths continue to emerge in fruit areas; 20 emerged from 25 trees in research orchard in Oceana County week ending September 3. (Howitt).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Little injury noted on Elberta peaches being harvested in Mesa County. (Bulla).

SHOT-HOLE BORER (Scolytus rugulosus) - NEVADA - Medium to heavy in cherry trees south of Reno, Washoe County. (Post).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Adults still collected in large numbers on sticky-board traps; 145 taken on 8 traps near Bangor, Van Buren County; 40 adults taken in ornamental crab apple trees in Ingham County during 3 days with 3 experimental ammonium carbonate baited traps. (Carpenter, Wooley, Conrad). OHIO - Sticky-board traps indicate considerable decrease in adult activity. (Lyon).

SPIDER MITES - CALIFORNIA - Tetranychus telarius (two-spotted spider mite) heavy on cherry in Dunlap, Fresno County. (Cal. Coop. Rpt.). NEW MEXICO - T. mcdaniell ranged light to moderate in apple orchards in Corrales-Sandoval area, Sandoval County. Damage to foliage quite severe, specially in small orchards. (N.M. Coop. Rpt.). MICHIGAN - Panonychus ulmi (European red mite) egg hatch high; nymphs heavy in many southwest apple orchards. (Carpenter).

WALNUT CATERPILLAR (Datana integerrima) - ALABAMA - Heavy larval populations feeding on 80 percent or more of pecans in southern Henry County; lesser numbers noted in southeastern Dallas, central Montgomery and western Barbour Counties. Occasional walnut tree partially defoliated. (Barefield).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Considerable pupation observed in pecans in Dallas and Lee Counties. Egg laying occurred recently and small larvae entering shucks. (Eden et al.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Moderate on pecan in Tillman County; none noted in Lincoln County. (Okla. Coop. Sur.).

A FALSE POWDER-POST BEETLE (Xylobiops basilaris) - ALABAMA - Numerous infestations noted in dead and dying limbs of pecan in Henry, Dallas and Lee Counties and in other pecan-growing areas. Species appears not to attack or injure live or healthy limbs in area. (McQueen).

BLACK PECAN APHID (Melanocallis caryaefoliae) - CALIFORNIA - Nymphs and adults heavy on pecan in Chowchilla, Madera County. (Cal. Coop. Rpt.).

Citrus Insect Situation in Florida - End of August - CITRUS RUST MITE (Phyllocoptura oleivora) infested 40 percent of groves (norm 59 percent); 26 percent economic (norm 38 percent). Population at moderate level and below normal for August. Further decrease will occur through September, although scattered groves will show infestations increasing on fruit. Highest districts are west and south. CITRUS RED MITE (Panonychus citri) infested 35 percent of groves (norm 39 percent); 19 percent economic (norm 20 percent). TEXAS CITRUS MITE (Eutetranychus banksi) infested 34 percent of groves (norm 20 percent); 19 percent economic (norm 7 percent). Current low levels will drop lower in September. A few moderate to heavy infestations may be expected in north and east districts. PURPLE SCALE (Lepidosaphes beckii) is above normal; in low range; little change expected; highest district is south. GLOVER SCALE (L. gloverii) is above normal; in low range; little change expected; highest districts are south and east. CHAFF SCALE (Parlatoria pergandii) is above normal; in low range; little change expected; highest district is east. YELLOW SCALE (Aonidiella citrina) is above normal; in low range; increase expected; highest district is central. BLACK SCALE (Saissetia oleae) is near normal; in low range; little change expected; highest districts are east and south. A SNOW SCALE (Unaspis citri), a LESSER SNOW SCALE (Pinnaspis strachani), DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) and COTTONY-CUSHION SCALE (Icerya purchasi) are more abundant than usual for August but all are in the low range statewide. PYRIFORM SCALE (Protopulvinaria pyriformis), BROWN SOFT SCALE (Coccus hesperidum), FLORIDA WAX SCALE (Ceroplastes floridensis) and an ACUMINATE SCALE (Coccus acuminatus) are below normal for August and at very low level. WHITE-FLIES infested 64 percent of groves (norm 55 percent); 31 percent economic (norm 13 percent). Population will continue above normal and in high range despite a downward trend expected in September. MEALYBUG population has dropped into low range and will continue to decrease. It is still above normal for August. Highest district is south. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Larvae continue to increase on citrus in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Heavy on citrus in Arroyo Grande, San Luis Obispo County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Populations increasing on new citrus growth in Yuma County. (Ariz. Coop. Sur.).

A GRASSHOPPER (Melanoplus yarrowii) - ARIZONA - Continues to feed on citrus in Yuma County. Population light; damage not yet serious. (Ariz. Coop. Sur.).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Total of 16 marked, sterile flies recovered in San Diego County during period September 5-11. (Cal. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) - CALIFORNIA - New infestation in City of Fresno reported in CEIR 14(37):1047-1048 located 15 miles east of City of Kerman. Survey to September 11 revealed 44 infested properties in an area 0.75 mile north and south and 0.5 mile east and west. Nearest commercial vineyards approximately 0.5 mile to west of known infestation. All infested properties treated. Preliminary evidence indicates source of infestation may be other than Kerman or Livermore. Survey results continue negative in these 2 areas. (Cal. Coop. Rpt.). ARIZONA - Larvae heavily defoliated backyard grapevines in Safford, Graham County. (Ariz. Coop. Sur.).

GRAPE BERRY MOTH (*Paralobesia viteana*) - MICHIGAN - Adult flight and egg laying for third brood general over grape-growing area of southwest; adults of current brood began emerging August 31 at Mattawan, Van Buren County. (Carpenter, Connor).

PUTNAM SCALE (*Aspidiotus ancyclus*) - NEW JERSEY - Observed on blueberries in several areas. (Ins.-Dis. Newsltr.).

BLUEBERRY BUD MITE (*Aceria vaccinii*) - NEW JERSEY - Again causing some concern in few areas. (Ins.-Dis. Newsltr.).

#### TRUCK CROP INSECTS

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Eggs and small larvae appearing on cantaloup in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Eggs and larvae becoming more numerous on lettuce in Dona Ana County. (N.M. Coop. Rpt.). WISCONSIN - Larvae continue a problem to cabbage producers in Outagamie County. (Wis. Ins. Sur.).

BEE TARMY WORM (*Spodoptera exigua*) - NEW MEXICO - Serious on lettuce in Dona Ana County during past 2 weeks. Populations now becoming lighter; treatments applied to many fields. (N.M. Coop. Rpt.).

TOMATO FRUITWORM (*Heliothis zea*) - COLORADO - Eggs averaged 5.6 per 100 leaves on tomato in Arkansas Valley; no parasitism evident September 10. Moths averaged 125 per night in light trap at Rocky Ford; 186 taken September 9. (Schweissing). UTAH - Particularly numerous on tomatoes and potatoes in Salt Lake County; controls applied to most commercial tomatoes in county. (Parrish, Knowlton).

PICKLEWORM (*Diaphania nitidalis*) - SOUTH CAROLINA - Unusually numerous and difficult to control on fall cantaloups. (Nettles et al., Sept. 8).

RASPBERRY CROWN BORER (*Bembecia marginata*) - MICHIGAN - Adult emergence and egg laying underway in research plots at Bridgeman, Berrien County; no egg hatch noted. This species considered most serious pest of raspberries in area. (Howitt).

BANDED CUCUMBER BEETLE (*Diabrotica balteata*) - LOUISIANA - Light on sweetpotatoes and caused little damage to September 8. (Tynes).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - WYOMING - Adult and larval populations spotty on late maturing field beans in Goshen County; only slight damage noted. Harvest approximately 40 percent complete. (Marks).

DARKLING BEETLES (*Blapstinus* spp.) - ARIZONA - Scattered populations on lettuce in Yuma and Maricopa Counties required some controls. (Ariz. Coop. Sur.).

GREEN PEACH APHID (*Myzus persicae*) - MICHIGAN - High populations of nymphs and adults built up rapidly on potatoes in area covering approximately 10 miles in each direction from Stanton, Montcalm County. Also suspected of being responsible for serious injury on muck crops including celery and lettuce in western part of Lower Peninsula; 20 acres of celery near Grant, Newaygo County, unsalable because of recent damage. (Beal, Guyer, Trocke).

APHIDS - COLORADO - Populations on late potatoes steadily increasing in Weld County; winged and wingless forms in most fields. Counts range 9-5,000 per 25 leaves. Numbers low or nonexistent in few remaining early planted fields. (Simpson). TEXAS - Light locally on cantaloup in Wichita County. (Turney). MARYLAND - Pentatrichopus sp. common on opening leaves of strawberry at Glendale, Prince Georges County. (U. Md., Ent. Dept.). NEW JERSEY - Alates of species which transmit strawberry virus diseases now active. (Ins.-Dis. Newsltr.).

FIELD CRICKETS (Gryllus spp.) - ARIZONA - Damaged young lettuce in Yuma County; some treatments required. (Ariz. Coop. Sur.). WISCONSIN - Reported feeding on tomato fruit in Richland County. (Wis. Ins. Sur.).

SPIDER MITES (Tetranychus spp.) - OKLAHOMA - Moderate on vegetables in Bryan County. (Okla. Coop. Sur.).

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#### WEATHER BUREAU'S 30-DAY OUTLOOK

MID-SEPTEMBER TO MID-OCTOBER 1964

The Weather Bureau's 30-day outlook for mid-September to mid-October calls for temperatures to average below seasonal normals over the eastern quarter of the Nation. Above normal temperatures are expected over the Plains, Rocky Mountains, and Plateau regions. Near normal values are called for in unspecified areas. Precipitation is expected to exceed normal over New England and along the South Atlantic Coast as well as over the Southern Plateau and the extreme Northwest. Subnormal precipitation is indicated for the Great Plains and the Mississippi and Tennessee Valleys as well as over California. Elsewhere near normal amounts are in prospect.

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

COTTON INSECTS

BOLLWORMS (Heliothis spp.) - CALIFORNIA - Continue very active in Fresno County; particularly abundant in southern portion of county. As infestations much easier to control when larvae small, growers should make frequent field inspections to time applications as accurately as possible. (Stromberg, Sept. 3). Poor control reported with various insecticides in Fresno, Tulare, Kings and Imperial Counties. Investigations underway in central valley and southern part of State to develop improved methods of control and reason for present difficulties with available materials. (Burton, Sept. 7). NEW MEXICO - Populations remain mostly light in Dona Ana County cotton; highest counts 2-6 percent infested bolls. (N.M. Coop. Rpt.). TEXAS - Light populations present in Deaf Smith, Childress, Lamar, Hamilton, Lubbock, Briscoe, Crosby, Swisher, Floyd, Cottle, Gaines, Hall, Garza and Motley Counties. Light to moderate infestations reported in north central area of State and moderate to heavy populations found in some fields in Midland, Reeves, Wilbarger, Collingsworth and Mitchell Counties. (Texas Coop. Rpt.). OKLAHOMA - Heavy infestations of 40-60 percent present in cotton in Osage and Choctaw Counties; moderate infestation of 9 percent reported in Tillman County and light in Bryan County. (Okla. Coop. Sur.). MISSOURI - Larvae ranged 0-40 and eggs 0-37 per 100 terminals in 69.6 percent of 644 fields scouted in south-east area; treatment applied to 3,170 acres in 120 fields. (Harrendorf, Jones). TENNESSEE - Continue to cause considerable damage over cotton-growing area; all larval stages present. Controls underway. Control extremely difficult at this time and will continue so throughout remainder of growing season. (Locke). LOUISIANA - Populations generally light, but heavy in few areas. (Tynes, Sept. 8). ALABAMA - Activity remains generally unchanged. (McQueen). SOUTH CAROLINA - Continue most important pests of cotton in some upper Piedmont counties. (Cott. Lett., Sept. 7).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Infestations increasing in Cayanosa area of Reeves County. (Rummel).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Scattered populations causing light damage to cotton in Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). LOUISIANA - Causing some foliage loss in some areas. (Tynes, Sept. 8). ALABAMA - Infestation extremely high with considerable amount of defoliation in one large field in Dallas County. (McQueen). SOUTH CAROLINA - Present in all counties, but apparently of little concern. (Cott. Lett., Sept. 7).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Light infestations appearing on cotton in areas of Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Light populations reported on cotton in Midland County. (Rummel).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Light on cotton in Graham, Maricopa and Pinal Counties. Migrations becoming more apparent. Few controls applied. Eggs and some larvae appearing in Yuma County. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Infestations continue light to moderate in Maricopa, Pinal and Pima Counties. Remains most important problem in Yuma County cotton. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Light to moderate populations building up in fields not desiccated in north central area; ranged light to moderate in Childress and Hamilton Counties. Light infestations reported in Lamar County. Boll weevil found in 200 fields above the Cap Rock in Briscoe, Floyd, Crosby, Dickens and Lubbock Counties. Below the Cap Rock, populations increasing in irrigated cotton and some dryland cotton that has received recent moisture. (Texas Coop. Rpt.). OKLAHOMA - Infestations heavy (35-80 percent) in Grady and Choctaw Counties; moderate (18-20 percent) in Tillman County; and light in Bryan



County. No punctured squares found in Osage County. (Okla. Coop. Sur.).

TENNESSEE - Dry weather taking toll of weevil larvae, especially where eggs laid in squares in western area; mortality much less where eggs laid in small bolls. Migration continues to north where adults found in succulent, rank fields. Square counts in heavily infested area of no value due to scarcity of squares. Migrating weevils will appear in previously uninfested counties, but very little damage expected this late in season. (Locke).

LOUISIANA - Weevils migrating; young bolls should be protected. Infestations high in some areas. (Tynes, Sept. 8).

ALABAMA - Heavy buildup, "hatchout" and over-lapping of generations continue. Heavier infestations now reported in northern section of State; 1-5 half-grown bolls selected in Henry, Lee and Dallas Counties contained 1-5 full-grown larvae and pupae. One to six weevils feeding on bolls; egg laying underway. (McQueen).

SOUTH CAROLINA - Weevils feeding generally in fields where crop not completely mature and not protected. Infestations remain below 10 percent in parts of upper Coastal Plains and most Piedmont counties where controls continue on 5-day interval. (Cott. Lett., Sept. 7).

APHIDS - CALIFORNIA - Populations reduced in Fresno County; however, as cooler weather becomes more common, populations could increase substantially, resulting in deposition of honeydew on lint of open bolls. Although problem not serious at present, close watch should be maintained as season progresses. (Stromberg, Sept. 3).

SOUTH CAROLINA - Not reported as serious problem in any cotton-growing county this season. (Cott. Lett., Sept. 7).

PLANT BUGS - ARIZONA - Populations apparently remain constant; damage to squares and small bolls still being found. Some control still required. (Ariz. Coop. Sur.).

MISSOURI - Adults and nymphs of several species ranged 1-21 per 100 terminals in 55 percent of 644 fields scouted in southeast. (Harrendorf, Jones).

TENNESSEE - Several species present in higher numbers than in several years in western area; of little significance at this time, however. Some severe damage resulted where no controls applied. (Locke).

SPIDER MITES - CALIFORNIA - High populations still found in cotton adjacent to dusty roads or weedy areas in Fresno County. Generally, populations not increasing as rapidly as during recent weeks. (Stromberg, Sept. 3).

MISSOURI - Infestations found in 3.7 percent of 644 fields scouted in southeast; no controls applied. (Harrendorf, Jones).

SOUTH CAROLINA - Populations partially suppressed by recent heavy rains. (Cott. Lett., Sept. 7).

#### FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - MARYLAND - Adults of Ips grandicollis collected July 20 from pines at Millersville, Anne Arundel County. (U. Md., Ent. Dept.).

ARKANSAS - Dendroctonus terebrans (black turpentine beetle) infestations about normal for season. Overly weakened trees with medium to large numbers in most areas of State. I. grandicollis and I. calligraphus in much larger numbers than usual; western area of State heaviest infested. I. avulsus responsible for most of primary attacks in Ips infestations. (Ark. For. Pest Rpt., Sept.).

TEXAS - D. frontalis (southern pine beetle) infestations in Hardin, Jasper, Liberty, Polk, San Augustine, San Jacinto and Tyler Counties. Most activity in same area was indicated last month, being in northerly portion of area involved. Unusual damage by D. terebrans in recently logged areas of Angelina, Houston, Jasper, San Augustine and Trinity Counties. Salvage in progress for infestations of I. avulsus, I. grandicollis and I. calligraphus over several hundred acres in Polk County. (Texas For. Pest Comm., Aug. Rpt.).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - IDAHO - Adults abundant. Adult emergence continuing and egg laying general in Latah County. (Gittins).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Populations at endemic levels this season. Egg mass survey showed no counts above normal in previously highly infested areas. (Minn. Ins. Rpt., Sept. 8).

A PINE TIP MOTH (Rhyacionia sp.) - NEBRASKA - Damaging pines in Box Butte County. (Bergman).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - GEORGIA - Light to moderate on oak and other trees in Atlanta area. (Blasingame, Ridley). NORTH CAROLINA - Larvae from oak locally in Gaston County. (Sproles, Robertson). ILLINOIS - Noticeably defoliating lower limbs and tips of branches on oaks north of Hanover in Jo Daviess County. (Ill. Ins. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Heavy populations in bark of Chinese elms in Yucaipa, San Bernardino County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW MEXICO - All stages light on Chinese lems at Corrales, Sandoval County. This is a new county record. (N.M. Coop. Rpt.). UTAH - Damage more common than normal in several areas of Salt Lake County and near Five Points, Weber County. (Knowlton). OKLAHOMA - Heavy in Mayes County. (Okla. Coop. Sur.). ARKANSAS - Activity heavy on Chinese elms. (Ark. For. Pest Rpt., Sept.).

AMERICAN DAGGER MOTH (Acronicta americana) - NEVADA - Medium to heavy damage to boxelder in Reno-Sparks area, Washoe County. (Cooney).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Heavy infestation in northwest corner of State. (Ark. For. Pest Rpt., Sept.). ILLINOIS - Nests quite common throughout State and abundant in localized areas. (Ill. Ins. Rpt.).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Damage to mimosa extremely heavy in Montgomery and Dallas Counties. (Harper et al.).

COCCIDS - DELAWARE - Lepidosaphes ulmi (oystershell scale) heavy on elm locally in New Castle County. (Bray). MARYLAND - L. ulmi infesting chestnut at Cumberland, Allegany County. Lecanium nigrofasciatum (terrapiin scale) infesting red maple at Hyattsville, Prince Georges County. (U. Md., Ent. Dept.). OHIO - Several infestations of Neolecanium cornuparvum (magnolia scale) on magnolias in northeast section. (Neiswander, Lyon). OKLAHOMA - Unaspis euonymi (euonymus scale) damaging euonymus in Perry, Noble County. (Okla. Coop. Sur.). NEW MEXICO - Gossyparia spuria (European elm scale) very heavy on elms near Corrales, Sandoval County. Forming almost a solid crust on small branches. (N. M. Coop. Rpt.). CALIFORNIA - Pseudococcus obscurus heavy on tuberous begonia nursery plants in San Bruno, San Mateo County. (Cal. Coop. Rpt.).

ROOT WEEVILS (Brachyrhinus spp.) - NEVADA - Adults heavy on lilac and privet in Reno, Washoe County. (Coop. Rpt.).

BROAD-NECKED ROOT BORER (Prionus laticollis) - RHODE ISLAND - Larvae caused death and toppling of crab apple tree in Richmond, Washington County. (Sorensen, Mathewson).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Notching lilac leaves in some areas and leaves of other shrubs in several areas of Salt Lake County. (Knowlton). MICHIGAN - Adults recently reported from Orleans for a new county record in Ionia County. (Schrauben).

AN ERIOPHYID MITE (Aceria boycei) - CALIFORNIA - Heavy on Ambrosia psilostachya in Arroyo Grande, San Luis Obispo County. (Cal. Coop. Rpt.).

A PLANT BUG (Heterotoma meriopterum) - CALIFORNIA - Two adults collected on hollyhock at Red Bluff, Tehama County, June 15, 1964, by E. L. Deitz. Det. by R. C. Froeschner. This is a new State record. (Cal. Coop. Rpt.).

APHIDS - MARYLAND - Probably Lachnus salignus numerous on weeping willow at Colesville, Montgomery County. (U. Md., Ent. Dept.). OKLAHOMA - Undetermined species heavy on ornamentals in Hugo, Choctaw County. (Okla. Coop. Sur.). UTAH - Pterocomma spp. extremely numerous on weeping and other willows in Holladay and other areas of Salt Lake County. (Knowlton, Burningham). Therioaphis tiliae numerous and injurious on lindens in areas of Cache, Box Elder and Salt Lake Counties. (Knowlton).

AZALEA CATERPILLAR (Datana major) - ALABAMA - Several heavy infestations on azaleas in Henry County. (Hartzog, Dennis).

#### INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Haematobia irritans) - WYOMING - With cooler weather, adults have decreased on livestock in Goshen County. Estimated 40-75 flies per animal. (Marks). OKLAHOMA - Moderate to heavy on cattle in McCurtain, Murray and Mayes Counties. (Okla. Coop. Sur.). ILLINOIS - Counts per animal during week of August 30-September 3 by district were as follows: West 10-50, southwest 25 and west-southwest 5-40. (Ill. Ins. Rpt.). GEORGIA - Counts of 6-400 (average 93) on one herd of cattle in Cobb County. (Vanderford).

TABANIDS - NORTH CAROLINA - Tabanus spp. of concern to producer of milk cartons in northeastern area. A few cartons found with flies embedded under plastic coating. (Falter, Mount). LOUISIANA - Horse flies alighting on mare at rate of 33.3 per minute in Cameron Parish. Counts per cow averaged 1.4 in St. Landry, 9.6 in Iberville and 1.4 in Acadia Parishes. (Tynes, Sept. 8). OKLAHOMA - Tabanus spp. heavy in Choctaw County. Averaged 1 per cow in McCurtain County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Counts per animal during week of August 30- September 3 by district were as follows: West 0.3, southwest 3 and west-southwest 1-4. (Ill. Ins. Rpt.). WISCONSIN - A nuisance, although normal in abundance. (Wis. Ins. Sur.). WYOMING - Occasional adults annoying to livestock in Goshen County. (Marks).

MOSQUITOES - WISCONSIN - Undetermined species fairly annoying in northeastern counties. (Wis. Ins. Sur.). OKLAHOMA - Large numbers of several species in Le Flore and Choctaw Counties. Numbers decreased in Payne County. (Okla. Coop. Sur.). TEXAS - The light trap for night of July 8-9 totaled 2,400 female and 200 male Aedes sollicitans. Flight lasted less than a week. Considerable Culex salinarius breeding in Sabine salt marshes on July 20. A total of 175 C. salinarius trapped in July 1964, whereas only 5 taken in 1963. C. erraticus becoming more numerous in rice fields. (Jefferson Co. Mosq. Cont. Distr., July).

SAND FLIES (Culicoides spp.) - WISCONSIN - A problem in Vilas County where they have been abundant for several weeks. (Wis. Ins. Sur.).

FACE FLY (Musca autumnalis) - ILLINOIS - Counts per animal during week of August 30 to September 3, by district, were as follows: West 1-5, southwest 1 and west-southwest 1-3. (Ill. Ins. Rpt.). MISSOURI - Counts per head of cattle averaged 2.6 in Boone County, 4.2 in Randolph County (G. D. Thomas) and 3.5 in St. Charles County (Houser, Thomas).

HOUSE FLY (Musca domestica) - WISCONSIN - Populations increased. (Wis. Ins. Sur.). OHIO - Moderate to heavy at several roadside parks in central area. People on picnics complain of fly annoyance. (Lyon).

SECONDARY SCREW-WORM (Cochliomyia macellaria) - SOUTH DAKOTA - Larvae feeding on open wounds of beef cattle in Meade County during week of July 25-31. Det. by G. Steyskal. (Hintz, Kantack).

SADDLEBACK CATERPILLAR (Sibine stimulea) - GEORGIA - Several reports of children being stung while handling larvae in Atlanta area. (Ridley).

TICKS - OKLAHOMA - Undetermined species heavy in Le Flore and McCurtain Counties. (Okla. Coop. Sur.).

A BLOODSUCKING CENOSE (Triatoma protracta) - CALIFORNIA - Medium populations in residence in Mojave, Kern County, and light in Valley Springs, Calaveras County. (Cal. Coop. Rpt.).

WASPS - MINNESOTA - Numerous inquiries from homeowners in Minneapolis-St. Paul area. Nests in house foundations and in ground. Painful stings to residents. (Minn. Ins. Rpt.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - OHIO - Complaints of these pests entering houses and other buildings in Columbus, Franklin County. (Jones). NORTH CAROLINA - Nymphs a nuisance around a Buncombe County home. (Palmer).

TERMITES (Reticulitermes spp.) - NORTH CAROLINA - R. flavipes (eastern subterranean termite) swarmed from heavily infested timbers in Orange County home, August 29. (Wray). MARYLAND - Reticulitermes sp. workers uncovered near foundations of homes in Dorchester and Prince Georges Counties. (U. Md., Ent. Dept.).

CRICKETS - WISCONSIN - Nuisance to householders in Sauk County. (Wis. Ins. Sur.).

GREATER WAX MOTH (Galleria mellonella) - CALIFORNIA - Medium infestation of larvae in building from bee colony located in building in Walnut Grove, Sacramento County. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Hippodamia convergens (convergent lady beetle) and Coleomegilla maculata fuscilabris in great numbers feeding on Rhopalosiphum maidis (corn leaf aphid) in late corn in Dallas County. Extremely large numbers of Olla abdominalis feeding on undetermined aphids on pecans in Henry County. (McQueen). NEW MEXICO - Undetermined species averaged 20-30 adults and larvae per 25 sweeps in Bernalillo County alfalfa fields. (N.M. Coop. Rpt.). WYOMING - Adults of several species averaged 32 per 100 sweeps in alfalfa fields of Goshen County. (Marks).

A WEEVIL (Apion fuscirostre) - CALIFORNIA - Heavy in Scotch broom seeds in Georgetown, El Dorado County, and Nevada City, Nevada County. (Cal. Coop. Rpt.).

DAMSEL BUGS (Nabis spp.) - WYOMING - Large populations of adults in alfalfa fields of Goshen County. Counts averaged 160 per 100 sweeps. (Marks). OHIO - Populations of N. ferus building up in forage fields throughout State. Seven bugs per 25 sweeps in alfalfa field in Franklin County. (Lyon).

LACEWINGS (Chrysopa spp.) - WYOMING - Adults averaged 20 and larvae 82 per 100 sweeps in alfalfa fields in Goshen County. (Marks). NEW MEXICO - Averaged 2-3 adults and 1-3 larvae per 25 sweeps in Sandoval County alfalfa fields. In Albuquerque area, Bernalillo County, average counts per 25 sweeps were 2-3 adults and 4-8 larvae. (N.M. Coop. Rpt.).

#### MISCELLANEOUS INSECTS

MOTTLED TORTOISE BEETLE (Deloyala guttata) - ALABAMA - Extremely heavy numbers, in combination with lesser numbers of Agroiconota bivittata, feeding on morning-glory in corn and cotton fields throughout Dallas County. (McQueen).

JAPANESE BEETLE (Popillia japonica) - OHIO - Larval counts in Washington, Columbiana, Gallia, Jefferson and Tuscarawas Counties lowest in years. Counts of 0-2 grubs per square foot in areas which yielded up to 25 per square foot in past years. Low rainfall apparently contributed to reduced larval populations. (Polivka).

PUMPKIN CATERPILLER (Diaphania indica) - FLORIDA - Adult collected in Steiner trap at Avon Park, Highlands County, September 9. (Morris).

A LICHEN BAGWORM (Zamopsyche commentella) - DELAWARE - Many bags of this rather rare species on elm trunk locally in Sussex County. Collected by E. Ralph. (Burbutis).

CLOUDED SULPHUR (Colias philodice) - ALABAMA - Adults migrating in a southeasterly direction throughout State. As many as 4 per 100 feet crossed highways during week. (McQueen).

AN EARTHWORM MITE (Fusuropoda agitans) - CALIFORNIA - Very heavy in earthworm beds in Madera, Madera County. (Cal. Coop. Rpt.).

#### INTERCEPTIONS

A BROWN SPIDER (Loxosceles reclusa) - WYOMING - Live specimen collected from furniture brought into Albany County from out of the State. Det. by F. A. Lawson. (Marks).

#### CORRECTIONS

CEIR 14(36):1021 - Aphids on Potatoes in Maine - Line 7: Acyrtosiphon solani should read Aphis nasturtii.

CEIR 14(29):790 and 14(30):834 - A CHALCID - MISSOURI - Has been determined Amblymerus sp. (Hymenoptera: Pteromalidae). Thought to be a parasite of a midge species developing in brome seed.



LIGHT TRAP COLLECTIONS

WISCONSIN	Temp., Date & Loc. & Station	Type of trap	Macro- insects	Micro- insects
Darien 9/9		BL	257	167
Delavan 9/8		BL	61	96
Fox Lake 9/7		BL		15
Arlington #1 9/9		BL		149
Arlington #2 9/1-9		BL	111	121
Madison 9/27-9		BL	41	94
Madison 9/9		BL		97
Beaumont 9/1-7		BL		145
Oakfield 9/1-7		BL	14	22
De Forest 9/1-7		BL		23
Eden 9/1-7		BL		26
Wayne 9/1-7		BL		17
Theresa 9/1-7		BL		20
Nanno 9/1-7		BL		26
Racine 9/1-7		BL	12	18
Conr. 8/26-31		BL		12
Cedar Grove 8/25-31		BL	4	54
				173
				19
				13
				11
				77
				5
				106
				75
				80
				256
				55
				45
				58
				81
				66
				18
				29
				84
				79

\* BL = blacklight; I = insecticide; MV = mercury vapor; O = other  
 \*\* alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn;  
 grain = small grains; leg. = legumes (unspecified); lett. = lettuce; peas. = peanut; pepp. = pepper; pot. = potato;  
 SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or dated);  
 tom. = tomato; veg. = vegetable.

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

No screw-worm cases reported from TEXAS or NEW MEXICO September 6-12. In ARIZONA, 15 cases reported: Cochise (8), Santa Cruz (5), Yavapai (1) and Pima (1) Counties. Mexico reported 241 cases in States of Veracruz (2), San Luis Potosi (2), Nuevo Leon (3), Chihuahua (74), Sonora (116), Zacatecas (4), Puebla (2), Durango (23), Tamaulipas (9) and Coahuila (6). Sterile screw-worm flies released: 19,769,850 in Texas, 600,000 in New Mexico, 7,146,000 in Arizona and 66,440,000 in Mexico,

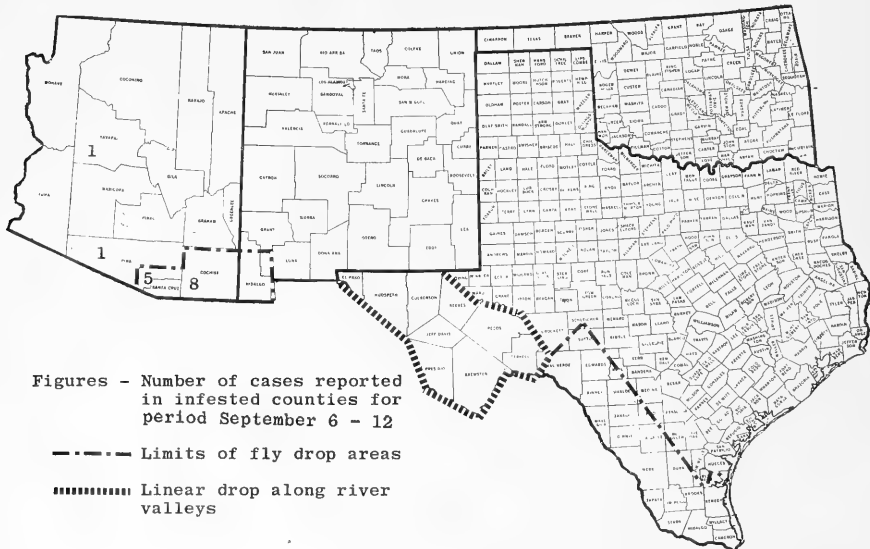
Table 1. Comparison of specimens reported during the corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.

Year	Positive Cases		Negative Cases*		Ratio of Positive Cases to 100 Cases Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	873	35,637	50	2,339	1,746.0	1,523.6
1963	140	2,783	82	4,868	170.7	57.2
1964	0	107	61	4,442	0.0	2.4

Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.\*\*\*

Year	Positive Cases		Negative Cases*		Ratio of Positive Cases to 100 Cases Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1963	212	2,717	15	1,009	1,413.3	269.3
1964	222	2,112	32	1,477	693.75	143.0

- \* The number of cases not screw-worm is an index of the efficiency of the reporting system.
- \*\* A comparison of the ratios of screw-worm cases with cases not screw-worm is an index of the change in number of screw-worm cases.
- \*\*\* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of a self-sustaining screw-worm population in the United States. (Anim. Dis. Erad. Div.).







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Hyattsville, Maryland 20781

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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

VELVETBEAN CATERPILLAR heaviest ever observed in Grand Bay area of Alabama; virtually all foliage stripped from 90 percent of soybeans in some fields. (p. 1081). WEBWORMS (*Loxostege* spp.) heavy on alfalfa in areas of Oklahoma. MEXICAN BEAN BEETLE extremely heavy on cowpeas and soybeans in Alabama. (p. 1082). PEA APHID heavy on alfalfa in Kings County, California, and increasing in same crop in areas of Arizona; populations continue high on regrowth alfalfa in Lower Michigan. (pp. 1082-1083). LYGUS BUGS variable on alfalfa in several areas of Nevada. THREE-CORNERED ALFALFA HOPPER remains heavy on alfalfa in nearly all areas of Arizona, with counts ranging 500-3,500 per 100 sweeps; damage heavy. (p. 1083). FALL ARMYWORM heavy on oats, early wheat, alfalfa and Bermuda grass in Oklahoma and damaging many native and improved pastures over eastern Texas. (p. 1084). CORN LEAF APHID heavy on corn in Swingle Bench, Nevada. (p. 1085).

FALL WEBWORM and BLACK PECAN APHID damaging pecans in Alabama. WESTERN GRAPE LEAF SKELETONIZER damage increased in some vineyards in Washington County, Utah. (p. 1086).

TOMATO FRUITWORM, BEET ARMYWORM and CABBAGE LOOPER infestations on lettuce in Arizona necessitated controls. (p. 1086). Adult and larval specimens of POTATO TUBERWORM taken in Monroe County potato fields; these are first collections for 1964. (p. 1087).

BOLLWORM counts extremely high in Dos Palos area of California; heavy populations continue to damage top crop in most cotton areas of Arizona; and infestations heavy on late, rank cotton in areas of Texas. CABBAGE LOOPER damaging cotton in areas of Arizona. (p. 1088).

HORN FLY heavy on livestock in eastern Oklahoma and on cattle in Bossier and East Feliciana Parishes, Louisiana. (p. 1091).

DETECTION

A PHORID FLY (*Paraspiniphora* sp.) recorded for the first time in Hawaii. (p. 1097). New county records included BLACK PECAN APHID (*Melanocallis caryae-foliae*) in Ventura County, California (p. 1086); and FACE FLY (*Musca autumnalis*) from Carbon, Stillwater, Rosebud and Phillips Counties, Montana. (p. 1089).

CORRECTIONS and ADDITIONAL NOTES

See pages 1093 and 1089, respectively.

SPECIAL REPORTS

Status of the Screw-worm in the United States. (p. 1096).

Hawaiian Insect Notes. (p. 1097).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 1098).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Alfalfa, Wheat, Grain Sorghum, Beef Cattle and Dairy Cows in Oklahoma, 1963. (pp. 1100-1102).

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Reports in this issue are for the week ending September 18, unless otherwise indicated.

WEATHER OF THE WEEK ENDING SEPTEMBER 21

Arctic air provided the first autumn chill of the season to much of the northern and central portions of the Nation. Gulf air furnished generous rains over the central and southern Great Plains and eastward to the Appalachians.

TEMPERATURE: Cold air poured across the United States-Canadian border most of the week. Subfreezing temperatures occurred along the northern border from Montana to New England on one or two mornings. Afternoon temperatures over most of the central and northern States ranged generally from 50° to 80°. Afternoon temperatures reached the 80's over the Western States and the Deep South and 90° or higher at a few southern locations, mostly in the southwestern deserts. Temperatures averaged above normal over central Montana, southern and western Texas, and along the Mississippi River from Davenport, Iowa, to Vicksburg, Mississippi, and below normal over most other areas. Temperatures averaged 9° or more below normal over much of New England and more than 6° below normal over western Kansas. Damaging frost occurred in many States from the northern Rocky Mountains to the northern Appalachians. Frost occurred above 7,000 feet in Arizona.

PRECIPITATION: Some generous rains fell over portions of the central and southern Great Plains from Tuesday to Thursday. Three-inch totals were common in Texas and 11 inches in Dimmit County caused extensive flooding on the Nueces River. Southwestern Arkansas received from 5 to 7 inches. The rains spread to the Ohio and Tennessee River Valleys on Friday. Most of the northern Great Plains, the Great Lakes region, and the Eastern States (except New England) received rain on Saturday. Weekly totals were generally less than 1 inch from the Pacific Ocean to the Rocky Mountains, over the northern Great Plains, from Alabama eastward to the Atlantic, and along the Atlantic from central Florida to New England. California, Nevada, eastern Montana, and western North Dakota received no rain or only light sprinkles. In contrast to the heavy rains left by hurricane Dora the previous week, northern Florida, central and southeastern Georgia, and nearby portions of South Carolina received no rain or only light showers during the week ending Sunday night, September 20. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

CORN EARWORM (Heliothis zea) - MARYLAND - Heavy on pods of soybeans in field near Salisbury, Wicomico County; controls necessary. Moths continue numerous in light traps in Queen Annes and Wicomico Counties. Larvae causing conspicuous injury to pods of cowpeas at Lexington Park, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Blacklight trap collections averaged 30 per night in Sussex County. (Burbutis, Bray). SOUTH CAROLINA - Disease important factor in reducing larval populations on soybeans as of September 15. Increase continued on soybeans in Allendale County (Sept. 9). (Nettles et al.). GEORGIA - Caused light to moderate feeding damage to pods of soybeans in northern part of State. (Johnson). ALABAMA - Infestation noted as rather high in late corn in Cherokee County. (Hollingsworth, Buttram, Young, et al.). LOUISIANA - Continued inspection for damage to young soybeans urged; damaging same crop in Waterproof area. (Newsom et al., Sept. 14). OKLAHOMA - Moderate in peanuts in Marshall County and in sorghum in Garfield County. (Okla. Coop. Sur.). MISSOURI - Larvae averaged 4-5 per 10 sweeps in Stone County alfalfa. Heads of grain sorghum 70-90 percent infested with 1-3 larvae per head in Newton and Barton Counties. Larvae continued to cause heavy damage to pods of soybeans in some fields in southeast, but damage completed in most fields. (Harrendorf, Jones). KANSAS - Caused slight feeding damage to seedling alfalfa in Pottawatomie County. (Peters). OHIO - Larvae moderate to heavy on late sweet corn in Wooster, Wayne County; 16 of 20 ears were infested in one survey count. Blacklight trap collections indicate increased adult flights. (Lyon). MICHIGAN - Adult flights low since evening of September 10 when killing frosts occurred over State. (Dowdy). UTAH - Infestations heavy and general in Iron County. (Knowlton, Sjoblom). NEVADA - Light to medium in corn ears in Fallon and Swingle Bench, Churchill County. (Cooney).

GREEN CLOVERWORM (Plathypena scabra) - MISSOURI - Larvae averaged 1-3 per 10 sweeps on soybeans and alfalfa in southwest. (Houser, Thomas). MICHIGAN - Second and third-stage larvae, probably this species, averaged 13 per 25 sweeps in Ottawa County alfalfa. (Newman).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - LOUISIANA - Medium on soybeans in Red River and West Baton Rouge Parishes. (Newsom et al., Sept. 14). ALABAMA - Infestations heaviest ever observed in area near Grand Bay, Mobile County; causing considerable concern on more than 20 farms. Virtually all foliage stripped from 90 percent of soybeans in 8 fields, despite repeated spray programs with several different insecticides. Heavy moth flight observed in field of soybeans in another part of same county; Heliothis zea (corn earworm) adults also abundant in same field. (Fairley, Seibels). FLORIDA - Few larvae noted on unsprayed soybeans at Gainesville, Alachua County. (Mead). GEORGIA - Caused light to moderate defoliation of soybeans in northern area. (Johnson). SOUTH CAROLINA - Disease was important in reducing larvae on soybeans in some areas. As of September 9, very few present on soybeans in Allendale County; increased on soybeans in Lexington County where close check urged. Population pressure on young soybeans should increase appreciably in Charleston area after September 15. (Nettles et al.).

ALFALFA CATERPILLAR (Colias eurytheme) - OHIO - Larvae and adults noted in many fields of alfalfa throughout southwest; all larval stages present and adults still laying eggs. (Lyon). NEBRASKA - Adult activity noted in southeast area alfalfa; larvae averaged less than 1 per 10 sweeps. (Bergman). WYOMING - Small numbers of adults and larvae active in Fremont County alfalfa; larvae averaged 10 per 100 sweeps. (Marks).

BEE TARMYWORM (Spodoptera exigua) - TEXAS - Ranged 5-10 per 5 sweeps on alfalfa in Burtleson County. (Randolph).

DINGY CUTWORM (Feltia subgothica) - MICHIGAN - Very heavy flights of this species and closely related species indicated by blacklight collections on nights sufficiently warm for moth activity. (Snow, Newman). MARYLAND - Moth flights heavy at Delmar, Wicomico County. (U. Md., Ent. Dept.).

CABBAGE LOOPER (*Trichoplusia ni*) - OKLAHOMA - Heavy on soybeans in Sequoyah County. (Okla. Coop. Sur.). SOUTH CAROLINA - Fungus and bacterial disease all but eliminated larvae in most soybean fields in Allendale County; large numbers present in these fields in early September. (Nettles et al., Sept. 15).

LOOPERS - SOUTH CAROLINA - Disease important factor in control on soybeans. (Nettles et al., Sept. 15). GEORGIA - *Trichoplusia* sp. caused light defoliation of soybeans in northern portion of State. (Johnson). LOUISIANA - Populations partially controlled on soybeans by fungus diseases in many fields. Damaging soybeans in Waterproof area, and in Red River Parish. (Newsom et al.). Sept. 14). KANSAS - *Caenurgina erechtea* (forage looper) caused some slight feeding injury to seedling alfalfa in Pottawatomie County. (Peters).

RED-NECKED PEANUTWORM (*Stegasta bosqueella*) - OKLAHOMA - Moderate in peanuts in Lincoln and Marshall Counties. (Okla. Coop. Sur.). NEW MEXICO - Damage to terminals, possibly by this species, evident in most fields of peanuts in Roosevelt County. Infestations mostly light, but appeared general in distribution. (N.M. Coop. Rpt.).

WEBWORMS (*Loxostege* spp.) - OKLAHOMA - Moderate to heavy on alfalfa in Payne, Garfield and McIntosh Counties; light in Tillman County. (Okla. Coop. Sur.). KANSAS - Causing slight feeding damage to seedling alfalfa in Pottawatomie County. (Peters). MISSOURI - *L. similalis* (garden webworm) larvae averaged 6-7 per 10 sweeps in Stone County, 4-6 in Jasper and 5 in Barton Counties. (Houser, Thomas).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Larvae extremely heavy on cowpeas and soybeans in Baldwin, Mobile, Morgan, Cherokee and other counties. (Buttram, Rutledge, et al.). FLORIDA - Larvae, pupae and adults common on unsprayed soybeans at Gainesville, Alachua County; damage occurring. (Mead). GEORGIA - Lightly defoliated soybeans in northern area. (Johnson). SOUTH CAROLINA - No change noted on soybeans in Williamsburg County as of September 9. Increase noted on soybeans in Lexington County; close check urged. (Nettles et al., Sept. 15).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - NEVADA - Adults averaged 2 per sweep in alfalfa in Fallon, Churchill County. (Cooney). NEBRASKA - Adults averaged 3 per 10 sweeps in alfalfa in Otoe County. (Bergman).

COWPEA CURCULIO (*Chalcomermus aeneus*) - MARYLAND - Larvae light on cowpeas at Lexington Park, St. Marys County. (U. Md., Ent. Dept.).

NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) - OHIO - Adults heavy in alfalfa in Miami, Darke and Preble Counties; highest count, 128 per 25 sweeps in Miami County. (Lyon).

PEA APHID (*Acyrtosiphon pisum*) - MICHIGAN - Adult and nymphal populations continue high on regrowth alfalfa in Lower Peninsula; 16-30 per sweep collected in Ottawa County fields. WISCONSIN - Generally low in Wood, Portage, Waupaca, Winnebago, Outagamie, Dodge, Sheboygan, Manitowoc and Iowa Counties; counts ranged 3-25 per sweep. Numbers higher in few isolated fields; more than 50 percent of aphids parasitized and/or diseased. Examination of specimens as far north as Wausau, Marathon County, showed all to be viviparous forms. (Wis. Ins. Sur.). NEBRASKA - Very light; averaged 3 per 10 sweeps in Otoe and Cass Counties. (Bergman). WYOMING - Declined slightly on alfalfa in Fremont County; averaged 225 adults and nymphs per 100 sweeps. (Marks). UTAH - Becoming more numerous on succulent alfalfa in some Weber and Davis County fields. (Knowlton). ARIZONA - Increasing slowly in alfalfa in Graham and Maricopa Counties; averaged 400 per 100 sweeps. (Ariz. Coop. Sur.). NEVADA - Populations low in alfalfa in Churchill, Douglas, Lyon and Pershing Counties; averaged less than 4 per sweep. (Cooney). CALIFORNIA - Nymphs and adults heavy on alfalfa in Lemoore area, Kings County. (Cal. Coop. Rpt.). WASHINGTON - Averaged less than 4 per sweep (10 percent alates) on forage alfalfa in Yakima and vicinity on September 3; ranged 15-20 per sweep, with no alates noted, on forage alfalfa 16-24 inches high in



same area on September 11. Ranged 10-15 per sweep on forage alfalfa at Mabton, Yakima County, and averaged 10 per sweep (with maximum of over 200 per sweep) on same crop at Pasco, Franklin County. Averaged less than 1 per sweep at Walla Walla. (Halfhill, Featherston, Turner).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Light to moderate on alfalfa near La Mesilla and San Pedro, Rio Arriba County. (N.M. Coop. Rpt.). OKLAHOMA - Light, 30 per 10 sweeps, on alfalfa in Garfield County. (Okla. Coop. Sur.). MISSOURI - Counts very low in alfalfa in southwest; ranged 0-10 per 10 sweeps, averaged 2. (Houser, Thomas). SOUTH DAKOTA - Averaged 185 per 100 sweeps in Union County. (Hintz). WISCONSIN - Populations very low in fields near Arena and Mazomanie. Counts seldom exceeded 1 per sweep September 18; rain at that time may have been a factor. Alates still common, although sexual forms still absent. (Wis. Ins. Sur.).

PLANT BUGS - WYOMING - *Adelphocoris lineolatus* (alfalfa plant bug) averaged 28 adults and nymphs per 100 sweeps in alfalfa in Fremont County. (Marks). NEBRASKA - *Lygus lineolaris* (tarnished plant bug) adults averaged 4 per 10 sweeps in southeastern area alfalfa. *A. rapidus* (rapid plant bug) adults averaged 6 and nymphs averaged 5 per 10 sweeps in alfalfa in same area. (Bergman). MICHIGAN - *L. lineolaris* averaged 18 adults per 25 sweeps in Ottawa County alfalfa. (Newman). OHIO - *A. rapidus* common on alfalfa in Preble County; averaged 10 adults per 25 sweeps. (Lyon).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Populations variable in alfalfa in Churchill, Douglas, Lyon and Pershing Counties; ranged 1-35 per sweep. Heaviest average populations noted in Churchill County. (Cooney). WYOMING - Adults and nymphs averaged 24 per 100 sweeps in Fremont County alfalfa. (Marks).

STINK BUGS - MISSOURI - Adults and nymphs of *Acrosternum hilare* (green stink bug) building up on soybeans in southwest; counts (90 percent nymphs) ranged 10-50 per 10 sweeps in fields where beans fully developed but not hardened; very light in fields just setting pods. Adults of *Thyanta custator* ranged 0-5 per 10 sweeps in fields having high *A. hilare* counts. (Houser, Thomas). LOUISIANA - Unspecified species low on soybeans in St. Landry Parish. (Newsom et al., Sept. 14). SOUTH CAROLINA - Several species increased on soybeans in several areas September 15, and some buildup on same crop noted in Barnwell County September 12. Continued to increase on soybeans in Allendale County September 9. (Nettles et al.). NORTH CAROLINA - *A. hilare* and *Euschistus servus* (brown stink bug) averaged 1 per 10 feet of row in 12 fields of soybeans in Pender and Sampson Counties. (Mount).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Nymphs and adults remain common in some alfalfa in southern area. (Wis. Ins. Sur.). OHIO - Light populations observed in forage fields throughout southwest. (Lyon).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - CALIFORNIA - Medium on alfalfa in Hanford, Kings County. (Cal. Coop. Rpt.). ARIZONA - Remains heavy on alfalfa in nearly all areas. Ranged 500-3,500 per 100 sweeps; damage heavy in Yuma, Maricopa and Graham Counties. (Ariz. Coop. Sur.). TEXAS - Ranged 10-20 per 5 sweeps in Burleson County alfalfa. (Randolph). FLORIDA - Light infestation noted on unsprayed soybeans in Gainesville, Alachua County. (Mead).

SPIDER MITES - MARYLAND - Infesting cowpeas at Lexington Park, St. Marys County. (U. Md., Ent. Dept.). NEW MEXICO - Severely damaged peanut foliage in several fields near Portales, Roosevelt County. Populations so heavy in one field that leaves dried and dropped, leaving only stems. Infested fields treated. (N.M. Coop. Rpt.). NEVADA - Heavy on corn in Fallon and Swingle Bench, Churchill County, and in Lovelock, Pershing County. (Cooney). UTAH - *Tetranychus* spp. caused light damage to corn in Iron County. (Knowlton, Sjoblom).

GRASSHOPPERS - MONTANA - Adult survey indicated economic infestations on over 3 million acres. Damage minimized due to excellent grazing conditions. Melanoplus sanguinipes (migratory grasshopper) usually abundant in many scattered sections of State. Some barrow pits contained over 200 per square yard in Dawson County after hayfields cut. Heavy counts of M. differentialis (differential grasshopper) noted in irrigated sections of Dawson and Richland Counties. Some movement into sugar beet fields occurred; possible light damage may occur. Two heavy infestations of M. bruneri noted in Madison and Chouteau Counties; in both areas this species heavy in 1962 and very light in 1963. Damage to range grass extremely heavy but both areas rather small. (PPC, West. Reg., Aug. Rpt.). SOUTH DAKOTA - Threatening rangeland populations present on 37,660 acres of private and State lands and 1,040 acres of forest lands. No threatening infestations noted on Indian lands. (Hintz). NEBRASKA - Grasshoppers moderate on rangeland in Pine Ridge area of Dawes, Sheridan and Sioux Counties, and Wildcat and South Hills area of Banner, Morrill and Scotts Bluff Counties; Ageneotettix deorum, Aulocara elliotti and Trachyrhachys kiowa dominant species. Cropland infestations scattered; largest is north of Niobrara River from Cherry County east to Knox County; M. femurrubrum, M. bivittatus (two-striped grasshopper) and M. differentialis dominant. Other lightly infested crop areas present from Lancaster County to Otoe County and in Thurston County; M. femurrubrum dominant species. No particular species dominant in area from Webster County to Kearney County. General overall population and infested area below those of 1963. Parasites and predators moderate; mostly blister beetles and sarcophagid flies. (Bell). MINNESOTA - Egg laying well underway in southwest; M. femurrubrum and M. differentialis laying eggs and M. bivittatus nearly complete; latter species disappearing from district. M. differentialis infected with fungus disease in occasional field; M. femurrubrum appears not to be infected with fungus. Some egg laying occurring in corn, especially by M. differentialis. (Minn. Ins. Rpt.). WISCONSIN - Mating and oviposition by M. femurrubrum continues. Some feeding on corn persists, although few noted in alfalfa. Concentrations along roadsides common. Most M. differentialis females contain eggs. (Wis. Ins. Sur.). OHIO - Populations lower than those present in 1963; however, more species present and distribution wider this season. (Lyon). MISSOURI - Melanoplus spp. adult populations decreased in southwest area. Counts ranged 1-7 per square yard in pastures, alfalfa and soybeans in Stone, Barry, McDonald, Newton, Jasper, Barton and Vernon Counties. Many being killed by disease. M. femurrubrum (red-legged grasshopper) and M. sanguinipes dominant species. (Houser, Thomas). ARKANSAS - Grasshoppers, mainly M. femurrubrum and a band-winged species, lightly damaged new seeding of brome grass in Washington County. (Ark. Ins. Sur.). ALABAMA - Locally heavy population of M. femurrubrum causing considerable damage to 4-acre field of Coastal Bermuda grass in Monroe County. (Lemmons). FLORIDA - Unspecified species causing some feeding damage to leaves of unsprayed soybeans at Gainesville, Alachua County. (Mead).

FIELD CRICKETS - MINNESOTA - Unspecified species present in moderate numbers in ditches and roadsides in southwest district; light numbers found in alfalfa. (Minn. Ins. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - KANSAS - Severely damaged newly seeded rye for fall pasture in Cherokee County. (Gates). Slight damage to seedling alfalfa noted in Pottawatomie County. (Peters). OKLAHOMA - Heavy in oats and alfalfa in Le Flore County, early wheat in Sequoyah County and alfalfa and Bermuda grass in Choctaw County; light in sorghum in Garfield County. (Okla. Coop. Sur.). TEXAS - Damage ranging light to severe observed in many native and improved pastures over eastern part of State during past few weeks in Cass, Hopkins, Gregg, Camp, Wood, Marion, Upshur, Madison, Rusk, Newton, Sabine, Titus and Morris Counties. (Texas Coop. Rpt.). LOUISIANA - Light to medium on pastures in Bossier, Red River, East Feliciana and Caddo Parishes. (Newsom et al., Sept. 14). ALABAMA - Infestation high in late corn in Cherokee County. (Hollingsworth, Buttram, Young, et al.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - Infestation ranged 30-90 percent in corn surveyed in Cass and Otoe Counties; larvae ranged second to fifth stage. (Bergman). NORTH DAKOTA - Percent pupation and emergence, respectively, were 8 and 50 at Cavalier, and 6 and 33.3 at Bottineau. (Frye). MICHIGAN - Very low numbers taken in blacklight traps recently. (Snow, Newman). OHIO - Larval populations vary considerably from field to field in southwest; ranged 0-9 per stalk. Most larvae in fifth stage, with few emerged or in third and fourth stages. Several parasitized larvae noted. (Barry, Lyon). DELAWARE - Averaged 25 adults per night in blacklight trap collections in Sussex County. (Burbutis, Bray). ALABAMA - Infestation heavy in late roasting-ear corn in Morgan and Cherokee Counties. (Hollingsworth, Buttram, Young, et al.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - LOUISIANA - Damaged millet in De Soto Parish. (Newsom et al., Sept. 14).

CORN ROOTWORMS (Diabrotica spp.) - SOUTH DAKOTA - Noted in late maturing corn in Brookings County; averaged 4-6 adults per plant. Approximately 45 percent of population D. virgifera (western corn rootworm); D. longicornis (northern corn rootworm) comprised remainder of population. Occasional adult D. undecimpunctata howardi (southern corn rootworm) observed in these fields. (Post, Howe).

DUSKY SAP BEETLE (Carpophilus lugubris) - OREGON - Larger numbers than usual noted on ears of sweet corn in The Dalles, Wasco County. Det. by M. Hatch. (Larson).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Heavy in late sorghum in Garfield County; averaged 500 per plant. (Okla. Coop. Sur.). NEVADA - Heavy on corn in Swingle Bench, Churchill County. (Cooney).

SORGHUM MIDGE (Contarinia sorghicola) - OKLAHOMA - Moderate to heavy populations damaging sorghum in Garfield County. (Okla. Coop. Sur.). ARIZONA - Light on Johnson grass adjacent to sorghum in areas of Graham County. (Ariz. Coop. Sur.).

RHODES-GRASS SCALE (Antonina graminis) - FLORIDA - Moderate on Johnson grass at Bevins Arm, Alachua County. (Fla. Coop. Sur.). TEXAS - Damaging Saint Augustine grass lawns in Comal County. (Brumblelow).

A SPITTLEBUG - SOUTH CAROLINA - Very severe on well-fertilized Coastal and common Bermuda grass; dead spots noted. Heavy where grass not growing properly. This is first damage observed in Anderson County. (Nettles et al., Sept. 15).

#### FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - Apples at packing sheds in Espanola less than 1-15 percent "wormy". No "wormy" fruit found at Rancho de La Canada above Penablanca, Sandoval County. Improperly treated orchards near Fort Sumner, De Baca County, will have heavy losses. (N.M. Coop. Rpt.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Six adults emerged from 25 research trees in Oceana County week ending September 10. (Howitt).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Heavy on apple trees in some areas of Rio Arriba and Santa Fe Counties. (N.M. Coop. Rpt.).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Adults still present but markedly reduced during recent cool weather in Ingham County. (Howitt, Conrad, Newman).

PEAR-SLUG (Caliroa cerasi) - COLORADO - This species and complex of mites causing considerable browning of cherry leaves in Larimer County. (Jenkins).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Defoliating pecans in several locations in Mobile County. Light on pecans and sweetgum in Morgan, Cherokee and other northern counties. (Seibels, Rutledge, Patterson). OKLAHOMA - Ranged light to moderate on pecan in Tulsa, Washington, Ottawa and Mayes Counties. (Okla. Coop. Sur.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - CALIFORNIA - Light on pecan in Fillmore, Ventura County. This is a new county record. (Cal. Coop. Rpt.). ALABAMA - Extremely heavy and damaging pecan in Baldwin and Mobile Counties. (Buttram, Seibels).

A SCARAB (Cotinis texana) - CALIFORNIA - Adults have been heavy on ripening figs in Vista area of San Diego County. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Total of 22 marked, sterile flies recovered in San Diego County during period September 12-18. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Four light infestations discovered in Nuevo Leon; surveys conducted in 6 municipios of State. All infestations sprayed. Biological Control Zone - Total of 14,252 citrus trees on 44 properties in State of Tamaulipas inspected; 676 trees found infested on 10 properties. Total of 388,700 specimens of Prosopaltella opulenta (a eulophid) captured in State of Tamaulipas for release in other areas; 364,800 P. opulenta received at San Luis Potosi for liberation in other areas. Heavy blackfly infestation persists in Territory of Quintana Roo. Populations of P. opulenta building up in some groves. Some heavy infestations in State of Yucatan; liberation of parasites underway. (PPC, Mex. Reg., Aug. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - Damage increased conspicuously in some Washington County vineyards during past 10 days. (Huber, Knowlton, Sept. 14).

GRAPE BERRY MOTH (Paralobesia viteana) - UTAH - Damage in Hurricane area, Washington County, more severe than normal. (Knowlton, Huber, Sept. 14).

WALNUT SPHINX (Cressonia juglandis) - OKLAHOMA - Larvae damaged grapevines in Mayes County. (Okla. Coop. Sur.).

MITES - WASHINGTON - All stages of Tetranychus mcDanieli on grapes; causing heavy leaf injury to tips of shoots and deformed new leaves; 12-18 inches of tips heavily damaged and stunted in Grandview-Sunnyside area, Yakima County. Infestation less on mature foliage. This is first record on this species on grapes according to Dr. E. W. Baker. (Cone). COLORADO - Tetranychus spp., Bryobia rubrioculus and eriophyid species causing considerable browning of cherry leaves in Larimer County; condition aggravated by drought. (Jenkins). ALABAMA - Tetranychus spp. extremely heavy and damaging pecan trees in Baldwin and Mobile Counties. (Buttram, Seibels).

#### TRUCK CROP INSECTS

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Medium to heavy on lettuce in Cochise and Maricopa Counties; controls necessary. (Ariz. Coop. Sur.). DELAWARE - Larvae numerous on late snap beans throughout Sussex County; caused considerable injury to beans. (Burbutis, Bray).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - DELAWARE - Averaged 15 adults per night in Sussex County blacklight trap collections. (Burbutis, Bray). MICHIGAN - Larvae caused slight damage to greenhouse tomatoes in Wooster, Wayne County. (Rings).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light to medium in lettuce fields in Cochise and Maricopa Counties; controls necessary in some areas. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Infestations scattered on lettuce in Cochise and Maricopa Counties; some control necessary. (Ariz. Coop. Sur.).

A CUTWORM - MARYLAND - Undetermined species caused moderate damage to sweetpotato roots near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ALABAMA - Small larvae entering and feeding on pimento peppers in Cullman, Marshall and other northern counties. One field in Cullman County 50 percent infested. (Hollingsworth, Buttram, Young, et al.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Positive determination made of adult and larval specimens taken from 3 Monroe County potato fields on September 14. This is first record for State in 1964. Relatively light population believed to have built up from few infested tubers from local storage in area near Erie; because of low insect numbers and lush plant growth, infestation probably went through 2 or more generations undetected. Field treated soon after discovery. (Proctor, Wells, Newman, Laser, Janes). LOUISIANA - Damaged potatoes in field in Livingston Parish. (Newsom et al., Sept. 14). UTAH - Noted in few potato tubers harvested in Beryl area, Iron County. (Sjoblom, Knowlton).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Larvae and adults extremely heavy on lima beans and other crops in Baldwin, Mobile, Morgan, Cherokee and other counties. Outbreaks occurring in home gardens where beans untreated. (Buttram, Rutledge, et al.).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - This species strongly suspected of causing considerable damage to one-half acre of sweetpotatoes near Warsaw, Duplin County. Most damage old, but large larvae found near each of 4 fresh holes. Penetrations up to one inch not uncommon. Field in cultivation for second year after having been in weeds and grass for several years. Damage to sweetpotatoes occurred despite use of recommended insecticides. (Mount).

STRAWBERRY CROWN BORER (Tyloderma fragaefolii) - MINNESOTA - Found in new commercial strawberry planting in Sherburne County; damage very evident and of considerable concern to grower. (Minn. Ins. Rpt.).

A STRIPED BLISTER BEETLE (Epicauta sp.) - OKLAHOMA - Heavy and damaging radishes in Mayes County. (Okla. Coop. Sur.).

ROSE STEM GIRDLER (Agrilus rubicola) - UTAH - Damaged raspberry canes at Morgan, Morgan County. (Call, Knowlton, Sept. 14).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Increasing slowly on potatoes, sugar beets and other crops after hot period in August in eastern area. (Landis). MICHIGAN - Adult and nymphal population markedly reduced in Ottawa County celery. (Vanklompberg, Newman).

RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) - WISCONSIN - Heavy feeding noted on snap beans in Waushara County. (Wis. Ins. Sur.).

FIELD CRICKETS (Gryllus spp.) - ARIZONA - Caused moderate damage to okra in area of Wellton, Yuma County; preventive controls underway on young lettuce in Yuma Valley. Problem in Pinal County areas, particularly in homes and business establishments. (Ariz. Coop. Sur.).

## COTTON INSECTS

**BOLLWORMS** (*Heliothis* spp.) - CALIFORNIA - Ranged 2-4 per 100 cotton plants in Shafter area of Kern County. In Dos Palos area of Fresno County, extremely high counts of 20-70 per 100 plants noted in some fields; eggs and all larval stages present. (Leigh, Sept. 11). ARIZONA - Heavy populations continue to damage top crop in most cotton areas. Counts run as high as 12 per plant in heavily infested fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). TEXAS - Infestations heavy on late, rank cotton in Brazos, Burleson, Grimes and Robertson Counties; large increase in egg counts reported from Pecos County. Infestations on high plains apparently decreasing in most areas, with only light infestations present. (Texas Coop. Rpt.). OKLAHOMA - Heavy in Choctaw County cotton; moderate (7-9 percent infestation) in Tillman, Cotton and Sequoyah Counties; light on Bryan County cotton. (Okla. Coop. Sur.). LOUISIANA - Decreasing in St. Joseph area, Tensas Parish; continue present in Shreveport area, Caddo Parish. (Newsom et al., Sept. 14). GEORGIA - Infestations light in bolls in northern area cotton. (Johnson).

**CABBAGE LOOPER** (*Trichoplusia ni*) - CALIFORNIA - Moderate to high populations defoliating some fields of cotton in Shafter area, Kern County. (Leigh, Sept. 11). ARIZONA - Scattered, heavy populations damaging cotton in Maricopa, Pinal, Pima, Cochise and Yuma Counties. (Ariz. Coop. Sur.). OKLAHOMA - Moderate in cotton in Choctaw County. (Okla. Coop. Sur.). LOUISIANA - Infestations increasing, but virus and fungus diseases aiding in reducing numbers. (Newsom et al., Sept. 14). ALABAMA - Considerable infestation reported in younger cotton in Morgan, Cherokee and other northern counties. (Rutledge, Young, et al.).

**BEE T ARMYWORM** (*Spodoptera exigua*) - CALIFORNIA - Moderate on cotton in Dos Palos area, Fresno County. Some activity noted on cotton in Shafter area, Kern County, but populations not yet economic. (Leigh, Sept. 11). TEXAS - Reported light and scattered on late cotton in Robertson County. (Cole). LOUISIANA - Very light in St. Joseph area of Tensas Parish and in Shreveport area of Caddo Parish. (Newsom et al., Sept. 14).

**SALT-MARSH CATERPILLAR** (*Estigmene acrea*) - ARIZONA - Populations increasing, but remain light to moderate, in Graham, Cochise, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

**COTTON LEAFWORM** (*Alabama argillacea*) - ARKANSAS - Larvae present on some small plots on university farm near Fayetteville. (Ark. Ins. Sur.). LOUISIANA - Light on cotton in Red River Parish. (Newsom et al., Sept. 14). ALABAMA - Defoliated field of cotton near Dawes, Mobile County. (Bolton, Wallace, Boswell, Seibels).

**COTTON LEAF PERFORATOR** (*Bucculatrix thurberiella*) - ARIZONA - Becoming widespread and increasing slowly on cotton in Yuma, Maricopa and Pinal Counties; reported heavy in Horn area of Yuma County. (Ariz. Coop. Sur.).

**COTTON SQUARE BORER** (*Strymon melinus*) - ARIZONA - Light larval population noted on cotton in Wellton area of Yuma County. (Ariz. Coop. Sur.).

**FALL ARMYWORM** (*Laphygma frugiperda*) - ARIZONA - Heavy populations causing some damage to few cotton fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

**A LEAF ROLLER MOTH** (*Platynota stultana*) - CALIFORNIA - Larvae moderately abundant in some cotton fields in Shafter area, Kern County. (Leigh, Sept. 11).

**BOLL WEEVIL** (*Anthonomus grandis*) - TEXAS - Infestations in high plains area of western portion of State remain about as reported previous week (see CEIR 14(38): 1070) with some migration still taking place. Moderate to heavy populations reported in Van Zandt and Hale Counties; light infestations noted in Denton, Hamilton, Fannin and Lamar Counties. (Texas Coop. Rpt.). OKLAHOMA - Infestations

moderate in Cotton and Tillman Counties; ranged 16-22 percent. (Okla. Coop. Sur.). LOUISIANA - Infestations decreasing in St. Joseph and Shreveport areas. (Newsom et al., Sept. 14). ALABAMA - Full-grown larvae and light pupation noted in top young bolls on 4 farms examined in Morgan County; very little damage to yield could be attributed to weevil infestation on these farms. Presence of full-grown larvae, pupae and adults would indicate sufficient numbers of weevils for hibernation throughout this area of State, where no serious damage occurred during 1964 growing season. Considerable number of weevils appearing throughout much of Cherokee County, where fall populations will be high. (McQueen). GEORGIA - No square counts made due to scarcity of squares; infestations heavy on immature bolls in some fields. (Johnson).

A WEEVIL (Anthonomus sp.) - ARIZONA - Extremely heavy infestation found in field of cotton north of Hyder in Yuma County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus sp.) - CALIFORNIA - Populations moderate in Shafter, Five Points and Dos Palos areas; feeding on top squares and small bolls. Although late in season, controls may be necessary in some fields to protect small, developing bolls. (Leigh, Sept. 11).

STINK BUGS - CALIFORNIA - Moving from alfalfa seed fields to cotton in Firebaugh area of Fresno County. (Leigh, Sept. 11).

APHIDS - CALIFORNIA - Present in cotton throughout Kern County; severe in some fields in Shafter area. Controls should be applied in severely infested fields. (Leigh, Sept. 11).

SPIDER MITES - GEORGIA - Infestations ranged light to moderate on cotton in northern area of State. (Johnson).

#### ADDITIONAL NOTES

MONTANA - HESSIAN FLY (Phytophaga destructor) appeared in 14 counties in 1964 but caused only heavy damage in a few hundred acres of wheat. WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) infested home in Edgar, Carbon County, and apartment in Billings, Yellowstone County. CLOVER MITE (Bryobia praetiosa) entered homes in many parts of State. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) entered homes in Missoula, Thompson Falls and Deer Lodge and was a general garden pest in Missoula. FACE FLY (Musca autumnalis): New records include Carbon, Stillwater, Rosebud and Phillips Counties. BUMBLE FLOWER BEETLE (Euphoria inda) damaged corn in Yellowstone, Carbon and Big Horn Counties; also noted feeding on willow sap flow in Great Falls, Cascade County. ROSE CHAFER (Marcodactylus subspinosus) was severe pest in Custer County. DRUGSTORE BEETLE (Stegobium paniceum) was a household nuisance in Missoula. Adults and larvae of POTATO FLEA BEETLE (Epitrix cucumeris) noted in Gallatin Valley. Alarming numbers of EUROPEAN CORN BORER (Ostrinia nubilalis) noted in irrigated area of Dawson County. (R. Pratt, Sept. 14).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A BARK BEETLE (Pityophthorus idoneus) - OREGON - Damaged branches of Douglas-fir in Marion and Douglas Counties. Det. by S. L. Wood. (Pearson, Goeden, Aug. 29).

HAG MOTH (Phobetron pithecium) - NORTH CAROLINA - Feeding on leaves of chestnut in Cherokee County. (Robertson).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Defoliating oaks in Wagoner, Creek and Payne Counties. (Okla. Coop. Sur.).

WESTERN OAK LOOPER (Lambdina fiscellaria somnaria) - OREGON - Pupation in debris under oaks noted in Polk and Marion Counties. Foliage damage much lighter than in 1963. (Pearson).

A MOUNTAIN-MAHOGANY DEFOLIATOR (Ethmia discostrigella) - OREGON - Defoliated mountain-mahogany (Cercocarpus spp.) over extensive areas on Ochoco and Malheur National Forests. Defoliation varied light to heavy. Lighter outbreaks occurred at various points in eastern portion of State. (Orr, Sept. 15).

POPULAR-AND-WILLOW BORER (Sternochetus lapathi) - OREGON - Adult populations heavier than usual on willows in Detroit Dam area of Marion County. (Pearson).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Heavy on elms in Mayes and McIntosh Counties. (Okla. Coop. Sur.).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Damage extremely heavy on mimosa in Shelby, Jefferson, Cullman, Morgan, Marshall and other northern counties. Damage appears heaviest in more northern areas of State. (Rutledge et al.). OHIO - Heavy webbing of honeylocust observed in most southwest area counties; 100 webs counted on single 15-foot tree in Miami County, with all larval stages present. (Lyon).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Heavy populations continue to cause concern and damage to cedars and other coniferous plantings throughout State. Extremely heavy populations noted recently on numerous native redcedars in Shelby County. (Glasscock et al.).

SADDLEBACK CATERPILLAR (Sibine stimulea) - ALABAMA - Larvae numerous and feeding on camellia, pecans and other native shrubs about homes throughout State. (Hall et al.).

AZALEA CATERPILLAR (Datana major) - NORTH CAROLINA - Damaged azaleas in Sampson and Tyrrell Counties. (Futrell, Goodwin).

A NOCTUID MOTH (Noropsis hieroglyphica) - ALABAMA - Large numbers of adults noted in western Mobile County. Larvae migrated to and fed on azaleas where favored weed hosts had been destroyed. (Fairley, Boswell, Wallace, Seibels).

A NYMPHALID BUTTERFLY (Vanessa carye) - OREGON - Emerging from hollyhock in Salem area, Marion County. (Goeden).

WEEVILS - CALIFORNIA - Brachyrhinus cribricollis heavily damaging lilac leaves locally in Fresno, Fresno County. (Cal. Coop. Rpt.). NEVADA - Heavy Brachyrhinus spp. adult populations causing heavy damage to lilac in Gardnerville, Douglas County. (Cooney). WASHINGTON - Nemocestes incomptus and Brachyrhinus singularis damaging primroses in Seattle, King County. (Hatch). MARYLAND - Cyrtopistomus castaneus (Asiatic oak weevil) adults collected from cherry trees at Princess Anne, Somerset County. Adults of Pseudocneorhinus bifasciatus (a Japanese weevil) feeding on azaleas at a Baltimore County locality. (U. Md., Ent. Dept.).

AN APHID (Amphorophora azaleae) - CALIFORNIA - Medium locally on azalea nursery stock in San Francisco, San Francisco County. (Cal. Coop. Rpt.).



A LEAF-FOOTED BUG (Leptoglossus zonatus) - ARIZONA - Heavy on pomegranates in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

COCCIDS - MARYLAND - Pseudaulacaspis pentagona (white peach scale) heavy on flowering cherry at College Park, Prince Georges County. (U. Md., Ent. Dept.). FLORIDA - Phenacoccus solani, normally found on roots of plants, severe on leaves of Amaryllis sp. at Bradenton, Manatee County. (Kelsheimer, Sept. 2). All stages of Florinia theae (tea scale) noted on leaves of camellia at 2 locations in Perry, Taylor County (Miller, Sept. 8); Coccus hesperidum (brown soft scale) severe on leaves of Amaryllis sp. at Bradenton, Manatee County (Kelsheimer, Sept. 2); Aonidiella taxus infesting leaves of Podocarpus sp. (plants quarantined) at Gainesville, Alachua County (Graham, Sept. 8); and Diaspis boisduvallii severe on stems and leaves of Cattleya sp. at Fort Lauderdale, Broward County (Clinton, Sept. 14). OKLAHOMA - Kermes boguei infesting ornamental oak in Wagoner County. (Okla. Coop. Sur.). CALIFORNIA - Asterolecanium arabisidii locally heavy on Pittosporum tobira in Fresno, Fresno County. (Cal. Coop. Rpt.).

A CRICKET (Orocharis saltator) - ALABAMA - Feeding on buds of camellias in Mobile County, as was reported at same time in 1963. (Fairley, Boswell, Wallace, Seibels).

A LEAF MINER FLY (Liriomyza flaveola) - CALIFORNIA - Severe on leaves of various bedding plants in nursery in Oxnard, Ventura County. (Cal. Coop. Rpt.).

PACIFIC SPIDER MITE (Tetranychus pacificus) - CALIFORNIA - Medium on American licorice (Glycyrrhiza lepidota) in Bishop, Inyo County. (Cal. Coop. Rpt.).

#### INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Haematobia irritans) - LOUISIANA - Heavy on cattle in Bossier and East Feliciana Parishes. (Newsom et al., Sept. 14). OKLAHOMA - Populations heavy (up to 2,000 per head) in eastern part of State; ranged 175-200 per head in Comanche County, southwest. (Okla. Coop. Sur.). MISSOURI - Light to moderate in central area; slight increase noted. (G. D. Thomas). Populations light in southwest. (Houser, Thomas). NEBRASKA - Ranged 25-175 per animal in east and southeast areas. (Bergman). WYOMING - Adults light to moderate on livestock in Fremont County; ranged 60-100 per animal. (Marks). NORTH DAKOTA - Averaged 25 per animal on range cattle in southeast; maximum count 150 per animal. (Noetzel).

STABLE FLY (Stomoxys calcitrans) - WYOMING - Adults light on livestock in Fremont County; estimated at 12-25 per animal. (Marks). NORTH DAKOTA - Occasionally bothersome to range cattle in southeast on warm days; averaged 4 per animal. (Noetzel).

TABANIDS - OKLAHOMA - Tabanus spp. heavy on cattle in Choctaw County. (Okla. Coop. Sur.). LOUISIANA - Peak emergence of horse flies occurring in Iberville Parish; populations medium on cattle and horses in East Feliciana and Red River Parishes. (Newsom et al., Sept. 14).

HOUSE FLY (Musca domestica) - WYOMING - Large numbers of adults noted in milk barns and livestock sheds in Fremont County. (Marks). NORTH DAKOTA - Counts much lower in southeast area than during August; flies showing tendency to move into warm situations. (Noetzel). NEBRASKA - Adults beginning to concentrate around residences in rural and urban areas. (Bergman).

FACE FLY (Musca autumnalis) - MISSOURI - Averaged 3.4 per head on cattle in Boone County September 13. (G. D. Thomas).

MOSQUITOES - NEVADA - Aedes nigromaculis adults heavy in Stillwater, Churchill County; Aedes dorsalis adults medium in southern Washoe County. (Cooney). NEW MEXICO - Populations, mostly Aedes spp. and Culex spp., very heavy in orchards near Velarde, Rio Arriba County; annoying apple pickers. (N.M. Coop. Rpt.).

OKLAHOMA - Several species heavy in Payne County; Psorophora confinnis and P. cyanescens dominant species. Unspecified species also heavy in Washington, McIntosh and Le Flore Counties. (Okla. Coop. Sur.). KANSAS - Usual populations of Culex pipiens quinquefasciatus and C. tarsalis noted. (Knutson). NORTH DAKOTA - Aedes dorsalis quite troublesome in some areas of southeast; average bite count, 45 per minute. (Noetzel).

CATTLE LICE - UTAH - Some infested beef animals noted at North Logan, Cache County. (Knowlton).

TICKS - MARYLAND - Rhipicephalus sanguineus (brown dog tick) infested home in Baltimore. (U. Md., Ent. Dept.). RHODE ISLAND - R. sanguineus house infestation reported in North Kingstown, Washington County. (Mathewson). OKLAHOMA - Unspecified species ranged moderate to heavy on cattle in Choctaw, Le Flore and Sequoyah Counties. (Okla. Coop. Sur.). TEXAS - R. sanguineus heavy locally in Tarrant County during past few weeks. (Graves).

#### HOUSEHOLD AND STRUCTURAL INSECTS

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - WISCONSIN - Although populations decreased throughout most of State, species continues as pest in houses in Dunn County. (Wis. Ins. Sur.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - MARYLAND - Adults appeared in homes in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

CIGARETTE BEETLE (Lasioderma serricorne) - WASHINGTON - Reported infesting home in Pacific County. (Brannon, Kruišwyck).

CARPET BEETLES - UTAH - Unspecified species damaged carpets and woolens in several Salt Lake City area homes. (Knowlton).

CAMEL CRICKETS (Ceuthophilus spp.) - NORTH DAKOTA - Continue a problem in and around homes in many eastern areas. (Frye).

MILLIPEDS - NORTH DAKOTA - Causing considerable concern around homes in southeast area. (Frye).

PACIFIC DAMPWOOD TERMITE (Zootermopsis angusticollis) - OREGON - Heavy flights occurring in Coastal Ranges along roads leading toward coast. (Larson).

CARPENTER BEE (Xylocopa virginica) - RHODE ISLAND - Infested building in Quonset, Washington County. (Mathewson).

#### STORED-PRODUCT INSECTS

MEDITERRANEAN FLOUR MOTH (Anagasta künniella) - CALIFORNIA - Heavy in corn seed in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

COWPEA WEEVIL (Callosobruchus maculatus) - SOUTH CAROLINA - Infested stored cowpeas in McCormick County. (Nettles et al., Sept. 15).

Stored-product Insects in Mayes County, Oklahoma - Tenebroides mauritanicus (cadelle) and Oryzaephilus surinamensis (saw-toothed grain beetle) heavy in farm-stored barley; large numbers of Lasioderma serricorne (cigarette beetle) found in sacked cotton-seed meal; and Tribolium confusum (confused flour beetle) infested ground livestock feed. (Okla. Coop. Sur.).

### BENEFICIAL INSECTS

LADY BEETLES - MICHIGAN - Large adult populations of Adalia bipunctata (two-spotted lady beetle) and other species in various locations, often near aphid colonies. (Berlein, Wells). WISCONSIN - Principally Hippodamia tredecimpunctata tibialis (thirteen-spotted lady beetle) and Coleomegilla maculata lengi abundant; empty pupal cases up to 10 per plant in many green corn fields in northeastern part of State. These and H. convergens (convergent lady beetle) and H. parenthesis ranged 1-3 per sweep in many alfalfa fields. (Wis. Ins. Sur.). WYOMING - Adults of several species averaged 32 per 100 sweeps in alfalfa fields of Fremont County. (Marks).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 112 per 100 sweeps in alfalfa in Fremont County. (Marks). WISCONSIN - N. fesus, principally, very common in alfalfa fields; ranged 3-5 per sweep. (Wis. Ins. Sur.).

FLOWER BUGS (Orius spp.) - WYOMING - Adults averaged 64 per 100 sweeps in alfalfa in Fremont County. (Marks).

PREDACEOUS STINK BUGS - FLORIDA - Podisus maculiventris moderately common in unsprayed soybeans at Gainesville, Alachua County; Alcaeorrhynchus grandis more common and taken in act of sucking body fluids from Urbanus proteus (bean leaf roller). (Mead). NORTH CAROLINA - Euthyrhynchus floridanus collected on grape vines in Iredell County. (Robertson).

PREDATORS - CALIFORNIA - Minute pirate bugs and lacewing larvae abundant in cotton in Dos Palos area of Fresno County and lacewing adults and larvae abundant in same crop in Shafter area of Kern County. (Leigh, Sept. 11).

### MISCELLANEOUS INSECTS

A FRUIT-PIERCING MOTH (Gonodonta pyrgo) - CALIFORNIA - Single female taken in argon light trap 9 miles southwest of Blythe, Riverside County. (Cal. Coop. Rpt.).

SAP BEETLES - FLORIDA - Adults of various species noted on bird-damaged fruits of Japanese persimmon at Gainesville, Alachua County; Lobiopa insularis, Carpophilus humeralis and Haptoncus luteolus most common species. Det. by D. H. Habeck. (Mead).

VINEGAR FLIES (Drosophila spp.) - MICHIGAN - Adults continue moderately annoying around fruit and vegetable sheds in Berrien County. (Conrad).

### CORRECTIONS

CEIR 14(36):1015 - PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Praon simulans (a parasitic braconid) should read Praon pequodorum. Det. by C. F. W. Muesebeck.

CEIR 14(38):1075 - AN EARTHWORM MITE (Fusuro-poda agitans) should read Fuscuro-poda agitans.





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

No screw-worm cases reported from TEXAS during period September 13-19; last case reported August 2 in Irion County. Two cases reported from Grant+ County, NEW MEXICO, are first since July. In ARIZONA, 9 cases reported: Yavapai (2), Cochise+ (3) and Santa Cruz+ (4) Counties. Mexico reported 47 cases in States of Chihuahua (18), Sonora (18), Durango (7) and Tamaulipas (4). Sterile screw-worm flies released: Texas 21,254,250, New Mexico 3,580,000, Arizona 4,900,000 and Mexico 49,385,200.

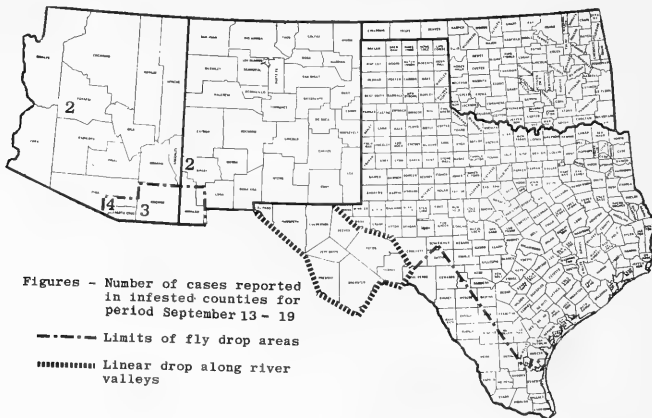
Table 1. Comparison of specimens reported during corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.

Year	Positive Cases		Negative Cases*		Ratio of Positive Cases to 100 Cases Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,201	36,838	33	2,372	3,639.3	1,553.0
1963	189	2,972	151	5,019	125.1	59.2
1964	2	109	45	4,487	4.4	2.4

Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone\*\*\*

Year	Positive Cases		Negative Cases*		Ratio of Positive Cases to 100 Cases Negative**	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1963	211	2,928	27	1,036	781.48	282.6
1964	58	2,170	18	1,497	322.2	148.9

- + Counties in United States portion of Barrier Zone.
- \* The number of cases not screw-worm is an index of the efficiency of the reporting system.
- \*\* A comparison of the ratios of screw-worm cases with cases not screw-worm is an index of the change in number of screw-worm cases.
- \*\*\* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of a self-sustaining screw-worm population in the United States. (Anim. Dis. Erad. Div.)



HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 704th meeting of the Hawaiian Entomological Society held on August 10, 1964.

A PHORID (Paraspiniphora sp.) - This genus of the Order Diptera is new to the State. Males were taken on Oahu in a light trap at the Honolulu airport on July 12 and August 3, and at Fort Armstrong on July 20. A single female was taken in a fly trap at Fort Armstrong on August 10. (C. R. Joyce).

BARNACLE SCALE (Ceroplastes cirripediformis Comstock) was collected from stem of Gardenia taitensis at Kailua, Oahu, on July 18. This constitutes a new host record for this scale insect in the State. (E. Shiroma).

A WHITEFLY (Pealius hibisci (Kotinsky)) was collected from leaf of Gardenia jasminoides from Oahu and destined for out of State. This is a new host record. Det. by L. M. Russell. (E. Shiroma).

A SCARAB (Protaetia fusca (Herbst)) - Large numbers of adults were noted feeding on new leaves of Coccoloba uvifera (common seagrape) on Maui. This constitutes a new host record. (J. W. Beardsley).

CONVERGENT LADY BEETLE (Hippodamia convergens Guerin) was collected on Raillardia sp. at approximately 9,800 feet elevation on Haleakala Crater, Maui, on July 28. There are no previous records of field recoveries of this coccinellid in Hawaii. The beetle was purposely introduced in 1896, 1905, 1910 and 1952. This capture indicates the species is probably established at higher elevations on Haleakala. H. convergens is a temperate climate species and perhaps has not become adapted to the more tropical, lowland areas of Maui, or may be unable to compete successfully with other aphidophagous coccinellids, such as Coelophora inaequalis (F.). in the lowlands. Det. by J. W. Beardsley. (Beardsley).

A LYGAEID BUG (Nysius kinbergi Usinger) damaged vanda orchids in a planting at Kapoho, Hawaii; considerable brown spotting of the flowers was noted on July 31. Numerous adults were present on flowers and spotting appeared to have been caused by feeding on developing buds. Adults were also very plentiful on flower heads of Pluchea odorata (sourbush) in waste areas surrounding these vanda plantings; apparently the bugs had moved onto the orchids from this source. No specimens of N. caledoniae Distant were found among approximately 200 adults of N. kinbergi collected from vanda and sourbush. N. caledoniae was reported damaging vanda at Kapoho in June of this year. A single adult of N. caledoniae was collected on Emilia sonchifolia at the Hilo airport. (J. W. Beardsley).

The following new island records were reported: Several oöthecae of a MANTID (Tenodera australasiae (Leach)) were collected from coconut foliage near the Kahului airport, Maui, on July 31. An adult of a BOMBYLIID FLY (Anthrax distigma Wied.) was observed resting on foliage of Scaevola sp. at Sprecklesville, Maui, on July 29. Light infestations of an APHID (Neophyllaphis araucariae Takahashi) were found on young Araucaria exelsa (Norfolk Island pine) at Kapoho, Hawaii, on July 31. A CLUBIONID SPIDER (Cheiracanthium diversum Koch), which has occasionally been responsible for painful bites in the State, was found on Maui at Kahului and Waiakoa on July 29-30 and on Hawaii at Kapoho on July 31. Several specimens of a large yellow and black ORB WEAVER SPIDER (Argiope appensa (Walckenaer)) were observed near the Hilo airport, Hawaii, on July 21. (J. W. Beardsley).

An ANT (Anoplolepis longipes Jerdon) was abundant in waste area vegetation near Hilo airport, Hawaii, on July 31, where it was observed tending COCONUT MEALYBUG (Pseudococcus nipae (Maskell)) on guava; this ant has been previously reported from Hawaii at Kona in 1959, but this is the first record from the Hilo area. (J. W. Beardsley).

INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on June 30, 1964, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) 3 times in baggage and cargo; at Brownsville (1) and El Paso (1), Texas; and Miami, Florida (1).

MEXICAN FRUIT FLY (Anastrepha ludens Loew) 41 times in stores, quarters and baggage; at John F. Kennedy International Airport, New York (1); Laredo (5), Eagle Pass (1), Brownsville (29), Houston (2), and Roma (3), Texas.

A BRUCHID (Bruchidius debilis Gyll., or probably this species) (an important pest in temperate regions of Europe and Africa in legume seeds of the genera Cytisus, Lotus, Spartium and others) 4 times in mail and cargo at Hoboken, New Jersey.

A BRUCHID (Callosobruchus analis (F.)) (pest of legumes in southern Asia) twice in stores; at Seattle, Washington (1), and Honolulu, Hawaii (1).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata Wied.) 8 times in baggage, stores and quarters; at Honolulu, Hawaii (4); Galveston, Texas (2); John F. Kennedy International Airport, New York (1); and Miami, Florida (1).

ASIATIC RICE BORER (Chilo suppressalis (Wlk.)) twice in stores at San Francisco, California.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) once in baggage at San Francisco, California.

A FRUIT FLY (Dacus sp.) once in baggage in oranges at Dulles International Airport, Virginia, and once in 4 tangerine fruits in aircraft stores at Honolulu, Hawaii.

A STINK BUG (Eurydema ornata (L.)) (a common pest of gardens in Europe) once in cargo at Mobile, Alabama.

CABBAGE MOTH (Mamestra brassicae (L.)) twice in baggage and once in stores; at New York (1) and John F. Kennedy International Airport (2), New York.

AN OLETHREUTID MOTH (Matsumuraeses phaseoli (Mats.)) 4 times in stores; at Seattle, Washington (2); Portland, Oregon (1); and San Pedro, California (1).

COCKCHAFFER (Melolontha melolontha (L.)) once in rear cargo hold of airplane at San Francisco, California.

A TERMITE (Nasutitermes corniger (Motsch.)) once with orchid plants in air cargo at Miami, Florida.

LARGE WHITE BUTTERFLY (Pieris brassicae (L.)) twice on military cargo at Dover AFB, Delaware.

A WEEVIL (Premnotrypes sp.) (a potato pest in Peru) once in baggage at Miami, Florida, and once in stores at Baltimore, Maryland.

A STENOMID MOTH (Stenomoma catenifer Wlsm.) (a pest of avocado) 6 times in mail and baggage; at New Orleans, Louisiana (1); Miami, Florida (2); El Paso, Texas (2); and San Pedro, California (1).



A THRIPS (Taeniothrips eucharii (Whetzel)) (a pest of lycoris and other bulbs) once in stores at Philadelphia, Pennsylvania.

A FRUIT-TREE SPIDER MITE (Tetranychus viennensis Zacher) (a pest of apple and pear in Europe and Japan) 3 times in baggage and stores; at Seattle, Washington (2); Honolulu, Hawaii (1).

WHITE GARDEN SNAIL (Theba pisana (Müller)) 4 times in mail at Washington, D.C.

KHAPRA BEETLE (Trogoderma granarium Everts) 36 times in stores, ship's holds and contaminating cargoes of cotton piece goods, rice, gum karaya, gum arabic, chick feed, cumin seed, Dal Chana, Dal Nash, Besan, cocoa bean bags, burlap coverings or bags on steel, coffee, gum hashab, personal effects, brassware and Hessian cloth and fiber packing on miscellaneous cargo; at Charleston, South Carolina (4); New York, New York (10); Baltimore, Maryland (2); Philadelphia, Pennsylvania (2); Detroit, Michigan (1); Milwaukee, Wisconsin (1); San Francisco, California (9); Boston, Massachusetts (1); San Pedro, California (4); Savannah, Georgia (1); and Honolulu, Hawaii (1).

OAT NEMATODE (Heterodera avenae (Mortensen)) 10 times; at Seattle, Washington, twice in soil from automobiles and 6 times in soil from used tractors; Baltimore, Maryland, once on used heavy engineering equipment; and at New York, New York, once in soil with plant in baggage.

GOLDEN NEMATODE (Heterodera rostochiensis Woll.) 9 times; at New York, New York, 3 times in soil with plants in baggage and once in cargo of Peruvian garlic; Detroit, Michigan, twice in soil with plants in air baggage; Hawaii, once in soil with Irish clover plant; Miami, Florida, once in soil from automobiles; and San Francisco, California, once in soil from automobile.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Alfalfa IN Oklahoma DURING 1963  
 (Commodity) (State or District) (Year)

A. Pest or pest complex: Pea aphid, spotted alfalfa aphid, corn earworm, webworms

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No.	<u>464,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/	<u>2.15 tons</u>
D. Price <sup>b</sup> per unit ( <u>tons</u> ) <sup>c</sup> (From CRS)	\$/	<u>27.45 *</u>
E. <u>Acres</u> <sup>a</sup> needing control	No.	<u>292,320</u>
F. <u>Acres</u> <sup>a</sup> treated	No.	<u>99,388</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>25.5</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/	<u>.548 ton</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/	<u>15.04</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units	<u>105,726 tons</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>5.50</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$	<u>546,634</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$	<u>2,901,697</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$	<u>-----</u>
Q. Combined control cost and losses, N + O + P	\$	<u>3,448,331</u>
R. Percent loss due to each insect in the complex:		

Comment: \* Compiled from monthly average prices - final CRS average not available.

- 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 Sidney E. Kunz

Date May 18, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN                                           DURING 1963  
 (State or District) (Year)

ATTACKING Wheat  
 (Commodity or Crop)

- A. Pest or pest complex: Greenbug, brown wheat mite, army cutworm
- B. Number of acres<sup>a</sup> produced (From CRS) No. 3,591,000
- C. Average yield per acre<sup>a</sup> (From CRS) Units/21.0 bu.
- D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/1.90
- E. Acres<sup>a</sup> needing control No. 538,650
- F. Acres<sup>a</sup> treated No. 107,730
- G. Reduction due to not treating where needed:
- H. Loss in yield, percent 22.17
- I. Loss in yield, units per acre<sup>a</sup>, C x H Units/4.655 bu.
- J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/8.844
- K. Loss in quality, \$ per acre<sup>a</sup> \$/-----
- L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 2,005,932 bu.
- M. Control cost, \$ per acre<sup>a</sup> \$/2.48
- N. Control cost for all acres<sup>a</sup>, F x M \$ 267,180
- O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 3,811,056
- P. Quality loss for all acres<sup>a</sup>, (E-F) x K \$ -----
- Q. Combined control cost and losses, N + O + P \$ 4,078,236
- R. Percent loss due to each insect in the complex:

Comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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 Sidney E. Kunz  
 Date May 18, 1964

ATTACKING Grain Sorghum (Grain)  
 (Commodity or Crop)

- A. Pest or pest complex: Corn earworm, armyworm, corn leaf aphid, southwestern corn borer
- B. Number of acres<sup>a</sup> produced (From CRS) No. 740,000
- C. Average yield per acre<sup>a</sup> (From CRS) Units/29.5 bu.
- D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/1.00
- E. Acres<sup>a</sup> needing control No. 207,200
- F. Acres<sup>a</sup> treated No. 47,656
- G. Reduction due to not treating where needed:
- H. Loss in yield, percent 6.9
- I. Loss in yield, units per acre<sup>a</sup>, C x H Units/2.032 bu.
- J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/2.035
- K. Loss in quality, \$ per acre<sup>a</sup> \$/-----
- L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 324,672 bu.
- M. Control cost, \$ per acre<sup>a</sup> \$/2.05
- N. Control cost for all acres<sup>a</sup>, F x M \$ 135,819
- O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 324,672
- P. Quality loss for all acres<sup>a</sup>, (E-F) x K \$ -----
- Q. Combined control cost and losses, N + O + P \$ 460,491
- R. Percent loss due to each insect in the complex:

Comment: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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 Sidney E. Kunz  
 Date May 18, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Beef cattle (Commodity or Crop)

A. Pest or pest complex: Flies (all), ticks, cattle grubs, lice

B. Number of <u>head</u> <sup>a</sup> produced (From CRS)	No.	<u>3,837,000</u>
C. Average yield per <u>head</u> <sup>a</sup> (From CRS)	Units/	<u>365 lbs.</u>
D. Price <sup>b</sup> per unit ( <u>cwt.</u> ) <sup>c</sup> (From CRS)	\$/	<u>21.72</u>
E. <u>Head</u> <sup>a</sup> needing control	No.	<u>3,666,780</u>
F. <u>Head</u> <sup>a</sup> treated	No.	<u>2,236,403</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>20</u>
I. Loss in yield, units per <u>head</u> <sup>a</sup> , C x H	Units/	<u>73 lbs.</u>
J. Loss in yield, \$ per <u>head</u> <sup>a</sup> , D x I	\$/	<u>15.85</u>
K. Loss in quality, \$ per <u>head</u> <sup>a</sup>	\$/	<u>-----</u>
L. Yield loss for all <u>head</u> <sup>a</sup> , (E-F) x I	Units	<u>100,037,521 lbs.</u>
M. Control cost, \$ per <u>head</u> <sup>a</sup>	\$/	<u>1.27</u>
N. Control cost for all <u>head</u> <sup>a</sup> , F x M	\$	<u>2,840,231</u>
O. Yield loss for all <u>head</u> <sup>a</sup> , (E-F) x J	\$	<u>21,720,475</u>
P. Quality loss for all <u>head</u> <sup>a</sup> , (E-F) x K	\$/	<u>-----</u>
Q. Combined control cost and losses, N + O + P	\$	<u>24,560,706</u>
R. Percent loss due to each insect in the complex:		

Comment:

- 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 Shirley E. Kuntz  
Date May 16, 1964

ATTACKING Dairy cows (Commodity or Crop)

A. Pest or pest complex: Flies (all), ticks, lice, cattle grubs

B. Number of <u>head</u> <sup>a</sup> produced (From CRS)	No.	<u>243,000</u>
C. Average yield per <u>head</u> <sup>a</sup> (From CRS)	Units/	<u>6,350 lbs.</u>
D. Price <sup>b</sup> per unit ( <u>cwt.</u> ) <sup>c</sup> (From CRS)	\$/	<u>4.36 *</u>
E. <u>Head</u> <sup>a</sup> needing control	No.	<u>219,700</u>
F. <u>Head</u> <sup>a</sup> treated	No.	<u>177,147</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>12</u>
I. Loss in yield, units per <u>head</u> <sup>a</sup> , C x H	Units/	<u>7.62 cwt.</u>
J. Loss in yield, \$ per <u>head</u> <sup>a</sup> , D x I	\$/	<u>33.22</u>
K. Loss in quality, \$ per <u>head</u> <sup>a</sup>	\$/	<u>-----</u>
L. Yield loss for all <u>head</u> <sup>a</sup> , (E-F) x I	Units	<u>316.63 cwt.</u>
M. Control cost, \$ per <u>head</u> <sup>a</sup>	\$/	<u>2.13</u>
N. Control cost for all <u>head</u> <sup>a</sup> , F x M	\$	<u>377,363</u>
O. Yield loss for all <u>head</u> <sup>a</sup> , (E-F) x J	\$	<u>1,380,390</u>
P. Quality loss for all <u>head</u> <sup>a</sup> , (E-F) x K	\$/	<u>-----</u>
Q. Combined control cost and losses, N + O + P	\$	<u>1,757,713</u>
R. Percent loss due to each insect in the complex:		

Comment: \* Price based on 1962 averages - 1963 not available.

- 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 Shirley E. Kuntz  
Date May 16, 1964



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

FALL ARMYWORM increasing on alfalfa and corn in Arizona; heavy on small grains and pastures in several areas in Texas; damaging late sorghum in Oklahoma; causing considerable damage to cover crops in Kent County Delaware; and, in combination with CORN EARWORM, damaging soybeans in western Tennessee. WEBWORMS (*Loxostege* spp.) heavily damaged fall seeded alfalfa in southern Missouri. (p. 1105). PEA APHID increasing in Arizona. SPOTTED ALFALFA APHID moderate to heavy on some alfalfa in Nebraska, and threatens new alfalfa stands in Arkansas Valley, Colorado. (p. 1107). Heavy populations of a LEAFHOPPER (*Empoasca* sp.) contributing to poor alfalfa growth in Yuma County, and THREE-CORNERED ALFALFA HOPPER sufficiently high to cause serious girdling of alfalfa plants in several areas of Arizona. (p. 1108).

CITRUS RUST MITE and CITRUS RED MITE populations on citrus in Florida at lowest levels in 13 years of record, but GLOVER SCALE and YELLOW SCALE populations above normal, with further increases expected. (pp. 1110-1111). TOMATO FRUITWORM a problem in tomato canning district of Utah, and on okra and snap beans in Arkansas. (p. 1111). POTATO TUBERWORM adults continue to emerge in Monroe County, Michigan, potato fields recently found infested. Adults of a WEEVIL (*Brachyrhinus cribricollis*) heavily damaged 150 acres of artichoke in California. (p. 1112).

PINK BOLLWORM heavy in 25-acre field of cotton in Graham County, Arizona; high of 65 moths trapped in one field in single night in Maricopa County. (p. 1113).

SOUTHERN PINE BEETLE outbreak present in north central Granville County, North Carolina, where approximately 1.5 million board feet of shortleaf and loblolly pine killed or currently infested. (p. 1114).

KHAPRA BEETLE infestation found on property near Tucson, Arizona. (p. 1117).

DETECTION

New county records reported were SWEETCLOVER WEEVIL (*Sitona cylindricollis*) from Lincoln County, Nevada (p. 1105); CEREAL LEAF BEETLE (*Oulema melanopa*) from Huron and Ottawa Counties, Ohio (p. 1109); NORTHERN CORN ROOTWORM (*Diabrotica longicornis*) from Dauphin County, Pennsylvania (p. 1115); WHITE-FRINGED BEETLES (*Graphognathus* spp.) from Etowah, Marion and Randolph Counties, Alabama; Jenkins County, Georgia; Yalobusha County, Mississippi; and Houston County, Tennessee (p. 1117); and EUROPEAN CHAFER (*Amphimallon majalis*) from Yates and Broome Counties, New York (p. 1117).

CORRECTIONS and ADDITIONAL NOTES

See page 1118.

SPECIAL REPORTS

Distribution of Cereal Leaf Beetle in the United States as of September 30, 1964. (Map). (p. 1109).

Alfalfa Weevil Survey in New York, 1964. (Map). (p. 1106).

Status of the Screw-worm in the Southwest. (p. 1121)

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Alfalfa and Soybeans in Alabama, 1963. (p. 1122).

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

WEATHER OF THE WEEK ENDING SEPTEMBER 28

Heavy thunderstorms drenched a wide area from Texas to Michigan and moderate rain extended eastward to the North Atlantic Coast. Cool weather prevailed from the Rocky Mountains to the Atlantic Ocean. California continued hot and dry.

TEMPERATURE: A late summer mild spell covered most of the eastern United States early in the week. The temperature at Cincinnati, Ohio, climbed to 90° on Monday afternoon September 21. Polar continental air pouring into the Western States brought unseasonably cold weather. Early morning temperatures over the northern Rocky Mountains dropped into the 30's and 40's and afternoon temperatures over the northern Great Plains generally reached the 50's and 60's. As the front moved southeastward it brought pleasantly cool weather to the central Great Plains, the Northeast, and the Middle Atlantic States. Temperatures dropped to below freezing over some northern and central portions of the Rocky Mountains and Great Plains. North Platte, Nebraska, registered 23° Sunday morning, September 28. The first frost or freezing temperatures of the season occurred at numerous locations in Wisconsin and northwestern Iowa. Northern and central California continued hot and dry. Sacramento registered 99° and Red Bluff 104° on Thursday.

PRECIPITATION: Heavy thunderstorms continued over a wide area from Texas to Michigan. Some areas in Texas received over 4 inches on Monday. In 5 days, Del Rio received 13.60 inches more than three-fourths of the annual normal. Numerous locations in the Nation's midsection received generous showers each day. The rains relieved the dry conditions in most middle and eastern areas, but were generally insufficient from Virginia and Maryland northeastward to New England to bring more than temporary relief.

Hurricane Gladys caused moderate rains along the coast of North Carolina and extreme eastern Massachusetts. There were moderate gales and tides of 2 feet to 4 feet above normal. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

FALL ARMYWORM (Laphygma frugiperda) - ARIZONA - Increasing in alfalfa and corn in Graham and Maricopa Counties; counts per 100 sweeps ranged 60-120 in alfalfa and 20-45 in corn. (Ariz. Coop. Sur.). TEXAS - Heavy on small grains and native and improved pastures in parts of Washington, Kerr, Brazos, Madison and Burleson Counties. (Texas Coop. Rpt.). OKLAHOMA - Damaged late sorghum in Payne and Canadian Counties. (Okla. Coop. Sur.). TENNESSEE - This and Heliothis zea (corn earworm) damaging soybeans in extreme western part of State, with L. frugiperda predominating. Controls being applied. (Mullett). DELAWARE - Larvae causing considerable injury to cover crops in Kent County. Adult collections in blacklight traps remain rather low in Sussex County. (Burbutis).

GREEN CLOVERWORM (Plathypena scabra) - SOUTH CAROLINA - Present but decreasing rapidly on soybeans. (Nettles et al., Sept. 22). MISSOURI - Larvae ranged 1-3 per 10 sweeps on alfalfa in southeast. (Harrendorf, Jones).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - ALABAMA - Feeding on kudzu where it occurs in Mobile County. (Seibels, Wallace, Fairley, Boswell). FLORIDA - Scattered but severe on 0.25 acre of peanuts at Bradenton, Hillsborough County (Simmons, Sept. 9); infesting leaves of 100-200 soybean plants at Gainesville, Alachua County (Mead, Sept. 14). SOUTH CAROLINA - Present in many but not in all counties on soybeans. (Nettles et al., Sept. 22).

ALFALFA CATERPILLAR (Colias eurytheme) - WYOMING - Averaged 22 larvae per 100 sweeps in Park County alfalfa fields. (Marks). NEBRASKA - Larvae light in east central area alfalfa. (Bergman).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Moderate to heavy damage to peanuts noted in Houston County. (Horne).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Moderate to heavy in peanuts in Lincoln County. (Okla. Coop. Sur.).

WEBWORMS (Loxostege spp.) - MISSOURI - L. similalis (garden webworm) larvae causing heavy damage to fall seeded alfalfa over southern half of State. (Houser, Thomas). MARYLAND - Light numbers of Loxostege spp. evident on new alfalfa seeding near Kolbes Corner, Prince Georges County. (U. Md., Ent. Dept.).

CUTWORMS - DELAWARE - Feltia subgothica (dingy cutworm) and Nephelodes emmedonia (bronzed cutworm) very abundant in blacklight trap collections in Sussex County. (Burbutis). OHIO - F. subgothica adult populations very high; eggs deposited early in September; small larvae now present. N. emmedonia adults common at lights at night; small numbers taken in blacklight traps; females collected September 18 deposited overwintering eggs September 25. Adult populations of Lacinipolia renigera (bristly cutworm) declining; eggs laid September 11 at Wooster, hatched September 25. (Rings). TEXAS - Undetermined species caused severe damage to peanuts in localized areas of Houston County. (Horne).

ALFALFA WEEVIL (Hypera postica) - WYOMING - Adults in alfalfa per 100 sweeps averaged 14 in Hot Springs, Washakie and Big Horn Counties and 28 in Park County. (Marks). SOUTH CAROLINA - Damaged alfalfa during entire summer in Laurens County. (Nettles et al., Sept. 22).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEVADA - Light populations noted in alfalfa in Alamo, Lincoln County, during August. This is a new county record. (Zoller).

COWPEA CURCULIO (Chalcodermus aeneus) - ALABAMA - Larvae ranged 1-4 in numerous cowpea pods being harvested in Tallapoosa County. (McQueen).



MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Adults causing moderate foliage damage to soybeans in Dorchester and Wicomico Counties. (U. Md., Ent. Dept.). SOUTH CAROLINA - Causing greatest loss of foliage on soybeans. (Nettles et al., Sept. 22).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Adults increasing on soybeans in Dorchester and Wicomico Counties. (U. Md., Ent. Dept.).

PEA APHID (*Acyrtosiphon pisum*) - ARIZONA - Continued to increase in alfalfa in Pinal, Graham and Maricopa Counties. (Ariz. Coop. Sur.). NEW MEXICO - Generally light in alfalfa in Rio Arriba and Santa Fe Counties. (N.M. Coop. Rpt.). UTAH - Becoming very numerous on some succulent alfalfa in Wellsville, Cache County; high on same crop in Sanpete County. (Knowlton, Purnell). WYOMING - Adults and nymphs averaged 125 per 100 sweeps in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Marks). NEBRASKA - Populations very light in east central area legumes; ranged 2-3 per 10 sweeps. (Bergman). WISCONSIN - Populations remain low in most alfalfa, although numbers relatively high in few regrowth fields in western Dane County; all still viviparae. (Wis. Ins. Sur.). MICHIGAN - Populations remain high in some Livingston County alfalfa; ranged 25-100+ per sweep; very few winged females present. (Dowdy).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Light populations appearing in alfalfa in Yuma Valley, Yuma Mesa and in Welton area of Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Mostly light infestations found in Quay County alfalfa. (N.M. Coop. Rpt.). COLORADO - Continues at high levels and as a threat to new stands of alfalfa in Arkansas Valley. (Schweissing). NEBRASKA - Moderate to heavy in some alfalfa in Lancaster, Sarpy and Saunders Counties; counts ranged 400-800 per 10 sweeps. (Bergman). OKLAHOMA - Moderate to heavy (250-400 per 10 sweeps) in alfalfa in Major, Roger Mills and Blaine Counties, and light (3-15 per 10 sweeps) in other west central counties and in Kingfisher County. (Okla. Coop. Sur.). ARKANSAS - Ranged 200-300 per 100 sweeps in Washington County; under current moisture conditions, this is higher than normal for this time of year. Rainfall during August more than double average amount; rainfall about average during September. This may be result of carryover from high numbers present during very dry July period. (Ark. Ins. Sur.). WISCONSIN - Populations unchanged from those reported in CEIR 14(38):1083; populations as high as 15 per sweep in few fields in Wisconsin River area. Alates still present; appear to be more common in third-growth fields than in second-growth alfalfa. Sexual forms still present. (Wis. Ins. Sur.).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Adults and nymphs ranged 10-28 per 25 sweeps in alfalfa in De Baca and Quay Counties. (N.M. Coop. Rpt.). UTAH - Very abundant in alfalfa hay fields in Oasis area of Millard County. Moderate in alfalfa at Logan and Wellsville, Cache County. (Knowlton, Summers). Numerous in alfalfa in Sanpete County. (Knowlton, Purnell). WYOMING - Averaged 32 adults and nymphs per 100 sweeps in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Marks).

PLANT BUGS - WYOMING - Adults and nymphs of *Adelphocoris lineolatus* (alfalfa plant bug) averaged 18 per 100 sweeps in alfalfa in Hot Springs, Washakie, Big Horn and Park Counties. (Marks). WISCONSIN - Nymphs, primarily *Lygus lineolaris* (tarnished plant bug) and *A. lineolatus*, averaged as high as 15 per sweep in some alfalfa. Few *A. rapidus* (rapid plant bug) present in few fields. (Wis. Ins. Sur.).

STINK BUGS - OKLAHOMA - Several species averaged 5 per 10 sweeps in alfalfa in Ellis County; averaged less than 1 per 10 sweeps in other west central counties. (Okla. Coop. Sur.). SOUTH CAROLINA - Reported on soybeans in some areas. (Nettles et al., Sept. 22).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MICHIGAN - Adults ranged 1-7 per 10 sweeps in Livingston County alfalfa sampled. (Dowdy).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - High numbers of nymphs present in some alfalfa in Dane, Sauk and Iowa Counties. Populations as high as 100 per sweep in some older fields. (Wis. Ins. Sur.).

A LEAFHOPPER (Empoasca sp.) - ARIZONA - Continued heavy populations in many fields of alfalfa in Yuma County contributing to poor alfalfa growth. Counts ranged 150 to 1,500 per 100 sweeps. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA (Spissistilus festinus) - ARIZONA - Populations continue sufficiently high to cause serious girdling of alfalfa plants in Graham, Yuma, Pinal and Maricopa Counties; counts ranged 400 to 6,000 per 100 sweeps. (Ariz. Coop. Sur.). UTAH - Moderate damage to alfalfa in Washington County. (Knowlton).

AN ALFALFA SEED CHALCID (Bruchophagus roddi) - TEXAS - Locally heavy and damaging alfalfa in Collingsworth County. (Scott).

CORN EARWORM (Heliothis zea) - UTAH - Corn at canning plant in Smithfield, Cache County, ranged 12-15 percent infested. (Dorst, Knowlton). Caused moderate damage to sweet and field corn in Wasatch County. (Knowlton, Daniels).

OKLAHOMA - Heavy in heads of late grain sorghum in Kay, Payne and Canadian Counties. Average of 28 per 100 heads found in Custer County. (Okla. Coop. Sur.). ARKANSAS - Continues active in alfalfa, but numbers variable; larvae averaged 70 per 100 sweeps in one Washington County field. Adults numerous in all areas of State; numbers extremely high in cotton and soybean areas. (Ark. Ins. Sur.). MISSOURI - Larvae continue to damage heads of grain sorghum in southern area; ranged 1-3 per 10 sweeps in alfalfa in southeast area. (Harrendorf, Jones). NEBRASKA - Larvae ranged moderate to heavy in late-planted corn and sweet corn in Saunders, Sarpy, Lancaster and Cass Counties. (Bergman). MINNESOTA - Populations extremely low in southwest district field corn; none found during limited check of sweet corn. (Minn. Ins. Rpt.). DELAWARE - Larvae very abundant on corn in areas of Sussex County; adult collections in blacklight traps remain high in county. (Burbutis). MARYLAND - Light to moderate pod infestations common on soybeans in Dorchester and Wicomico Counties. Flights decreased week of September 20 in blacklight trap in Wicomico County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Causing concern in most counties on soybeans. (Nettles et al., Sept. 22). FLORIDA - This species and Trichoplusia ni (cabbage looper) infesting 100-200 soybean plants at Gainesville, Alachua County. (Mead, Sept. 14).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - Second to fifth-stage larvae infested 20-100 percent of corn plants in fields surveyed in east and northeast areas. (Bergman). MICHIGAN - Larval injury heavy to ears of late sweet corn in unsprayed plantings in Wayne and Berrien Counties. This species comprised 90 percent of larvae collected from ears in a Wayne County planting on September 22; mostly third and fourth instars. (Kidd, Belter, Newman). OHIO - Survey in 32 western counties and in Wayne County indicate populations varied from virtually none in southern counties to 300 borers per 100 stalks in some fields in Defiance and Fulton Counties. In general, populations were low but higher than in 1963. (Barry, Lyon).

CORN ROOTWORMS (Diabrotica spp.) - MINNESOTA - Adults of D. virgifera (western corn rootworm) and D. longicornis (northern corn rootworm) active in late maturing corn and in fields having numerous suckers with fresh silks. High numbers collected in alfalfa adjacent to corn. (Minn. Ins. Rpt.). NEBRASKA - D. virgifera common in corn, legumes, smartweed, soybeans and on conservation reserve land in eastern third of State; D. undecimpunctata howardi (southern corn rootworm) averaged 2 per 10 sweeps in alfalfa in Lancaster and Sarpy Counties. (Bergman).

CORN LEAF APHID (Rhopalosiphum maidis) - IDAHO - Common to abundant on corn throughout Canyon County; more common in fields of hybrid sweet corn. Infestation involves approximately 6,000 acres. (Bechtolt). OHIO - Aphids and remnants of populations found consistently in nearly every field of corn during European corn



ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - MARYLAND - Larvae infested Winesap apples at Catonsville, Baltimore County. (U. Md., Ent. Dept.). ALABAMA - Peach twigs killed on trees in Lee, Macon, Tallapoosa and Elmore Counties. (McQueen).

PEACH TREE BORER (*Sanninoidea exitiosa*) - ALABAMA - Heavy on second-year peach trees in Elmore County; ranged 1-2 small larvae per tree. (Barwood, Brackeen, et al.).

FALL WEBWORM (*Hyphantria cunea*) - OKLAHOMA - Moderate on pecan trees in Cleveland County and heavy in Mayes County. (Okla. Coop. Sur.). NEW MEXICO - Minor problem on apples and pears along Rio Grande in Taos, Rio Arriba, Sandoval and Bernalillo Counties. (N.M. Coop. Rpt.).

LEAF CRUMPLER (*Acrobasis indigenella*) - ALABAMA - This species and several weevils caused partial defoliation of second-year apple orchard in Elmore County. (Carroll et al.).

A WHITE-FRINGED BEETLE (*Graphognathus leucoloma fecundus*) - ALABAMA - This species in combination with *Pantomorus godmani* (Fuller rose beetle) and *P. taeniatus* caused partial defoliation of 3-acre, second-year apple orchard in Elmore County. Orchard on perimeter of old white-fringed beetle infestation. (Carroll, Thompson, Bagby, Webb, Barwood, Brackeen).

SPIDER MITES - MICHIGAN - Spraying in southwestern apple orchards reduced local populations of *Panonychus ulmi* (European red mite); eggs present in calyx end of fruit in some orchards. (Carpenter, Conrad, Wooley). Adult *Tetranychus telarius* (two-spotted spider mite) populations low on susceptible hosts in southwest. (Carpenter). NEW MEXICO - Ranged light to heavy in apple orchards in Rio Arriba, Santa Fe, Bernalillo, De Baca and Sandoval Counties; species probably *Tetranychus mcdanieli*. (N.M. Coop. Rpt.). UTAH - *T. mcdanieli* and other species moving to bases of trees in Davis County orchards. (Knowlton).

BLACK PECAN APHID (*Melanocallis caryaefoliae*) - ALABAMA - This and *Tetranychus* spp. (spider mites) extremely heavy in most orchards throughout central and southern area. These, along with dry weather, causing early defoliation of major portion of trees. (Eden et al.).

WALNUT CATERPILLAR (*Datana integerrima*) - ALABAMA - Numerous broods in pecans in Lee, Macon, Tallapoosa and Elmore Counties beginning pupation. Observed as far north as St. Clair and Cherokee Counties. (Eden, Barwood, Brackeen, et al.).

A LACE BUG (*Corythucha* sp.) - ALABAMA - Causing considerable defoliation of black walnuts locally in Lamar County. (Billingsley, Buttram).

GRAPE BERRY MOTH (*Paralobesia viteana*) - MICHIGAN - Very little adult flight occurred in southwest since September 11; few late moths emerged in cages week ending September 18. Larval numbers very low in commercial vineyards; no eggs found in past 10 days. (Carpenter, Conrad).

BLUEBERRY BUD MITE (*Aceria vaccinii*) - NEW JERSEY - Controls recommended in problem areas. (Ins.-Dis. Newsltr.).

CITRUS THRIPS (*Scirtothrips citri*) - ARIZONA - Light to medium and damaging young terminal growth in Yuma County. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (*Brevipalpus lewisi*) - ARIZONA - Building up on citrus in areas of Maricopa County. (Ariz. Coop. Sur.).

Citrus Insect Situation in Florida - Mid-September - CITRUS RUST MITE (*Phyllocoptura oleivora*) infested 36 percent of groves (norm 56 percent); 24 percent economic (norm 36 percent). Population moderate and at lowest level in 13 years of record. About 10 percent of groves have heavy infestations. Gradual buildup



expected during October. Infestations similar on leaves and fruit. Highest districts south and west; no districts in high range. CITRUS RED MITE (Panonychus citri) infested 19 percent of groves (norm 38 percent); 6 percent economic (norm 18 percent). Population dropped to lowest mid-September level of 13 years of record. Further decrease expected; all districts low. TEXAS CITRUS MITE (Eutetranychus banksi) infested 20 percent of groves (norm 18 percent); 5 percent economic (norm 5 percent). Population near normal low for September. All districts expected to remain in low range. GLOVER SCALE (Lepidosaphes gloverii) infested 54 percent of groves (norm 19 percent); 15 percent economic (norm 1 percent). Above normal in abundance; further increase expected. Highest districts south and central. YELLOW SCALE (Aonidiella citrina) infested 49 percent of groves (norm 9 percent); 13 percent economic (norm 1 percent). Population above normal. Further increase expected. Highest district central. PURPLE SCALE (Lepidosaphes beckii) at low level in all districts but will increase slightly. BLACK SCALE (Saissetia oleae) dropped to low level normal for September; few heavy infestations remain in south and central districts. CHAFF SCALE (Parlatoria pergandii) at low level in all districts; little change expected. MEALYBUGS will remain slightly above normal abundance but will be in low range in all districts. Some grapefruit groves developed lumpy fruit due to heavy mealybug infestations during summer. WHITEFLY populations decreased slightly but will continue above normal. Highest districts west, central and south. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

AVOCADO BROWN MITE (Oligonychus punicae) - CALIFORNIA - Light on avocado trees in Encinitas, San Diego County. (Cal. Coop. Rpt.).

A FALSE POWDER-POST BEETLE (Amphicerus cornutus) - CALIFORNIA - Medium in persimmon trees locally in Fresno, Fresno County. (Cal. Coop. Rpt.).

#### TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Spotted, heavy infestations required treatments in Yuma and Maricopa Counties on lettuce. (Ariz. Coop. Sur.). TEXAS - Caused heavy, localized damage to turnip greens in Angelina County. (Walla). MICHIGAN - Larvae heavy on unprotected host crops on Lower Peninsula; all instars present. Adults reared from pupae collected September 16 on Ottawa County celery. (Newman, Wells). NEW JERSEY - Larvae still found on lettuce and cabbage but fewer than in previous week. Protection needed. (Ins.-Dis. Newsltr.).

TOMATO FRUITWORM (Heliothis zea) - UTAH - Infestations in tomato canning district from Box Elder through Utah County ranged 12-25 percent "wormy" fruit; 12 percent "wormy" in loads harvested. Parasitized eggs averaged 15 percent in northern Utah County canning districts. (Dorst, Sept. 21). More damaging than normal in Sanpete County. (Purnell, Knowlton). ARKANSAS - Larvae problem on okra in eastern area for past few weeks; small larvae on 2-day-old pods indicate eggs deposited on blooms. Problem on snap beans in western area; most acreage required treatments. (Ark. Ins. Sur.). DELAWARE - Caused heavy feeding injury to some snap beans in Sussex County. (Burbutis).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Heavy in some untreated peppers in Sussex County. (Burbutis). PENNSYLVANIA - Infested 20-acre field of green beans in Clinton County; crop will not be harvested. (Gesell, Sept. 14). MICHIGAN - Injury very low this season on peppers. (Kidd, Belter, Newman).

FALL ARMYWORM (Laphygma frugiperda) - DELAWARE - Larvae infesting peppers locally in Sussex County. (Burbutis).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Scattered infestations required control in areas of Maricopa County on lettuce. Light in Yuma County. (Ariz. Coop. Sur.).

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Increasing on lettuce in Cochise, Maricopa and Yuma Counties; controls necessary in many fields. (Ariz. Coop. Sur.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Adults continue emergence in 3 Monroe County potato fields recently found infested. Heavy growth made spray penetration difficult. Injury to foliage of no consequence this year but possibility of infestations into storages important. (Newman, James). MINNESOTA - Some potato tubers currently harvested in Anoka County appear damaged by this species. No specimens found. (Minn. Ins. Rpt.).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Medium in 50 acres of tomatoes in Huntington Beach, Orange County. (Cal. Coop. Rpt.).

SWEETPOTATO LEAF ROLLER (Pilocrocis tripunctata) - ALABAMA - Skeletonizing leaves of several fields of sweetpotatoes near Semmes, Mobile County. (Wallace, Boswell, Seibels).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - This species and anthracnose disease caused loss of 15 acres of watermelons several weeks ago; larvae collected under melons this week. Field sandy to sandy loam soil not in cultivation for 5-6 years. Adjacent field of sweetpotatoes in cultivation one year with some damage to 3 of 10 hills sampled 10-12 rows from melons. (Mount).

STRAWBERRY CROWN BORER (Tyloclerma fragariae) - MINNESOTA - New planting of strawberries in Sherburne County, reported previous week, surveyed; 20 percent of plants show damage. Potentilla sp., another host, extremely numerous in and around strawberry planting and probably accounts for problem. (Minn. Ins. Rpt.).

A WEEVIL (Brachyrhinus cribicollis) - CALIFORNIA - Adults causing heavy damage to 150 acres of artichoke in Guadalupe, Santa Barbara County. (Cal. Coop. Rpt.).

A SAP BEETLE (Glischrochilus quadrisignatus) - OHIO - Infested sweet corn, potatoes, tomatoes, onions, strawberries and raspberries. (Holdsworth, Sept. 15).

BEEET LEAFHOPPER (Circulifer tenellus) - UTAH - Losses in area of Washington County caused by this species and curly top disease ranged 65-92 percent in unprotected tomato fields; less disease in orchards and other protected areas. In northern area, one field with 40 percent curly top at Farmington, 9 percent at West Corrine, 10 percent at Hooper and 3 percent at Thatcher. Average for northern canning areas about 7 percent. (Dorst, Knowlton, Sept. 21).

MELON APHID (Aphis gossypii) - UTAH - Moderately numerous on squash. (Knowlton, Purnell).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Heavy in field of peppers in Sussex County. (Burbutis).

STRAWBERRY WHITEFLY (Trialeurodes packardi) - PENNSYLVANIA - Fairly heavy on commercial strawberry planting in Snyder County. (Udine, Aug. 31).

SQUASH BUG (Anasa tristis) - UTAH - Caused moderate damage to squash in Sanpete County. (Purnell, Knowlton).

SLUGS - WISCONSIN - Increasing and causing damage to tomato fruits in Dane County. (Wis. Ins. Rpt.).

COTTON INSECTS

BOLLWORMS (Heliothis spp.) - CALIFORNIA - Continue economic in Shafter area of Kern County. In Oro Loma area of Fresno County, populations of 20-50 larvae per 100 terminals still persist. During latter part of season, infestations have been difficult to control; part of problem involves large, succulent lateral branches of plants, particularly in skip-row plantings. Economic numbers developed low on plants, and adequate insecticide coverage was difficult. Although many fields "cutting out", infestations expected to persist in some fields for 2 weeks or longer. (Leigh, Burton, Sept. 20). ARIZONA - Populations decreased in nearly all cotton-growing areas. Some controls still necessary in areas of Maricopa, Pinal and Graham Counties. (Ariz. Coop. Sur.). TEXAS - Light to moderate populations present on late cotton in Hamilton County. (Gordon). OKLAHOMA - Heavy in cotton in Cleveland County; generally light in west central counties and in Major County. (Okla. Coop. Sur.). ALABAMA - Large numbers of larvae feeding on squares and young bolls in Randolph and Cleburne Counties. This is normal for late fall throughout State where cotton making second growth and normally does not affect yields. (McQueen).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Infestation heavy in one 25-acre field in Graham County; two-thirds of bolls infested and all larval stages present. Larvae averaged 4-5 per boll. In Maricopa County, 25 moth collections made; high of 65 moths collected from one field in single night. Gin trash collections resulted in 3 positive locations, 2 east of Mesa and one in Tonopah area. (Ariz. Coop. Sur.).

BET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Populations continue moderate to heavy in Oro Loma area of Fresno County. Larvae scar outside of moderate-sized bolls and feed around outside of squares. (Burton, Sept. 20).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Infestations increasing rapidly in Yuma, Maricopa, Pinal and Graham Counties. (Ariz. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Heavy, localized populations occurring in areas of Maricopa and Yuma Counties. Controls necessary. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Moderate infestations reported in Hamilton County. (Gordon). OKLAHOMA - No punctured squares found in cotton in Dewey, Custer, Roger Mills and Beckham Counties. (Okla. Coop. Sur.). ALABAMA - "Hatchout", feeding and egg laying continue in previously affected cotton areas and expected to continue until stalks die or are destroyed. Large numbers of adults (up to 200 per bushel of gin trash) being collected during surveys in Lee and Macon Counties; weevils "hatching" from bolls and apparently hiding around bases of open bolls. Numbers about normal for central and southern areas. (Barwood, Brackeen, et al.).

A WEEVIL (Anthonomus sp.) - ARIZONA - Detected in several additional fields in Pinal County. Infestations appear to be on increase. (Ariz. Coop. Sur.).

APHIDS - CALIFORNIA - Populations persist in many areas and should be closely watched as cotton matures. Controls may be necessary in some areas to prevent damaging deposits of honeydew. (Leigh, Burton, Sept. 20).

LYGUS BUGS (Lygus spp.) - NEVADA - Ranged light to heavy on cotton in Pahrum Valley, Nye County, week ending September 11. (Daley, Slater).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - NORTH CAROLINA - Buildup of Dendroctonus frontalis (southern pine beetle) quite severe in Randolph, Davidson, Davie, Yadkin, Forsyth and Guilford Counties. Another outbreak present in north central Granville County, where approximately 1.5 million board feet of shortleaf and loblolly pine killed or currently infested. (For. Pest Newsltr.). MARYLAND - Adults of Ips sp. (an engraver beetle) numerous on bark of Virginia pine at Clinton, Prince Georges County. (U. Md., Ent. Dept.).

RED-PINE CONE BEETLE (Conophthorus resinosae) - MINNESOTA - Damaged terminal buds of Norway pine in central and north central areas. Many buds with attached needles noted littering ground under heavily infested trees. (Minn. Ins. Rpt., Sept. 21).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MINNESOTA - Localized buildup in central area on ornamental spruce and pines. (Minn. Ins. Rpt., Sept. 21).

SPRUCE BUD SCALE (Physokermes piceae) - MINNESOTA - Localized buildup in central area on ornamental spruce and pines. (Minn. Ins. Rpt., Sept. 21).

CONIFER SAWFLIES (Neodiprion spp.) - OHIO - N. pinetum (white-pine sawfly) severe on white pine in Wayne County. (R. B. Neiswander). NORTH CAROLINA - N. lecontei (red-headed pine sawfly) defoliating scattered longleaf and loblolly pine saplings over 1,000 acres in Brunswick County. (For. Pest Newsltr.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Defoliated many elms in Moab area, Grand County. (Tibbetts, Knowlton). NEW MEXICO - Probably this species, ranged light to heavy on Chinese elms at Velarde, Espanola, Dixon and Abiquiu in Rio Arriba County and in Tucumcari area of Quay County. (N.M. Coop. Rpt.). OKLAHOMA - Heavy in Mayes County and light in Cleveland County; heavy damage noted on single elm in Woodward, Woodward County. (Okla. Coop. Sur.). ALABAMA - Final annual generation feeding on elm in Lee, Macon, Tallapoosa, Elmore and other central area counties. (McQueen).

LARGER ELM LEAF BEETLE (Monocesta coryli) - NORTH CAROLINA - Skeletonizing of elm more extensive and more severe in Piedmont area than previous years. (For. Pest Newsltr.).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Light to moderate on elm and poplar along Rio Grande in Taos, Rio Arriba, Sandoval and Bernalillo Counties. Also a minor problem on apple and pear in these counties. (N.M. Coop. Rpt.). WISCONSIN - Larvae mostly pupated in Wautoma area, Waushara County; few still present. (Wis. Ins. Sur.).

SYCAMORE LACE BUG (Corythucha ciliata) - MARYLAND - Heavy on sycamore at Denton, Caroline County. (U. Md., Ent. Dept.). OKLAHOMA - Possibly this species, heavy on sycamore in Woodward County. (Okla. Coop. Sur.).

GALL WASPS - CALIFORNIA - Andricus kingi and Antron douglasii heavy on valley oaks in Lemoore, Kings County. Bassetia herberti caused severe damage to specimen oak in Auburn, Placer County. (Cal. Coop. Rpt.).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Defoliated nearly all mimosa on Dauphin Island for second time this season. New generation occurring on trees previously unaffected in central part of State. (Seibels et al.).

BAGWORMS - PENNSYLVANIA - Area of several acres of Scotch pine infested; damage noticeable on number of trees. (Gesell, Sept. 15). MARYLAND - Thyridopteryx ephemeraeformis (bagworm) heavy on large planting of juniper at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

A NOCTUID MOTH (Litoprosopus coachella) - CALIFORNIA - Larvae medium in palm trees in Turlock, Stanislaus County. (Cal. Coop. Rpt.).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - MARYLAND - Adults feeding on asters at Bel Air, Harford County. (U. Md., Ent. Dept.).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - PENNSYLVANIA - Collected in Dauphin County on rose by W. A. Connell August 10. This is first ARS record for county. (Udine).

FULLER ROSE BEETLE (Pantomorus godmani) - CALIFORNIA - Medium on Heliopsis helianthoides in Chico, Butte County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Neophyllaphis podocarpi heavy locally on Podocarpus macrophylla nursery stock in Thousand Oaks, Ventura County. (Cal. Coop. Rpt.).

NEW MEXICO - Unspecified species very heavy on weeping willow at Taos, Taos County. Trees appeared black from large numbers of aphids. (N.M. Coop. Rpt.).

UTAH - Unspecified species making linden and maple trees sticky in Logan area of Cache County and in Brigham City area of Box Elder County (Knowlton); serious on many shade trees at Ephraim, Manti and elsewhere in Sanpete County (Purnell, Knowlton). Lachnus salignus extremely numerous on weeping willow at Tremonton, Box Elder County. Pterocomma sp. severe on weeping willows at Logan, Cache County. (Knowlton). NEW JERSEY - Various species numerous on many ornamental trees and shrubs; very high populations noted on willows and Austrian pines. (Ins.-Dis. Newsltr.).

COCCIDS - CALIFORNIA - Icerya purchasi (cottony-cushion scale) heavy on unspecified host in Auburn, Placer County. Phenacoccus gossypii (Mexican mealybug) heavy on hoarhound in Salinas, Monterey County. Pseudococcus adonidum (long-tailed mealybug) heavy on Hebe menziesii growing stock in San Francisco. (Cal. Coop. Rpt.).

OKLAHOMA - Kermes boguei noted on oaks in Major County. (Okla. Coop. Sur.).

FLORIDA - Aspidiotus cyanophylli infested leaves of banana (Musa sp.) at High Springs, Alachua County. (Graham, Sobers, Sept. 14). Asterolecanium pustulans severe on 6 oleanders at Merritt Island, Brevard County; plants quarantined. (Levan, Sept. 16). I. purchasi severe on stems of 160 Serissa foetida (a shrub) at Jacksonville, Duval County; many lady beetle larvae feeding on scales. (King, Sept. 18). Pseudococcus citri (citrus mealybug) severe on stem and leaves of 3,000 wax-plants (Hoya sp.) at Apopka, Orange County. (Mugrove, Sept. 16). Pulvinaria psidii (green shield scale) severe on 100 Acalypha sp. at St. Petersburg, Pinellas County. (Bingaman, Barber, Sept. 8). MARYLAND - Unaspis euonymi (euonymus scale) infesting pachysandra around property in northern Prince Georges County. (U. Md., Ent. Dept.). PENNSYLVANIA - Lepidosaphes yanagicola crawlers active in Berwin, Chester County (Lear, Aug. 21), with eggs and crawlers evident in southeast area (Strohecker, Aug. 25). Aspidiotus liquidambaris fairly heavy on several sweetgum trees in Allegheny County in August. (Udine).

YUCCA PLANT BUG (Halticotoma valida) - MARYLAND - Infesting and injuring yucca plants at localities in Prince Georges and Wicomico Counties. (U. Md., Ent. Dept.).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Again rather heavy on new growth of roses in Lee County. (McQueen).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Unspecified species entering homes at Logan, Cache County; troublesome in Manti-Ephraim area of Sanpete County. (Purnell, Knowlton).

WISCONSIN - Plentiful and biting in portions of Sheboygan, Calumet, Ozaukee and Dodge Counties. (Wis. Ins. Sur.). OKLAHOMA - Psorophora spp. heavy in Payne County and moderate in Washington County. (Okla. Coop. Sur.). TEXAS - Mosquito

populations generally normal to light in Jefferson County during August. Special observations made during last few days of month to determine numbers of Culex pipiens quinquefasciatus; only 2 specimens identified during 7 trap nights.

Aedes sollicitans most numerous in southern part of county and Psorophora confinnis was most numerous in north. Anopheles quadrimaculatus (common malaria mosquito) was third most numerous species in county. Aedes vexans increasing in Beaumont area. (Jefferson Co. Mosq. Cont. Comm., Aug. Rpt.). FLORIDA - Several species, mostly P. ferox, P. confinnis, Aedes atlanticus/tormentor and Aedes infirmatus, a nuisance in Gainesville area, Alachua County. (Mead, Sept. 22). P. confinnis, A. vexans and P. ciliata collected in house at Lacoochee, Pasco County. (O'Berry, Sept. 19).

FACE FLY (Musca autumnalis) - MARYLAND - Troublesome to dairy cattle on farm near Kolbes Corner, Prince Georges County. (U. Md., Ent. Dept.). MICHIGAN - Adults, relatively low statewide on beef and dairy cattle during summer, can now scarcely be found. (Dowdy).

HORN FLY (Haematobia irritans) - UTAH - Populations decreasing in northern areas. (Knowlton). MICHIGAN - Ranged 100-300+ per animal on untreated herds in Lower Peninsula. (Dowdy). OKLAHOMA - Populations heavy in Mayes County and light in Bryan County; ranged 5-15 per head on yearling steers in Harper County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - MICHIGAN - Annoying adult numbers built up on some farmsteads in Ingham and Shiawassee Counties during September. (Dowdy).

SHEEP KED (Melophagus ovinus) - UTAH - Common in farm flocks in Wasatch County; populations about normal. (Daniels, Knowlton).

BLACK FLIES - WISCONSIN - Troublesome in western Dane County. (Wis. Ins. Sur.).

CATTLE LICE - UTAH - Becoming troublesome on some beef herds in Wasatch County. (Knowlton, Purnell).

PUSS CATERPILLAR (Megalopyge opercularis) - ALABAMA - Two children in Damascus community in Covington County required hospital treatment when larvae dropped from oak trees. Few Diptera larvae, apparently parasitic, attached to these caterpillars. (Stephenson). NORTH CAROLINA - Annoying in Cumberland County. Caused rash and considerable pain to individual in Bladen County. (Robertson).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - OKLAHOMA - Entered home in Payne County. (Okla. Coop. Sur.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

COCKROACHES - MARYLAND - Blatta orientalis (oriental cockroach) infested property at Burtonville, Montgomery County. Periplaneta americana (American cockroach) infested properties in Anne Arundel and Howard Counties. (U. Md., Ent. Dept.).

BOXELDER BUG (Leptocoris trivittatus) - OHIO - Entering homes to hibernate. (Holdsworth). UTAH - Numerous and entering homes in Wasatch County. (Daniels, Knowlton).

A RHOPALID BUG (Stictopleurus crassicornis) - IDAHO - Nymphs abundant and entering homes at Paris, Bear Lake County; causing concern to homeowners. (Johnson).

CHINCH BUG (Blissus leucopterus) - OHIO - Entering homes and annoying at Celina, Mercer County. (Holdsworth).

CIGARETTE BEETLE (Lasioderma serricorne) - MARYLAND - Adults found in homes in Prince Georges County and in Baltimore. (U. Md., Ent. Dept.).

HOUSE CENTIPEDE (Scutigera coleoptrata) - NEVADA - Heavy in home in Reno, Washoe County. (Miller).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Infestation found on property near Tucson, Pima County. (Ariz. Coop. Sur.).

BENEFICIAL INSECTS

FLOWER BUGS (Orius spp.) - WYOMING - Adults averaged 74 per 100 sweeps in alfalfa fields of Hot Springs, Washakie, Big Horn and Park Counties. (Marks). OKLAHOMA - Heavy in alfalfa checked in west central area, and in Major and Kingfisher Counties. (Okla. Coop. Sur.). ARKANSAS - O. insidious numbers high in alfalfa in Washington County. (Ark. Ins. Sur.).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 134 per 100 sweeps in alfalfa fields of Hot Springs, Washakie, Big Horn and Park Counties. (Marks).

GREEN LACEWINGS (Chrysopa spp.) - WYOMING - Adults averaged 12 and larvae 23 per 100 sweeps in alfalfa fields of Hot Springs, Washakie, Big Horn and Park Counties. (Marks). OKLAHOMA - Quite variable in west central alfalfa; zero in Ellis and Custer Counties; up to 12 per 10 sweeps in Roger Mills County. (Okla. Coop. Sur.).

LADY BEETLES - WYOMING - Adults of several species averaged 18 per 100 sweeps in alfalfa fields of Hot Springs, Washakie, Big Horn and Park Counties. (Marks). MARYLAND - Numerous adults of Hippodamia convergens (convergent lady beetle) taken on arborvitae on property near Langley Park, Prince Georges County. (U. Md., Ent. Dept.).

MISCELLANEOUS INSECTS

WHITE-FRINGED BEETLES (Graphognathus spp.) - Extensions of infestations found in 15 GEORGIA counties and collected for the first time in Jenkins County. Surveys in 33 ALABAMA counties revealed Etowah, Marion and Randolph Counties infested for the first time. Heavy population of adults damaged young pecan trees in nursery in George County, MISSISSIPPI; infestation found for the first time in Yalobusha County. Small, new areas of infestation found in Benton, Davidson, Fayette, Shelby, McNairy and Weakley Counties, TENNESSEE; found for the first time in Houston County. (PPC, South. Reg., Aug. Rpt.).

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - Few additional adults found during trap removal in Battle Creek area. Size of infested area now known to include fringe area approximately 2 miles eastward of area infested in 1963. Infestation considerably larger than any other area found in State. (Turner).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Found for first time in Yates and Broome Counties on June 22 and 24 respectively. Additional infestations found in Cayuga, Cortland, Genesee, Niagara, Oswego and Schuyler Counties. (PPC, East. Reg., Aug. Rpt.).

A HAIRY FUNGUS BEETLE (Typhaea stercorea) - OHIO - Adults emerging from barn siding in milking parlor in Lisbon, Columbiana County. (Holdsworth, Sept. 14).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Found in additional areas in Manatee County (Bickner, Frederic, Sept. 17); reported in Dover, Hillsborough County, (Simmons, Sept. 17); in Largo, Pinellas County, (Bingaman, Hill, Sept. 18); Riverview, Hillsborough County, feeding on terminal growth of sweet orange (Hale, Sept. 18); Valrico, Hillsborough County, (Simmons, Sept. 24) and Macclenny, Baker County, (Josey, Collins, Condo, Sept. 22).

WHITE-LINED SPHINX (Celerio lineata) - UTAH - Larvae very numerous in area from Blanding to 5 miles south of city; moving across highway and over large areas of rangeland in San Juan County. (Argyle, Knowlton).

TOBACCO HORNWORM (Protoparce sexta) - WISCONSIN - First adult caught in Platteville blacklight trap September 10. (Wis. Ins. Sur.).

#### CORRECTIONS

CEIR 14(12):222 - Insects Affecting Man and Animals - Second line from bottom - A SPIDER (Chieracanthium diversum) should read Cheiracanthium diversum.

CEIR 14(39):1086 - YELLOW-STRIPED ARMYWORM - MICHIGAN should be changed to read OHIO.

CEIR 14(39):1089 - ADDITIONAL NOTES - MONTANA - ROSE CHAFER (Marcodactylus subspinus) should read (Macrodactylus subspinus).

#### ADDITIONAL NOTES

MASSACHUSETTS - CRANBERRY GIRDLER (Crambus topiarius) caused much vine killing on many cranberry bogs in eastern part of State. Larvae of a LEAF ROLLER MOTH (Sparganothis sulfurana) caused serious crop losses on several cranberry bogs in Barnstable County, but was not a problem in Plymouth County bogs. (Tomlinson, Sept. 21).

SOUTH DAKOTA - SPOTTED ALFALFA APHID (Therioaphis maculata) ranged 2-16 per 100 sweeps in Deuel County; no sexual forms noted. PEA APHID (Acyrtosiphon pisum) general throughout northeast region; ranged 15 to 3,200 per 100 sweeps on alfalfa. PLANT BUGS averaged 30 per 100 sweeps on alfalfa in eastern region. GREEN CLOVER-WORM (Plathypena scabra) averaged less than 1 per 25 sweeps on alfalfa in northeast area. EUROPEAN CORN BORER (Ostrinia nubilalis) infestation spotty this season, especially in southeast region; some fields show heavy damage. (Hintz).







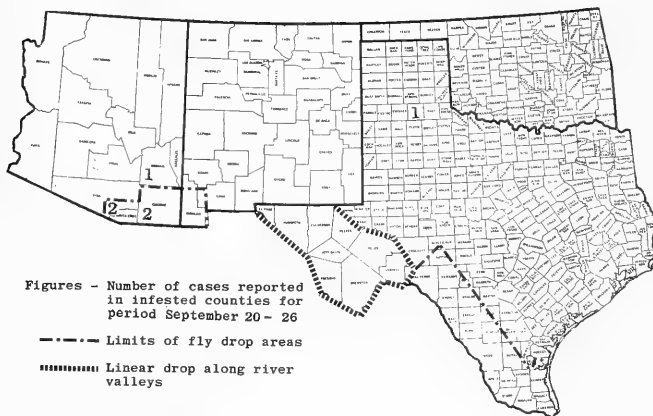
STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period September 20-26, TEXAS reported the first infestation of screw-worm since early August with one case in Briscoe County. ARIZONA, 5 cases reported: Cochise (2), Santa Cruz (2) and Graham (1). No cases in NEW MEXICO. Republic of Mexico reported 386 infestations: Veracruz (1), Nuevo Leon (6), Chihuahua (161), Sonora (161), Zacatecas (2), Puebla (2), Durango (32), Tamaulipas (11) and Coahuila (10). Sterile screw-worm flies released: Texas 12,682,250; New Mexico 500,000; Arizona 7,860,000; Republic of Mexico 61,343,200.

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	1,343	38,181	33	2,405	4,069.7	1,587.5
1963	349	3,321	148	5,167	235.8	64.3
1964	1	109	94	4,581	1.0	2.4
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	372	3,300	22	1,058	1,690.9	311.9
1964	354	2,524	45	1,524	786.6	165.6
Table 2A. Mexican portion of Barrier Zone only.						
1963	76	1,075	3	148	2,533.3	726.4
1964	349	2,300	22	701	1,586.4	339.5

\* 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 Alabama DURING 1963  
(State or District) (Year)

ATTACKING Alfalfa  
(Commodity or Crop)

ATTACKING Soybeans  
(Commodity or Crop)

A. Pest or pest complex: Alfalfa weevil, green cloverworm and aphids

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No. <u>15,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/ <u>2.25 tons</u>
D. Price <sup>b</sup> per unit ( <u>tons</u> ) <sup>c</sup> (From CRS)	\$/ <u>35.00</u>
E. <u>Acres</u> <sup>a</sup> needing control	No. <u>15,000</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>9,600</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>75</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/ <u>1.69 tons</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/ <u>59.15</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>9,126 tons</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>2.20</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>21,120.00</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>319,410</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>-----</u>
Q. Combined control cost and losses, N + O + P	\$ <u>340,530.00</u>
R. Percent loss due to each insect in the complex:	See comment

Comment: Alfalfa weevil 95 percent; green cloverworm 2 percent; aphids 3 percent

- 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 H. Frank McQueen  
Date May 8, 1964

A. Pest or pest complex: Corn earworm, tobacco budworm, fall armyworm and Mexican bean beetle, stink bugs, plant bugs

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No. <u>156,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/ <u>21.0 bu.</u>
D. Price <sup>b</sup> per unit ( <u>bushel</u> ) <sup>c</sup> (From CRS)	\$/ <u>2.52</u>
E. <u>Acres</u> <sup>a</sup> needing control	No. <u>125,000</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>51,000</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>14</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/ <u>2.9 bu.</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/ <u>10.30</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>214,600 bu.</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>5.40</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>275,400.00</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>762,200.00</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>-----</u>
Q. Combined control cost and losses, N + O + P	\$ <u>1,037,600.00</u>
R. Percent loss due to each insect in the complex:	See comment

Comment: Corn earworm 40 percent; tobacco budworm 40 percent; fall armyworm 7 percent; Mexican bean beetle 5 percent; stink bugs 5 percent; plant bugs 3 percent.

- 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 H. Frank McQueen  
Date May 8, 1964



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Hyattsville, Maryland 20781

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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SPOTTED ALFALFA APHID continues a threat to new alfalfa stands in Arkansas Valley of Colorado, and reported for first time from Maryland. FALL ARMYWORM still damaging small grains and pastures in large areas of Texas. (p. 1126). Spread of SOUTHWESTERN CORN BORER reported in Pulaski and Alexander Counties, Illinois. First RICE DELPHACID for 1964 collected in Hendry County, Florida. SORGHUM MIDGE adult populations appearing in many areas of Graham County, Arizona, on sorghum and Johnson grass, and populations locally heavy on late sorghum in Uvalde County, Texas. RHODES-GRASS SCALE and GROUND PEARLS damaging Bermuda grass lawns in Las Cruces area of New Mexico. (p. 1127).

BOLLWORMS continue heavy and damaging to top crop of late cotton in areas of Arizona and heavy on cotton in areas of Oklahoma. (p. 1129). PINK BOLLWORM larval populations increasing in Arizona and appearing in cotton bolls in Eddy County, New Mexico. (p. 1129).

VARIABLE OAK LEAF CATERPILLAR and other lepidopterous larvae defoliating oaks in several areas of Oklahoma. (p. 1130).

DETECTION

New State records reported were SPOTTED ALFALFA APHID (*Therioaphis maculata*) in Maryland (p. 1126) and EUROPEAN EARWIG (*Forficula auricularia*) in Wisconsin (p. 1133). New county records reported were ALFALFA WEEVIL (*Hypera postica*) in Terrell County, Georgia (p. 1125); BLACK PECAN APHID (*Melanocallis caryaefoliae*) in Tehama County and WALNUT HUSK FLY (*Rhagoletis completa*) in Sutter County, California (p. 1128); a PINK CITRUS RUST MITE (*Aculus pelekassi*) in Highlands County, Florida (p. 1128); SUGAR-BEET ROOT APHID (*Pemphigus betae*) in Grant County, Washington (p. 1129); and CABBAGE SEEDPOD WEEVIL (*Ceutorhynchus assimilis*) in Amador County, California (p. 1133). ALFALFA WEEVIL reported in CEIR 14(40): 1106 for first time in Chautauqua, Cattaraugus, Chemung, Schuyler, Tioga, Tompkins, Cayuga, Cortland, Chenango and Essex Counties, New York.

CORRECTIONS and ADDITIONAL NOTES

See page 1133.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1135).

Forage Crop Insect Populations in Western Massachusetts in the Spring of 1964. (p. 1136).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Grain Sorghum and Peanuts in Alabama, 1963. (p. 1138).

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

WEATHER OF THE WEEK ENDING OCTOBER 5

Generous rains fell southeast of a line from the Texas coast to southern New England. The week was colder than usual over the Northwest, Central, and Northeast and unseasonably warm over the Southwest and Southeast.

**TEMPERATURE:** Temperatures averaged above normal from California to Colorado and New Mexico, over northwestern Nebraska, the central portions of the Dakotas, and over several southeastern States and below normal over most of the rest of the Nation. Fair skies and cool temperatures predominated in the polar continental air that lay over the central Great Plains and northeastward to New England on most days. Temperatures increased over the western Great Plains at midweek. Pierre, South Dakota, registered 88° on Wednesday and Goodland, Kansas, registered 91° on Thursday before the advance of a cold front that ended the summerlike weather over the central Rocky Mountains and the central Great Plains. The mercury at North Platte, Nebraska, dropped from 89° on Thursday afternoon to 27° on Friday morning. Subfreezing temperatures occurred as far south as Kansas and Missouri.

**PRECIPITATION:** Early Monday morning, September 28, a cold front stretched from the Texas coast to southern New England. Rain fell over parts of 28 States in connection with this front. Wide areas received an inch or more and in some locations the rains exceeded 2 inches. Hurricane Hilda supplied rains exceeding 10 inches over portions of the Deep South during the latter half of the week.

**HURRICANE HILDA:** Hilda developed in an easterly wave on September 29 near the western tip of Cuba, and intensified to hurricane force within 24 hours while moving on a northwest course toward the central Gulf of Mexico. Maximum winds were estimated at 150 m.p.h. for about 24 hours on October 1 and 2 as Hilda moved slowly northward toward Louisiana. Some decrease of intensity occurred before the center reached the coast over St. Mary Parish during the late afternoon of Saturday, October 3. Winds of 100 to 120 m.p.h. were reported from the coastal area, and sustained winds of 75 to 100 m.p.h. extended some distance inland. The center moved slowly northward to near Baton Rouge by Sunday morning, then eastward through southern Mississippi with diminishing force. By Monday morning, Hilda was centered over northwestern Florida and had been modified to a non-tropical storm by cold air entering the circulation. Several tornadoes were reported during Hilda's passage over Louisiana, Mississippi and Alabama. The most destructive of these struck through Larose, Louisiana, on the morning of October 3, leaving heavy damage, 21 fatalities, and about 175 injuries. High winds and heavy to excessive rains combined to produce extensive crop and property damage in Louisiana. Rains totaled over 10 inches in sections of south central Louisiana and southern Mississippi, with 4 to 6-inch totals over other areas near the storm path. (Summary supplied by U.S. Weather Bureau).

WEATHER BUREAU'S 30-DAY OUTLOOK

OCTOBER 1964

The Weather Bureau's 30-day outlook for October calls for temperatures to average above seasonal normal over the northeastern quarter of the Nation and also over the Northern Plains, the mid-Pacific Coast, and Florida. Below normal averages and expected over the Southern Plateau, the southern and central Rocky Mountains, and the Central Plains. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal over the South, as well as the Great Lakes Region, and the extreme Northwest. Subnormal amounts are anticipated over the Southwest and also over the Northern Plains and New England. Elsewhere precipitation should total about normal.

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.

CEREAL AND FORAGE INSECTS

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Decreasing in alfalfa in nearly all areas. Adult flights remain numerous; larval counts decreased rapidly. (Ariz. Coop. Sur.). WYOMING - Larvae averaged 16 per 100 sweeps in Goshen County alfalfa fields. (Marks). WISCONSIN - Larvae continue common in many fields of alfalfa in southern area. (Wis. Ins. Sur.). MICHIGAN - Few adults active as far north as Mecosta County. (Dowdy).

GREEN CLOVERWORM (Plathypena scabra) - WISCONSIN - Larvae continue common in much southern area alfalfa. (Wis. Ins. Sur.). MICHIGAN - Eleven adults taken in blacklight trap in Livingston County on evening of October 1 when temperature remained in 60's for first time during past 2 weeks. (Newman).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Larvae causing moderate damage to alfalfa in Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - GEORGIA - Light to moderate on soybeans in northern area of State. (Johnson). FLORIDA - Fifty larvae collected in 100 sweeps of unsprayed, mature soybeans at Gainesville, Alachua County; adults seen but not collected. (Mead).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Averaged 36 per 100 terminals in 2 fields of peanuts in Creek County; 100 percent of terminals examined in both fields showed some damage. (Okla. Coop. Sur.). NEW MEXICO - Additional inspections in Portales area, Roosevelt County, indicate that larvae, probably this species, are present in majority of peanut fields. (N.M. Coop. Rpt.).

GRANULATE CUTWORM (Feltia subterranea) - TEXAS - Undetermined species reported in CEIR 14(40):1105 as severely damaging peanuts in Houston County, has been determined as F. subterranea. (Texas Coop. Rpt.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - OKLAHOMA - Heavy (24-35 per 10 sweeps) in soybeans in Le Flore and eastern Sequoyah Counties; ranged 0-8 per 10 sweeps in east central area and in Tulsa County. (Okla. Coop. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light to moderate on soybeans in northern part of State. (Johnson). FLORIDA - Light on unsprayed, mature soybeans at Gainesville, Alachua County. Infestation lower than 2 weeks ago. (Mead).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - D. longicornis (northern corn rootworm) and D. undecimpunctata howardi (southern corn rootworm) adults common in southeastern area alfalfa. (Wis. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - GEORGIA - An adult collected in Terrell County in July 1963 and recently determined constitutes a new county record. (Hodges).

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - Ranged 15-30 per sweep in forage alfalfa over 12 inches high in Yakima area, Yakima County. Ranged 3-4 per sweep in forage and regrowth seed alfalfa in Walla Walla area, Walla Walla County. Apterae unusually abundant on last cutting of alfalfa in Othello, Grant County. (Landis, Featherston, Halfhill, Sept. 25). WYOMING - Adults and nymphs averaged 72 per 100 sweeps in fields of alfalfa in Goshen County. (Marks). WISCONSIN - Populations vary 3-500 per sweep; disease and/or parasitism high in many instances. Alates common, but no males yet noted. Predators generally scarce in alfalfa; lady beetle adults most prevalent. (Wis. Ins. Sur.). MICHIGAN - Adults and nymphs averaged 5 (ranged 0-15) per sweep in 11 fields of alfalfa sampled in 5 counties in northwest Lower Peninsula September 29; less than 1 percent winged. (Dowdy).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MARYLAND - Light numbers of wingless individuals collected from alfalfa near Kolbes Corner, Prince Georges County, on September 24, 1964, by T. L. Bissell. Det. by T. L. Bissell and confirmed by L. M. Russell. This is a new State record. (U. Md., Ent. Dept.). ARKANSAS - Surveys negative in Carroll, Marion, Lee and Independence Counties; averaged less than 100 per 100 sweeps in Searcy County. (Ark. Ins. Sur.). OKLAHOMA - Light (5-60 per 10 sweeps) in alfalfa checked in east central area and in Tulsa, Le Flore and Cotton Counties. (Okla. Coop. Sur.). COLORADO - Populations decreased generally in alfalfa in Arkansas Valley; counts vary 100 to 2,000 per 100 sweeps. Continues a threat to new stands of alfalfa; averaged 5 per plant in some fields. (Schweissing). IDAHO - Appeared in field of alfalfa at Hammett, Elmore County; population low and no damage yet observed. (Edwards).

PLANT BUGS - IDAHO - Lygus spp. averaged 24 adults and 12 nymphs per sweep in alfalfa seed field at Parma, Canyon County, September 25. Counts ranged 15-66 individuals per sweep in other fields checked in same area. (Waters). WYOMING - Lygus spp. adults and nymphs averaged 26 per 100 sweeps in Goshen County alfalfa. Adelphocoris lineolatus (alfalfa plant bug) adults averaged 18 per 100 sweeps in alfalfa in same county. (Marks). NORTH DAKOTA - Lygus lineolaris (tarnished plant bug) ranged 2-4 per sweep at edge of field of alfalfa near Kindred, Cass County. (Frye). MICHIGAN - Adults of L. lineolaris averaged 3 (ranged 0-13) per 10 sweeps in 11 alfalfa fields in 5 northwestern Lower Peninsula counties. (Dowdy).

MEADOW SPITTLEBUG (Philaenus spumarius) - MICHIGAN - Adults averaged 8 (ranged 0-20) per 10 sweeps in 11 alfalfa fields in 5 northwestern counties of Lower Peninsula; mating observed in Missaukee County. (Dowdy).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Remains high in alfalfa in Graham, Yuma and Maricopa Counties. Decrease evident in Pinal County. (Ariz. Coop. Sur.). OKLAHOMA - Averaged 8 per 10 sweeps in field of alfalfa in Sequoyah County; ranged 0-2 per 10 sweeps in other east central fields. (Okla. Coop. Sur.). ARKANSAS - Numerous in alfalfa checked; ranged 75-100 per 100 sweeps. (Ark. Ins. Sur.). FLORIDA - Nine adults collected in 100 sweeps on unsprayed, mature soybeans at Gainesville, Alachua County. (Mead).

GRASSHOPPERS - TEXAS - Melanoplus differentialis (differential grasshopper) adults heavy on pastures and roadsides in local areas of Caldwell, Guadalupe and Hays Counties. (Texas Coop. Rpt., Massey). FLORIDA - Unspecified species common in unsprayed, mature soybeans at Gainesville, Alachua County. Not as abundant as previous 2 weeks. (Mead). INDIANA - Informal adult survey during late August and early September showed grasshopper populations to be noneconomic throughout State. Scattered populations reached 5-7 per square yard in margins of alfalfa fields in northern quarter of State. Elsewhere, populations generally less than 1 adult per square yard. M. femurrubrum (red-legged grasshopper) tended to be dominant throughout State. Other species commonly observed included M. differentialis (especially in fence rows and ditches), M. bivittatus (two-striped grasshopper), Dissosteira carolina (Carolina grasshopper) and occasional Schistocerca spp. (Bram). MICHIGAN - Adult numbers of M. femurrubrum low in Montcalm, Mecosta, Osceola, Missaukee and Kalkaska Counties; of 11 fields checked, only 2 had as many as 1 adult per square yard; highest count found in field of alfalfa and red clover in Mecosta County where counts averaged less than 2 per square yard. M. sanguinipes (migratory grasshopper) second most abundant species in same counties; no field found where adults numbered as high as 1 per square yard. (Janes).

AN ALFALFA SEED CHALCID (Bruchophagus rodii) - CALIFORNIA - Medium in alfalfa in El Centro, Imperial County. (Cal. Coop. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - TEXAS - Continues to damage small grains and native and improved pastures over wide portion of central, north central, northeast and coastal bend areas of State. (Texas Coop. Rpt.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ILLINOIS - Found at 4 new locations in Pulaski and Alexander Counties, indicating infestation has spread throughout these 2 counties. Infestation well below 1 percent in 3 fields; 24 percent of plants infested with 1 larva per plant in 1 field. Three of 10 larvae collected in latter field white (winter) forms; other 7 larvae spotted (summer) forms. (Ill. Ins. Rpt.).

SUGARCANE BORER (Diatraea saccharalis) - FLORIDA - Severe in 90 percent of 300 sugarcane plants inspected in backyard planting at Ochopee, Collier County. (Walsh, Adkins, Sept. 29).

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Stalk infestation averaged 10.2 percent in north central district, compared with 28.1 percent in 1963. Number of borers per 100 stalks in same district averaged 13.4 compared with 74.2 in 1963. (Peters). NORTH DAKOTA - Summer pupation 30 percent at Hankinson, Richland County, and at Forman, Sargent County. (Frye).

CORN EARWORM (Heliothis zea) - MICHIGAN - Average of 1 larva per 18 plants found in Monroe County sweet corn fields September 29; late-stage larvae now common in very late field and sweet corn in Ingham County and other counties southward; adults still taken in southern counties. (Newman).

A CUTWORM - OKLAHOMA - Unspecified species moderate in rye in Pushmataha County. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Light, local infestations occurring in grain sorghums in Yuma County. (Ariz. Coop. Sur.).

RICE DELPHACID (Sogata orizicola) - FLORIDA - Single male collected on rice at farm in La Belle, Hendry County. This is first record of this species in State this year. (Weaver, Faircloth, Sept. 17).

DELPHACID PLANTHOPPERS (Sogata fucifera complex) - FLORIDA - Light on rice at Belle Glade, Palm Beach County. (Weaver, Faircloth, Sept. 16).

SORGHUM MIDGE (Contarinia sorghicola) - ARIZONA - Adult populations appearing in many areas of Graham County on sorghum and Johnson grass; averaged 50 per 100 sweeps. (Ariz. Coop. Sur.). TEXAS - Heavy, local populations observed on late sorghum in Uvalde County. (Gauldman).

ARMYWORM (Pseudaletia unipuncta) - ALABAMA - Larvae numerous on grass at Semmes, Mobile County. (Boswell, Wallace, Fairley, Seibels).

BLACK CUTWORM (Agrotis ipsilon) - NEVADA - Larvae numerous in lawns and flower beds in Reno, Washoe County. (Hilbig, Martinelli).

RHODES-GRASS SCALE (Antonina graminis) - NEW MEXICO - Damaging Bermuda grass lawns in Las Cruces area, Dona Ana County; control extremely difficult. (N.M. Coop. Rpt.).

GROUND PEARLS - NEW MEXICO - Unusually heavy populations of unspecified species killing Bermuda grass lawns at Las Cruces, Dona Ana County; especially severe on Tif-green variety. Satisfactory control not being obtained. (N.M. Coop. Rpt.).

A BERMUDA-GRASS MITE - OKLAHOMA - Unspecified species damaging Bermuda grass lawns in Altus, Jackson County. (Okla. Coop. Sur.).

#### FRUIT INSECTS

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Heavy on almond, plum, prune and apricot nursery stock in Lincoln, Placer County. (Cal. Coop. Rpt.).

CODLING MOTH (Carpocapsa pomonella) - CALIFORNIA - Medium on pear fruit in Arlington, Riverside County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Fall migrants returning to peach; no oviparae noted in Othello, Grant County. (Landis, Sept. 25).  
COLORADO - Fall migrants returning to peach trees in western area; few colonies of sexual forms. Main movement not yet started. (Bulla).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium on peach trees in Chico, Butte County. (Cal. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - COLORADO - Changing to brown and reddish overwintering forms on peach leaves in western area; populations light in most orchards. (Bulla).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - CALIFORNIA - Heavy on apple in Wawona, Toulumne County. (Cal. Coop. Rpt.).

RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Larvae heavy on English walnut trees in Shafter, Kern County. (Cal. Coop. Rpt.).

A NEPTICULID MOTH - TEXAS - Larvae of unspecified species causing considerable defoliation of pecan in local areas of Young County. (McCarroll).

A FALSE POWDER-POST BEETLE (Xylobiops basilaris) - ALABAMA - Numerous adults seriously girdled second and third-year growth on pecan tree in Etowah County. Species occurs throughout State; has been previously reported many times as affecting only dead or dying limbs. (Sanderson et al.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - TEXAS - Heavy locally on pecans in Lamar County. (Neal). CALIFORNIA - Medium on pecan trees in Corning, Tehama County. This is a new county record. (Cal. Coop. Rpt.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Adults taken in trap in Yuba City, Sutter County. This is a new county record. (Cal. Coop. Rpt.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Moderate on 90 percent of 10,000 sweet orange plants at Lake Placid, Highlands County. This is a new county record. (A. C. McAulay, J. C. Denmark, Aug. 26).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - Severe on 89 kumquat plants in citrus nursery at Sanford, Seminole County. (McLeod, Youtsey).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Continues serious problem of citrus in greenhouses and nurseries in Yuma County. (Ariz. Coop. Sur.).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - Heavy on grapevines in Safford area, Graham County. (Ariz. Coop. Sur.).

LEAFHOPPERS (Erythroneura spp.) - FLORIDA - Severe on grape at nursery in St. Petersburg, Pinellas County. (Bingaman, Barber).

A GALL MIDGE (Cecidomyia viticola) - ALABAMA - Gall-making activity increased somewhat on recent growth of grapes in central area. (McQueen).

#### TRUCK CROP INSECTS

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Heavy on lettuce in Maricopa and Yuma Counties; controls necessary. (Ariz. Coop. Sur.).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Small infestations ranging light to medium on lettuce fields of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Scattered and damaging to lettuce in areas of Maricopa and Yuma Counties. Buildup occurring on fall cantaloups in Yuma County. (Ariz. Coop. Sur.). MICHIGAN - Sizable numbers of all stages present in Monroe County fields September 29. Heavy larval damage occurred on unsprayed host crops. (Newman).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - MICHIGAN - Several adults taken September 29 in pepper field in Monroe County. (Newman).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Adults now very difficult to find in 3 Monroe County fields; larvae scarcely found. Three other fields in vicinity show no signs of infestation. (Newman).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Light to moderate and damaging lettuce in few areas of Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

A BLISTER BEETLE (Epicauta sp.) - GEORGIA - Moderate on turnips in Fulton County. (Woodliff).

WIREWORMS - WISCONSIN - Damaged tomatoes grown in heavier soils in Winnebago County. (Wis. Ins. Sur.).

SUGAR-BEET ROOT APHID (Pemphigus betae) - WASHINGTON - Fall migrants being produced in colonies on sugar beet roots at Othello, Grant County. (Landis, Sept. 25). This is first ARS record for Columbia Basin. (PPC).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Continues in new planting of strawberries in Dane County. (Wis. Ins. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Ranged 80-90 per 100 sweeps on experimental plots of sugar beets in Graham County. (Ariz. Coop. Sur.).

CRICKETS (Gryllus spp.) - ARIZONA - Sporadic infestations require treatments on lettuce in Yuma County. (Ariz. Coop. Sur.).

#### COTTON INSECTS

BOLLWORMS (Heliothis spp.) - ARIZONA - Heavy populations continue to damage top crop of late planted cotton in Graham, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). OKLAHOMA - Infestations heavy (20-40 percent) in cotton in Wagoner, Sequoyah, Muskogee and Pittsburg Counties. (Okla. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Larval populations increasing in Safford-Solomon area, Graham County. Moths and larvae being found in vicinity of Tonapah, Rainbow Valley, Deer Valley and eastern Mesa area of Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Appearing in bolls in cotton fields in Eddy County; heaviest infestations in Malaga-Loving area. Infestations appear spotted; one report indicates 10 percent infestation. (N.M. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Moderate in cotton in Wagoner County; light in Muskogee and Sequoyah Counties; absent in Pittsburg County. (Okla. Coop. Sur.).

COTTON LEAFWORM (Alabama argillacea) - OKLAHOMA - Moderate population damaging cotton leaves in Pittsburg County. (Okla. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Scattered infestations in cotton in Yuma County require controls. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Infestations increasing slowly in Yuma, Maricopa, Pinal and Graham Counties. Some controls necessary. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Punctured square counts in east central area, by county, as follows: Wagoner 13 percent, Muskogee light, Sequoyah heavy and Pittsburg 85 percent; adults numerous in all counties except Muskogee County. Other counts were 14 percent in Jackson County and 24 percent in Cotton County. (Okla. Coop. Sur.).

A WEEVIL (Anthonomus sp.) - ARIZONA - Total of 75 properties found infested in State in following counties: Maricopa 6, Yuma 21, Pinal 30, Santa Cruz 12, and Pima 6. (Ariz. Coop. Sur.).

#### FOREST, ORNAMENTAL AND SHADE TREE INSECTS

MOUNTAIN PINE BEETLE (Dendroctonus monticolae) - WYOMING - Approximately 5 acres of limber pine killed on Medicine Bow National Forest, Albany County. (Fronk).

APHIDS (Cinara spp.) - WYOMING - Light on pines on Medicine Bow National Forest, Albany County. (Fronk).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Defoliating oaks in Creek, Wagoner, Muskogee, Sequoyah, Haskell, Pittsburg, McIntosh and Okfuskee Counties. Other lepidopterous larvae present on oaks in these areas included: Megalopyge opercularis (puss caterpillar) in Creek and Pittsburg Counties; Euclea delphinii (a eucleid moth) in Pittsburg County; Datana ministra (yellow-necked caterpillar) in Creek County; Schizura unicornis (unicorn caterpillar) in Creek and Pittsburg Counties; and Heterocampa astarte (a notodontid moth) in Pittsburg County. All determined by Dr. W. A. Drew. (Okla. Coop. Sur.).

FALL CANKERWORM (Alsophila pomataria) - NORTH DAKOTA - Emergence of adult females underway in southeastern areas; activity light. Initial emergence similar to that of 1963. (Frye).

A NYMPHALID BUTTERFLY (Polygonia interrogationis) - OKLAHOMA - Larvae noted feeding on elm in Payne County. (Okla. Coop. Sur.).

GALL WASPS - CALIFORNIA - Neuroterus saltatorius, Andricus kingi and A. crenatus heavy in blue oak trees in North Sacramento, Sacramento County. (Cal. Coop. Rpt.).

AZALEA CATERPILLAR (Datana major) - GEORGIA - Moderate to heavy on azalea in Chatham and Evans Counties. (Freeman).

SADDLEBACK CATERPILLAR (Sibine stimulea) - GEORGIA - Unusually numerous on azalea and holly in Atlanta area. (Blasingame).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - FLORIDA - Infested localized groups of chrysanthemums at Alva, Lee County. (Walsh, Shirah, Sept. 22).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ALABAMA - Larvae of this species and other arctiid species feeding on nursery stock in Mobile County. (Boswell, Wallace, Fairley, Seibels).

MIMOSA WEBWORM (Homadaula albizziae) - ILLINOIS - Ranged light to very heavy on mimosa and honeylocust in southern part of State; light on mimosa in Richland County. (Ill. Ins. Rpt.).

A WEEVIL (Nemocestes incomptus) - WASHINGTON - Caused loss of approximately 5,000 rhododendrons in lath house at Long Beach, Pacific County. (Brannon).

A MANZANITA LEAF GALL APHID (Tamalia coweni) - CALIFORNIA - Medium on manzanita leaves in Quincy, Plumas County. (Cal. Coop. Rpt.).



AZALEA LACE BUG (Stephanitis pyrioides) - ALABAMA - Heavy, isolated infestations observed on azalea in Lee County. (McQueen).

A LEAFHOPPER (Empoasca abrupta) - CALIFORNIA - Heavy on vernania in USDA Plant Introduction Station in Chico, Butte County. (Cal. Coop. Rpt.).

A LEAF-FOOTED BUG (Leptoglossus clypealis) - CALIFORNIA - Adults heavy on junipers and fruitless mulberry locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

COCCIDS - RHODE ISLAND - Toumeyella liriodendri (tuliptree scale) heavy on several tuliptrees in Kenyon, Washington County; crawlers active. (Griffiths, Mathewson). GEORGIA - Icerya purchasi (cottony-cushion scale) moderate on azalea in Chatham and De Kalb Counties. Unaspis euonymi (euonymus scale) moderate on euonymus in De Kalb and Fulton Counties. (Woodliff). FLORIDA - I. purchasi severe on 25 of 50 pittosporum plants inspected at nursery in Sarasota, Sarasota County. (Bickner). Orthezia insignis (greenhouse orthezia) severe on 90 percent of 60 croton (Codiaeum sp.) plants and coleus plants inspected at retail store in Eustis, Lake County. (Bentley, Sept. 24). Phenacaspis cockerelli (an armored scale) severe and generally infesting 21 bird-of-paradise (Strelitzia reginae) plants at nursery in Holly Hill, Volusia County. (Holley, Pott, Sept. 24). TEXAS - Pseudococcus adonidum (long-tailed mealybug) damaging holly in local areas of Tarrant County. (Gray). CALIFORNIA - Ferrisia virgata (striped mealybug) light in 2 local yards in Brawley and Winterhaven, Imperial County. (Cal. Coop. Rpt.).

A DRYWOOD TERMITE (Kalotermes approximatus) - FLORIDA - Infesting dead wood area in living dogwood tree at Gainesville, Alachua County. (White).

SPIDER MITES - NEVADA - Unspecified species heavy on various ornamental shrubs in Lovelock, Pershing County. (Ferraro). WYOMING - Tetranychus telarius (two-spotted spider mite) light in evergreen ornamentals at Torrington, Goshen County. (Marks). ALABAMA - Extremely heavy numbers of Tetranychus spp. caused considerable defoliation of azaleas in Lee County. (McQueen). FLORIDA - Oligonychus ilicis (southern red mite) severe on 75 of 100 azalea plants (Rhododendron indicum) inspected at Sebring, Highlands County. (McAulay, Nelson).

A FALSE SPIDER MITE (Tenuipalpus pacificus) - FLORIDA - Severe on 3 orchard plants at De Land, Volusia County, (Roberts, Sept. 4); moderate on 95 percent of 2,000 orchid plants (Cattleya sp.) at nursery in Fort Lauderdale, Broward County, and moderate on 95 percent of 2,000 plants of staghorn fern (Platynerium sp.) at nursery in Fort Lauderdale (Clinton, Sept. 18).

#### INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Haematobia irritans) - OKLAHOMA - Adult counts per animal by county as follows: Payne 250 on cows, Woodward 75 on steers, Harper 100 on steers, Canadian 1,000 on steers and 700 on cows, Muskogee 500 on cows, Pushmataha 1,500 on cows, Haskell moderate, Blaine 800, and Mayes heavy. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - ALABAMA - Large swarms caused considerable concern among vacationers and others along coast of Baldwin and Mobile Counties during latter part of August until mid-September. Winds apparently brought species further inland. (Boswell, Wallace, Fairley, Seibels). OKLAHOMA - Averaged 3 per head in Payne County and 6 per head in Pushmataha County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - WISCONSIN - Populations high in Richland County. (Wis. Ins. Sur.).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Averaged 5 per head on cows in Pushmataha County; very light in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - FLORIDA - Total of 53 specimens taken at rate of 212 per hour during 15-minute period in woods at Gainesville, Alachua County. Species and number involved included: Psorophora ferox 26, P. confinnis 1, Aedes atlanticus/tormentor 3, and A. infirmatus 23. (Esser, Sept. 23). P. ciliata, Anopheles crucians, A. quadrimaculatus (common malaria mosquito) and Mansonia perturbans taken in small numbers near light in Gainesville. (Esser, Sept. 29). NEVADA - Adults of Aedes spp. heavy in Lovelock, Pershing County. (Martinelli).

AN EYE GNAT (Hippelates collusor) - ARIZONA - Extremely large populations serious problem to citrus workers in Yuma County. (Ariz. Coop. Sur.).

A PUSS CATERPILLAR (Megalopyge bisessa) - ARIZONA - Numerous people "stung" by larvae in Tucson, Pima County; infestations found on mulberry and oak trees. (Ariz. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - ARIZONA - Heavy in homes in Somerton area, Yuma County. (Ariz. Coop. Sur.).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Found in homes more frequently than usual in central area. (Okla. Coop. Sur.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - RHODE ISLAND - Infested property in North Smithfield, Providence County. (Mathewson). MARYLAND - Numerous on tree in College Park, Prince Georges County. (U. Md., Ent. Dept.). WISCONSIN - Entering homes in many areas. (Wis. Ins. Sur.). WYOMING - Adults migrating into homes and causing some concern at Torrington, Goshen County. (Marks).

ELM LEAF BEETLE (Galerucella xanthomelaena) - RHODE ISLAND - Scattered reports of adults invading homes. (Mathewson).

GERMAN COCKROACH (Blattella germanica) - MARYLAND - Infested several rooms in home in Baltimore. (U. Md., Ent. Dept.). WYOMING - Infested self-service laundry establishment at Laramie, Albany County. (Pfadt).

LARGER YELLOW ANT (Acanthomyops interjectus) - RHODE ISLAND - Alates swarming around home in Smithfield, Providence County. (Mathewson).

A HORNTAIL (Sirex areolatus) - FLORIDA - Adult collected leaving living room wall at Orlando, Orange County; this is second specimen for Florida State Collection of Arthropods. (Flood, Sept. 15).

CLOVER MITE (Bryobia praetiosa) - WISCONSIN - Entering homes in many areas. (Wis. Ins. Sur.).

#### STORED-PRODUCT INSECTS

Stored-Grain Insects in Wisconsin - SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), particularly, and RICE WEEVIL (Sitophilus oryzae) and LESSER GRAIN BORER (Rhyzopertha dominica) reported from scattered areas. (Wis. Ins. Sur.).

A DERMESTID BEETLE - NEW MEXICO - About one-half carload of bagged dog food heavily infested by what is probably Trogoderma sp. in establishment at Las Cruces, Dona Ana County. (N.M. Coop. Rpt.).

BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 70 per 100 sweeps in alfalfa fields of Goshen County. (Marks).

FLOWER BUGS (Orius spp.) - WYOMING - Adults averaged 54 per 100 sweeps in alfalfa fields of Goshen County. (Marks).

PREDACEOUS STINK BUGS - FLORIDA - Much less abundant on soybeans at Gainesville, Alachua County. (Mead). ALABAMA - Podisus maculiventris quite numerous in fields near Wilmer, Mobile County; preying on Pseudaletia unipuncta (armyworm). (Boswell, Wallace, Fairley, Seibels).

A MINUTE EGG PARASITE (Trichogramma evanescens) - COLORADO - Parasitism of Helio Heliothis zea (tomato fruitworm) about 6 percent on tomato fields in Arkansas Valley. (Schweissing).

A EUPELMID WASP (Eupelmus popa) - TEXAS - Adults numerous on grain sorghum heads in Uvalde County. (Gauldman).

MISCELLANEOUS INSECTS

EUROPEAN EARWIG (Forficula auricularia) - WISCONSIN - Reported established in Milwaukee area, Milwaukee County; presently confined to 32-square block area on upper east side of city. Specimens have been collected in gardens and in homes during past several weeks. This is a new State record. (MacArthur, Oct. 1).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - CALIFORNIA - Adult collected on flower of Sisymbium sp. 2 miles west of Volcano, Amador County, by R. Henderson and R. P. Anderson on May 29, 1964. Det. by W. Simonds. This is a new county record. (Cal. Coop. Rpt.).

A VELVET ANT (Dasymutilla sackenii) - CALIFORNIA - Light in soil in Hanford area, Kings County; more noticeable this year. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 14(29):1087 - STRAWBERRY CROWN BORER (Tylocleris fragariaefolia) should read Tylocleris fragariae

ADDITIONAL NOTES

SOUTH DAKOTA - SPOTTED ALFALFA APHID (Therioaphis maculata) averaged 215 per 100 sweeps in Yankton and Hutchinson Counties; no sexual forms found. FACE FLY (Musca autumnalis) ranged 2-18 per head in Harding County. HORN FLY (Haematobia irritans) especially bothersome on heard bulls in same county; ranged 2,000-4,000 per side. Counts on brood cows considerably lower; ranged 500-1,000 per side. (Hintz).

MINNESOTA - GRASSHOPPERS, primarily Melanoplus differentialis (differential grasshopper) and M. femurrubrum (red-legged grasshopper), observed laying eggs; cool weather reduced activity. BOXELDER BUG (Leptocoris trivittatus) collecting on sides of homes and causing nuisance. BRONZE BIRCH BORER (Agrius anxius) moderate on native birch grown for nursery sale in Morrison County. Last APPLE MAGGOT (Rhagoletis pomonella) cover spray applied September 22; this should protect through harvest and into storage. (Minn. Ins. Rpt.).

Continued on p. 1137.



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

During the period September 27 - October 3, TEXAS reported 4 screw-worm cases: one each in Presidio, Sutton, Zapata and Starr Counties. NEW MEXICO reported 2 occurrences: Luna (1) and Catron (1). ARIZONA, 3 cases reported: Santa Cruz (2) and Pima (1). Republic of Mexico reported 205 cases: San Luis Potosi (1), Nuevo Leon (6), Chihuahua (74), Sonora (106), Durango (8), Tamaulipas (6) and Coahuila (4). Sterile screw-worm flies released: Texas 21,642,250, New Mexico 1,344,000, Arizona 5,554,000 and Mexico 59,421,600.

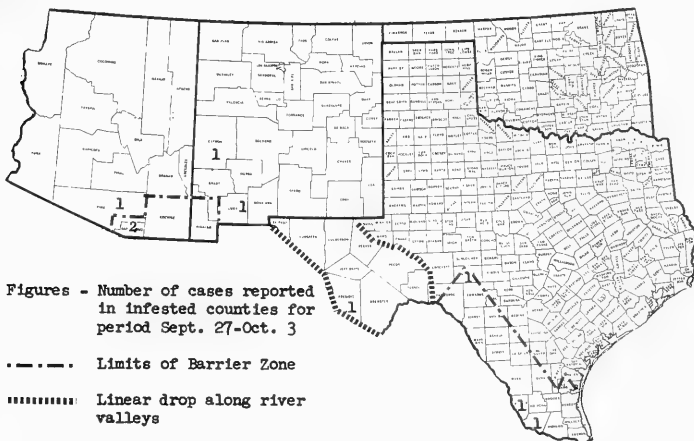
Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1. Comparison of specimens reported during corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.						
1962	1,581	39,762	41	2,446	3,856.1	1,625.6
1963	585	3,906	142	5,309	411.9	73.6
1964	6	115	122	4,703	4.9	2.4

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	519	3,819	34	1,092	1,526.4	349.7
1964	203	2,727	16	1,540	1,268.7	177.1

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 2A. Mexican portion of Barrier Zone only.						
1963	102	1,177	2	150	5.1	784.6
1964	196	2,576	6	707	3,266.6	364.3

\* 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.).



Forage Crop Insect Populations  
in Western Massachusetts in the Spring of 1964

F. R. Shaw, R. Callahan and F. Holbrook

A survey was conducted to determine the abundance of forage crop insects in Worcester County and the remaining western counties of Massachusetts. Most collections were made in Hampshire, Hampden and Berkshire Counties.

For the first time, alfalfa weevil (Hypera postica) was almost universal in fields untreated in the fall of 1963. Damage varied from slight to severe, with many fields taking on the typical "frosted" appearance associated with weevil damage. Of particular interest is the great increase in abundance of alfalfa weevil which, for the first time, exceeded all other insects in abundance.

The population of pea aphid (Acyrtosiphon pisum) was the lowest in 1964 that it has been for the past 7 years. Leafhoppers were slightly more abundant, comprising 5.81 percent of the 1964 total as compared with 3.7 percent of the 1963 total, during a comparable period. The most abundant single species was Errastunus ocellaris, which was common in most fields in Berkshire County. Potato leafhopper (Empoasca fabae) was less abundant in 1964 than in 1963. Plant bugs were about as abundant in 1964 as in 1963, with tarnished plant bug (Lygus lineolaris), Trigonotylus ruficornis and meadow plant bug (Leptopterna dolabratus) ranking in importance in the order given.

A summary of the results of the survey appears in the table below, and is based on a collection of 44,500 insects and insect allies. Collections were made using a 15-inch net, with 100 sweeps per field being taken.

Abundance of Forage Crop Insects in Massachusetts, Spring 1964

<u>Insect Name or Group</u>	<u>Of Group</u>	<u>Percent</u> <u>Of Total</u>
Aphids:		
<u>Acyrtosiphon pisum</u>	100	16.26
Plant bugs:		4.36
<u>Lygus lineolaris</u>	38.23	1.66
<u>Trigonotylus ruficornis</u>	29.38	1.28
<u>Leptopterna dolabratus</u>	15.90	0.69
<u>Adelphocoris lineolatus</u>	5.71	0.24
<u>Megalocerola recticornis</u>	2.11	0.09
Others	8.64	0.37
Leafhoppers:		5.81
<u>Errastunus ocellaris</u>	45.65	2.65
<u>Macrosteles fascifrons</u>	21.33	1.24
<u>Aceratagallia sanguinolenta</u>	10.32	0.59
<u>Endria inimica</u>	7.15	0.41
<u>Empoasca fabae</u>	4.44	0.25
<u>Draeculacephala</u> spp.	2.51	0.14
Others	8.58	0.49
Beetles:		69.74
<u>Hypera postica</u>	98.26	68.53
Elateryids	0.74	0.51
<u>Sitona hispidula</u>	0.58	0.41
<u>Hypera punctata</u>	0.12	0.08
<u>Hypera nigrirostris</u>	0.05	0.03
Others	0.23	0.15

Lepidoptera:		0.88
Noctuids	7.36	0.06
Geometrids	5.07	0.04
Others	87.56	0.77
Miscellaneous Insects:		0.97
Sawflies	49.08	0.48
Spittlebugs	34.63	0.33
Grasshoppers	12.15	0.11
Membracids	4.12	0.04
Beneficial Arthropods:		1.94
Coccinellids (lady beetles)	39.42	0.76
Spiders	35.02	0.68
<u>Nabis ferus</u>	16.99	0.33
Syrphids	4.39	0.08
Chrysopids	4.16	0.08

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Additional Notes (continued)

PENNSYLVANIA - CORN EARWORM (Heliothis zea) extremely heavy in late sweet corn in Lehigh and Northampton Counties (Gesell, Sept. 22) and infested 50 percent of ears in Centre County (Udine, Sept. 24). CABBAGE LOOPER (Trichoplusia ni) heavy on cabbage in Schuylkill County; ranged 6-8 per plant. (Gesell, Sept. 24). GARDEN SYMPHYLAN (Scutigereella immaculata) infested 8-10 acres of 20-acre potato field in Northampton County; heavy, no salable tubers in infested area. (Gesell, Sept. 22). A SAWFLY (Caliroa lineata) defoliated many pin and scarlet oaks in Huntingdon County; det. by B. D. Burks. (Eckess, Aug. 21). Specimen of AUSTRALIAN COCKROACH (Periplaneta australasiae) collected at State College, Centre County; det. by R. Snetsinger. (Snetsinger, Sept. 29). GIANT BARK APHID (Longistigma caryae) quite abundant on red-osier dogwood at Rolling Rock, Westmoreland County, det. by G. B. Slesman. (Udine, Sept. 21).

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Peanuts  
(Commodity or Crop)

A. Pest or pest complex: Corn earworm, cutworms, thrips, lesser cornstalk borer

B. Number of acres <sup>a</sup> produced (From CRS)	No.	212,000
C. Average yield per acre <sup>a</sup> (From CRS)	Units/	1,220 lbs.
D. Price <sup>b</sup> per unit ( lb. ) <sup>c</sup> (From CRS)	\$/	0.106
E. Acres <sup>a</sup> needing control	No.	212,000
F. Acres <sup>a</sup> treated	No.	114,000
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	12
I. Loss in yield, units per acre <sup>a</sup> , C x H	Units/	146 lbs.
J. Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/	15.57
K. Loss in quality, \$ per acre <sup>a</sup>	\$/	-----
L. Yield loss for all acres <sup>a</sup> , (E-F) x I	Units	14,308,000 lbs.
M. Control cost, \$ per acre <sup>a</sup>	\$/	4.42
N. Control cost for all acres <sup>a</sup> , F x M	\$	503,880
O. Yield loss for all acres <sup>a</sup> , (E-F) x J	\$	1,525,860
P. Quality loss for all acres <sup>a</sup> , (E-F) x K	\$	-----
Q. Combined control cost and losses, N + O + P	\$	2,029,740
R. Percent loss due to each insect in the complex:		

Comment: Corn earworm 70 percent; cutworms 12 percent; thrips 12 percent; lesser cornstalk borer 6 percent

- 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 H. Frank McQueen  
Date May 8, 1964

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

ATTACKING Corn earworm  
(Commodity or Crop)

A. Pest or pest complex: Corn earworm, tobacco budworm, corn leaf aphid, sorghum midge, sorghum webworm, European corn borer

B. Number of acres <sup>a</sup> produced (From CRS)	No.	12,000
C. Average yield per acre <sup>a</sup> (From CRS)	Units/	26 bu.
D. Price <sup>b</sup> per unit ( bu. ) <sup>c</sup> (From CRS)	\$/	0.66
E. Acres <sup>a</sup> needing control	No.	12,000
F. Acres <sup>a</sup> treated	No.	1,000
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	20
I. Loss in yield, units per acre <sup>a</sup> , C x H	Units/	5.2 bu.
J. Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/	3.43
K. Loss in quality, \$ per acre <sup>a</sup>	\$/	-----
L. Yield loss for all acres <sup>a</sup> , (E-F) x I	Units	57,200 bu.
M. Control cost, \$ per acre <sup>a</sup>	\$/	3.00
N. Control cost for all acres <sup>a</sup> , F x M	\$	3,000
O. Yield loss for all acres <sup>a</sup> , (E-F) x J	\$	37,730
P. Quality loss for all acres <sup>a</sup> , (E-F) x K	\$	-----
Q. Combined control cost and losses, N + O + P	\$	40,730
R. Percent loss due to each insect in the complex:		See comment

Comment: Corn earworm 35 percent; tobacco budworm 35 percent; sorghum midge 8 percent; sorghum webworm 8 percent; European corn borer 8 percent; corn leaf aphid 6 percent

- 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 H. Frank McQueen  
Date May 8, 1964





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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

FALL ARMYWORM still damaging small grains and pastures over large areas of Texas (p. 1141) and damaging young alfalfa in Noble County, Oklahoma (p. 1152). GRASSHOPPERS damaging fall grain in many central and northern localities of Utah. (p. 1142).

CITRUS RED MITE at lowest level observed during 14 years of record on Florida citrus, and GLOVER SCALE population above normal for time of year on same crop with further increase expected. (p. 1143). A PINK CITRUS RUST MITE (Aculus pelekassi) and CITRUS RUST MITE caused moderate damage to sweet orange nursery plants at Eustis, Lake County, Florida; citrus rust mite also severe on several hundred sweet orange nursery trees at Lake Jem. (p. 1144).

CABBAGE LOOPER serious and damaging cabbage, collards and turnips throughout most of Alabama, and continues heavy on lettuce in Yuma County, Arizona, with treatments still required. (p. 1144). SQUASH BUG heavy and damaging truck crop gardens at Tucumcari, New Mexico. (p. 1145).

PINK BOLLWORM poses possibility of heavy losses to cotton in southern Eddy County, New Mexico. Larvae of CABBAGE LOOPER, a LEAF TIER (Udea profundalis) and a NOCTUID MOTH (Proxenus mindara) heavy in cotton in Shafter area of Kern County, California. (pp. 1145, 1146).

VARIABLE OAK LEAF CATERPILLAR and other lepidopterous larvae defoliating oaks in several additional areas of Oklahoma. (p. 1148).

DETECTION

A new United States record reported was a DELPHACID PLANTHOPPER (Delphacodes havanae) collected on rice on Rabbit Island in the Belle Glade area of Florida; this species is of no known economic importance. (p. 1142). New State records were OAK SKELETONIZER (Bucculatrix ainslieiella) in Tennessee, (p. 1148); EUROPEAN SPRUCE SAWFLY (Diprion hercyniae) in Wisconsin, (p. 1148); and a BARK BEETLE (Stephanoderes farinosus) in Hawaii (p. 1156). New county records reported were ALFALFA WEEVIL (Hypera postica) in Knox County, Indiana, and Lee County, Arkansas, (p. 1141); EUROPEAN CORN BORER (Ostrinia nubilalis) in Jones County, North Carolina, (p. 1142); a BERMUDA-GRASS MITE (Aceria neocynodonis) in Tehama County, California, (p. 1143); ELM LEAF BEETLE (Galerucella xanthomelaena) in Lincoln and Red Willow Counties, Nebraska, (p. 1148); an APHID (Pterocomma populifoliae) in Humboldt County, California, (p. 1149); and CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) in Hawaii County, Hawaii, (p. 1156).

CORRECTIONS and ADDITIONAL NOTES

See page 1152.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1154).

Hawaiian Insect Notes. (p. 1155).

Distribution Maps of Some Economic Insects in Ohio. (pp. 1157, 1158).

Reports in this issue are for the week ending October 9, unless otherwise indicated.

WEATHER OF THE WEEK ENDING OCTOBER 12

Unseasonably cold polar air gripped the eastern two-thirds of the Nation. Much of the country received no rain or only light showers.

TEMPERATURE: A mound of high pressure stretched from Texas to New England. The temperatures in the clear, cool air dropped to 32° or lower over most of the northern half of the Nation. Fort Smith, Arkansas, registered 35° on Tuesday morning, October 6. The temperature dropped to 48° at Corpus Christi, Texas, on Wednesday and to 40° at New Orleans, Louisiana, on Thursday. Maximums in the 60's and 70's were common along the gulf on several afternoons. Temperatures averaged below normal over almost the entire country east of the Rocky Mountains. Wide areas from Minnesota to Louisiana and eastward to the Appalachians averaged more than 12° colder than normal. Mild weather persisted from the Pacific Ocean to the Rocky Mountains. Temperatures averaged above normal over the entire area except along the northern and central California coast. Most of Nevada averaged more than 6° warmer than usual. Yuma, Arizona, registered 100° to 104° on six afternoons.

PRECIPITATION: Rains at midweek brought amounts ranging from light sprinkles to one-half inch to the Far Northwest. The central Great Plains received showers Sunday, October 11. Rain or snow over the Great Lakes region amounted to less than one-half inch. Scattered locations in the Southeast received more than one inch. The first measurable snow of the season fell in Wisconsin. Ironwood, Michigan, received 4 inches of snow on the 6th and 2 inches fell at Marquette on the 9th. An area near Grand Marais, Minnesota, received 6 inches on the 7th. Light flurries fell in northern New York at midweek and over much of the State on Saturday. Burlington, Vermont, received its first snow on the 7th. Snow fell over the northern hills in New England on the night of October 10. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Populations continue to vary, ranging from 1-2 per sweep to 500 per sweep. Alates common in many fields; few males appearing. No eggs yet noted. (Wis. Ins. Sur.). UTAH - Numbers increased on alfalfa in several areas of State. (Knowlton). NEVADA - Varied 2-10 per sweep in alfalfa in Fallon, Churchill County, and Lovelock, Pershing County. (Cooney).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Populations variable; averaged 300 per sweep in field of uncut alfalfa near Brodhead, Green County; counts in this field comparable to same time last season. Aphid populations 100 percent this species in some fields. Parasites and predators generally quite scarce in alfalfa. (Wis. Ins. Sur.). KANSAS - Damaged small, seedling alfalfa in Lincoln and Ottawa Counties. (Gates). OREGON - Appearing for first time this season on alfalfa in Hermiston area, Umatilla County. Infestations observed light. (Bierman, Oct. 3).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing in alfalfa in Graham County. (Ariz. Coop. Sur.). NEVADA - Varied 4-10 per sweep in alfalfa in Fallon, Churchill County, and Lovelock, Pershing County. (Cooney). WYOMING - Adults averaged 14 per 100 sweeps in fields of alfalfa in Fremont County. (Marks).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - WYOMING - Averaged 6 adults per 100 sweeps in Fremont County alfalfa. (Marks).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Populations remain high on alfalfa in Graham and Yuma Counties. (Ariz. Coop. Sur.). SOUTH CAROLINA - Injured alfalfa in Laurens County. (Nettles et al., Sept. 28).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larval counts continue to decrease on alfalfa in all areas. (Ariz. Coop. Sur.).

FORAGE LOOPER (Caenurgina erechtea) - MARYLAND - Moderate numbers of larvae active on alfalfa at New Windsor, Carroll County. (U. Md., Ent. Dept.).

GREEN CLOVERWORM (Plathypena scabra) - MICHIGAN - Some newly emerged adults collected October 7 in Branch County. (Newman).

ALFALFA WEEVIL (Hypera postica) - WYOMING - Adults averaged 12 per 100 sweeps in alfalfa in Fremont County. (Marks). ARKANSAS - Collected from alfalfa September 30 in Lee County. This is a new county record. (Ark. Ins. Sur.). INDIANA - Larval specimens collected May 13 and June 16 in Knox County determined this species. This is a new county record. (Bram). MARYLAND - Light adult numbers noted in alfalfa at New Windsor, Carroll County. (U. Md., Ent. Dept.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MARYLAND - Adults common in field of alfalfa at New Windsor, Carroll County. (U. Md., Ent. Dept.).

FALL ARMYWORM (Laphygma frugiperda) - TEXAS - Continues to damage small grains and native and improved pastures over wide portion of central, north central, northeast and coastal bend areas of State. (Texas Coop. Rpt.). SOUTH CAROLINA - Caused extremely serious damage in midsummer or later to immature ears of corn in Orangeburg County. (Nettles et al., Oct. 6).

ARMYWORM (Pseudaletia unipuncta) - ARKANSAS - Undetermined species reported in CEIR 14(38):1065 as causing heavy damage to pastures in Washington County determined as this species. Adults observed in large numbers in Fayetteville area during past few weeks; light trap records show moths were numerous in Morrilton area from early June through early September. Heavy infestation in fall-sown oats treated in Benton County October 1; approximately 100 dead larvae per square foot noted in some locations after controls applied. (Ark. Ins. Sur.). SOUTH CAROLINA - Extremely heavy flight at Clemson September 19-25. (Nettles et al.).

BLACK CUTWORM (Agrotis ipsilon) - MICHIGAN - Sizeable collection of adults taken in Livingston County blacklight trap evenings of October 3 and 4. (Newman).

SUGARCANE BORER (Diatraea saccharalis) - TEXAS - Heavy, local populations causing severe damage to stubble-crop grain sorghum in Brazoria County. (Teetes).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ALABAMA - Considerable lodging in field corn as result of girdling by this species reported in Franklin County. (Ponder).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH CAROLINA - Larvae infesting 10 percent of corn stalks in field in Jones County; some lodging occurring. Det. by D. A. Mount. This is a new county record. (Franck).

A PLUME MOTH (Platyptilia antirrhina) - CALIFORNIA - Larvae heavy in milo in Chico, Butte County. (Cal. Coop. Rpt.).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - MICHIGAN - Damage by larvae and adults resulted in stalk lodging and poor pollination in some Monroe County corn fields. (Nevel, Newman).

DUSKY SAP BEETLE (Carpophilus lugubris) - UTAH - Common in sweet corn at Kanab, Kane County. (Knowlton).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Controls applied to one field of corn in Yuma County; populations continue light in other fields. (Ariz. Coop. Sur.).

A DELPHACID PLANTHOPPER (Delphacodes havanae) - FLORIDA - Single male specimen taken on rice at a farm on Rabbit Island, Belle Glade, Palm Beach County, October 2. This is the first specimen in the Florida State collection of Arthropods and also constitutes a new U.S. record. This planthopper has been recorded in Cuba, British Guiana and Guatemala. As far as is known, the species is of no economic importance. (Humphries, Weaver).

DELPHACID PLANTHOPPERS - FLORIDA - Species found in small numbers on rice on Rabbit and Kramer Islands in the Belle Glade area of Palm Beach County included Sogata furcifera complex, Delphacodes puella, D. propinqua and D. humilis. (Humphries, Weaver, Oct. 2).

SORGHUM MIDGE (Contarinia sorghicola) - ARIZONA - Populations decreased as result of cutting of sorghum for ensilage. (Ariz. Coop. Sur.). TEXAS - Heavy, local populations noted on stubble-crop grain sorghum in Brazoria County. (Teetes). KANSAS - Light damage to sorghum, probably by this species, noted in Riley County. (Peters).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Only trace infestation noted in volunteer wheat in southeast area. No planted wheat examined, as lack of moisture prevented planting of much wheat this fall. (Peters).

GRASSHOPPERS - UTAH - Unspecified species damaging fall grain in several areas in Box Elder County; mostly Melanoplus sanguinipes (migratory grasshopper), still numerous and feeding on large areas of fall wheat in area south of Howell. (Knowlton, Finch). Grasshoppers still sufficiently numerous to damage fall grains and new lawns in many central and northern localities. (Knowlton, Davis). NORTH DAKOTA - Numbers of eggs lower than adult survey indicated at many locations in northcentral and south central parts of State. Less than 1 percent of eggs infested or destroyed by parasites and predators. Larvae of carabids, bee flies and blister beetles noted at most locations. (Brandvick). WISCONSIN - Approximately 50 percent of M. femurubrum (red-legged grasshopper) females still contain eggs. (Wis. Ins. Sur.).



FIELD CRICKETS (*Gryllus* spp.) - WISCONSIN - Populations high in roadside grasses in many locations in southern counties; high population noted in field of corn in Walworth County. Considerable feeding on corn ears on ground noted. (Wis. Ins. Sur.).

SPIDER MITES - COLORADO - *Tetranychus* spp. remain active and damaging on sorghums in Arkansas Valley. (Hantsbarger). NEVADA - Unspecified species continue heavy on corn in Fallon, Churchill County, and in Lovelock, Pershing County. (Cooney).

RHODES-GRASS SCALE (*Antonina graminis*) - ARIZONA - Damaging zoysia and Bermuda grasses in Tucson area of Pima County. (Ariz. Coop. Sur.).

A BERMUDA-GRASS MITE (*Aceria necynodonis*) - CALIFORNIA - Light on Bermuda grass in Red Bluff, Tehama County. This is a new county record. (Cal. Coop. Rpt.).

### FRUIT INSECTS

#### Quarterly Citrus Insect and Mite Outlook in Florida - October through December

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

CITRUS RUST MITE (*Phyllocoptruta oleivora*) population will be lower than average in October, but heavy infestations expected in scattered groves in all districts. Buildup will continue until mid-December when about 40 percent of groves will have important infestations. CITRUS RED MITE (*Panonychus citri*) increases will occur in October and November. Population expected to remain below normal with about 20 percent of groves developing moderate to heavy infestations. TEXAS CITRUS MITE (*Eutetranychus banksi*) will continue low during October then gradually increase through December. About 15 percent of groves will have moderate to heavy infestations. WHITEFLY populations will continue above average during October then hold to normal low level in November and December. GLOVER SCALE (*Lepidosaphes gloverii*), YELLOW SCALE (*Aonidiella citrina*), CHAFF SCALE (*Parlatoria pergandii*), *Unaspis citri* and *Pinnaspis strachani* will continue above normal abundance. Scattered groves and portions of groves may show important increases. *L. gloverii* will be most numerous scale insect in most groves. GRASSHOPPERS and PLANT BUGS expected to be normally abundant; migration to citrus from drying cover crops and adjacent pasture land will cause problems in some groves. (W. A. Simanton).

Citrus Insect Situation in Florida - End of September - CITRUS RUST MITE infested 47 percent of groves (norm 59 percent); 26 percent economic (norm 37 percent). Increasing but expected to remain below normal and in moderate range in October. Infestations on fruit and leaves similar intensity. Highest districts west and south. CITRUS RED MITE infested 25 percent of groves (norm 40 percent); 3 percent economic (norm 19 percent). Now at lowest level observed during 14 years of record. Only 0.91 percent of 9,700 leaves examined in September infested. These leaves from 97 groves, none of which sprayed within 30 days before count. All districts low. Gradual increase expected and few scattered groves will develop moderate to heavy infestations. TEXAS CITRUS MITE infested 21 percent of groves (norm 15 percent); 3 percent economic (norm 4 percent). Near normal level for September. About as abundant as citrus red mite and same outlook applies. GLOVER SCALE infested 66 percent of groves (norm 19 percent); 19 percent economic (norm 1 percent). Population much above normal for time of year and approaching high range. Further increase expected. Highest districts south, east and central. PURPLE SCALE (*Lepidosaphes beckii*) infested 66 percent of groves (norm 56 percent); 5 percent economic (norm 2 percent). Above normal but in low range; slight increase expected. Highest districts south and east. CHAFF SCALE infested 54 percent of groves (norm 30 percent); 12 percent economic

(norm 1 percent). Above normal and in low range; little change expected. Highest districts south and east. YELLOW SCALE (Aonidiella citrina) infested 46 percent of groves (norm 9 percent); 11 percent economic (norm 1 percent). Above normal and in low range; little change expected. Central only high district. BLACK SCALE (Saissetia oleae) infested 29 percent of groves (norm 81 percent); 9 percent economic (norm 11 percent). Near normal and in low range; slight increase expected. Although all districts in low range, a few heavy infestations persist in central district. WHITEFLIES infested 70 percent of groves (norm 59 percent); 29 percent economic (norm 12 percent). Above normal and in moderate range; little change expected. Highest districts west and central. (W. A. Simanton, (Citrus Expt. Sta., Lake Alfred)).

ORANGE-DOG (Papilio cresphontes) - CALIFORNIA - Larvae and adults heavy on local citrus in Winterhaven, Imperial County. (Cal. Coop. Rpt.). ARIZONA - Increasing on orange and other citrus throughout Pinal County. Possible control on 80 acres of young nursery stock. (Ariz. Coop. Sur.).

A SPITTLEBUG (Clastoptera sp.) - FLORIDA - Caused moderate to severe damage to 4,500 grapefruit trees. (Levan, Holley, Sept. 29).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Infested 50 percent of 27,886 sweet orange nursery plants at Eustis, Lake County; caused moderate damage. (Bentley, Oct. 2).

CITRUS RUST MITE (Phyllocoptura oleivora) - FLORIDA - Severe on several hundred sweet orange nursery trees at Lake Jem (Fatic, Sept. 30) and moderately damaging to 90 percent of nearly 3,000 sweet orange nursery trees at Eustis, Lake County. (Bentley, Oct. 6).

SPOTTED TUSSOCK MOTH (Halisidota maculata) - CALIFORNIA - Heavy on apple trees in Capitola, Santa Cruz County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Heavy on tops of DeAnjou pear trees in Jackson County; caused early browning and defoliation. (Berry, Oct. 3).

FILBERTWORM (Melissopus latiferreanus) - OREGON - Infested peaches in Yamhill County. (Every, Oct. 3).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Large number of larvae in pecans on trees and on ground in Washington County. (Estes).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Heavy in walnuts in Fremont and Hayward, Alameda County. (Cal. Coop. Rpt.).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Moderate to heavy on pecans in Cleveland County. (Okla. Coop. Sur.).

A FALSE POWDER-POST BEETLE (Amphicerus cornutus) - CALIFORNIA - Adults medium on pomegranate twigs in Holtville, Imperial County. (Cal. Coop. Rpt.).

#### TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Serious and damaging numbers on cabbage, collards and turnips throughout most of State. (McQueen). ARIZONA - Continues heavy on lettuce in Yuma County; treatments continued. (Ariz. Coop. Sur.).

LOOPERS - SOUTH CAROLINA - Populations extremely low on collards in Lexington County; disease probably important factor. (Nettles et al., Oct. 6).

CUTWORMS - NEW MEXICO - Damaging fruit of tomatoes in contact with soil in home gardens in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Populations spotty on lettuce in Yuma County. (Ariz. Coop. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Continued treatment necessary on lettuce in Yuma County. (Ariz. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Serious and damaging numbers on cabbage, collards and turnips throughout most of State. (McQueen).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Heavy on old bean vines in southern and western counties. (McQueen).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ALABAMA - Large numbers of adults feeding on wild cucumbers and gourds in Randolph County. (Barwood, Brackeen).

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) - CALIFORNIA - Adults light on potato plantings in Tulelake, Modoc County. (Cal. Coop. Rpt.).

A SAP BEETLE (Carpophilus sp.) - NORTH CAROLINA - Infested sweetpotatoes injured while cutting vines in Onslow County field. Injured sweetpotatoes in field for 3 weeks heavily infested. (Mount).

TOBACCO WIREWORM (Conoderus vespertinus) - NORTH CAROLINA - Noted feeding on cull sweetpotatoes in field near Orrum, Robeson County. (Mount).

TOMATO PSYLLID (Paratrioza cockerelli) - COLORADO - Caused reduced yields in garden tomatoes in Fort Collins area, Larimer County; nymphs continue active. Unidentified parasite reared from third, fourth and fifth instars. (Thatcher).

SQUASH BUG (Anasa tristis) - NEW MEXICO - Heavy and damaging squash plants in truck crop gardens at Tucumcari, Quay County. (N.M. Coop. Rpt.).

#### COTTON INSECTS

BOLLWORMS (Heliothis spp.) - ARIZONA - Light in Yuma County but continue to injure late squares and bolls in Graham County. (Ariz. Coop. Sur.). ARKANSAS - Additional larvae determined. Total of 2,646 H. zea larvae and 40 H. virescens larvae collected from cotton. H. virescens larvae comprised 1.49 percent of total collected during 1964 season compared with 5.9 percent in 1963 season. (Ark. Ins. Sur.). ALABAMA - Larvae taken from gin trash samples during survey for Pectinophora gossypiella (pink bollworm) in Randolph County. (Barwood, Brackeen).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Survey in southern Eddy County indicated late damage to cotton. Infestations ranged 0-100 percent in green bolls; averaged 23 percent. Damage to early crop appeared very light in fields checked. Infestations appear lighter this season than at same time in 1963; however, definite possibility of heavy, late losses from infested terminal bolls exists; this would result in late cotton crop. (N.M. Coop. Rpt.). ARIZONA - Moths taken in 2 traps and larvae collected in gin trash in Pinal County. One of fields yielding moths produced moths in July of this year. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Larvae of this species and Udea profundalis (a leaf tier) heavy on cotton in Shafter, Kern County. (T. Leigh).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Remains heavy in Yuma area but no treatments applied. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Increases in cotton very noticeable in Thatcher and central areas of Yuma County. (Ariz. Coop. Sur.).

A NOCTUID MOTH (Proxenus mindara) - CALIFORNIA - Larvae heavy on cotton in Shafter, Kern County. (T. Leigh)

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Considerable numbers taken from gin trash samples during survey for Pectinophora gossypiella (pink bollworm) in Randolph County. (Barwood, Brackeen).

A WEEVIL (Anthonomus sp.) - ARIZONA - Continues to increase in Pinal County with fruiting parts on much cotton being infested. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE APHIDS - NEVADA - *Cinara* sp. heavy on branches and twigs of piñon pine on east slope of White Mountains, Esmeralda County. Egg deposition heavy on needles. (Bechtel, Martinelli). CALIFORNIA - *Pineus* sp., probably *coloradensis*, heavy on *Pinus contorta* in Yosemite National Park at Sunrise Camp. (Boyle, USFS).

BALSAM WOOLLY APHID (*Chermes piceae*) - Two new localized infestations found on Roan and Grandfather Mountains of NORTH CAROLINA and TENNESSEE. (South. For. Pest Rptr., Oct. Summ.).

A PINE NEEDLE SCALE (*Phenacaspis* sp.) - GEORGIA - Attacked shortleaf pine in Fannin County; *Chilocorus stigma* (twice-stabbed lady beetle) preying very effective natural control. (South. For. Pest Rptr., Oct. Summ.).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - ALABAMA - Increased during June on Talladega Ranger District, west of Talladega and Horseblock Mountains. Number of infested trees increased from 1.0 per thousand acres in January to 8.5 in July. Remained constant or slightly increased on Shoal Creek, Oakmulgee and Tuscaloosa Districts. GEORGIA - Confined to Rabun County on Chattahoochee National Forest. Infested trees increased from June levels of 0.3 per thousand acres to 0.8 during late August. Controls held population to low level. Limited activity present in most Piedmont area of State but brood production low; controls not necessary. LOUISIANA - Confined to West Bay area of Allen Parish; currently at relatively low level. MISSISSIPPI - Increased on Homochitto Ranger District and intermingled private land in late spring; activity continued throughout summer. NORTH CAROLINA - Severity increased in upper Piedmont during July and August. Outbreak populations present in portions of Davidson, Davie, Forsyth, Guilford, Randolph and Yadkin Counties; estimated 8,500 trees infested in this area in late August. SOUTH CAROLINA - Sudden increase occurred in Francis Marion National Forest during late June; level increased to 18.2 infested trees per thousand acres. Increased also on parts of upper Piedmont and mountain regions; level of infestation increased to 11.7 trees per thousand acres on Tyger District and 6.0 on Enoree during August. Measurable population had not been present in Enoree District since late summer of 1963. Again epidemic in Andrew Pickens District; level of infestation 12.9 trees per thousand acres in August. (South. For. Pest Rptr., Oct. Summ.).

BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) - MISSISSIPPI - Activity widespread on Biloxi Ranger District, De Soto National Forest. NORTH and SOUTH CAROLINA - Secondary invader in trees infested with *D. frontalis* (southern pine beetle) in areas where later species epidemic. TEXAS - Increased activity reported on Angelina National Forest; about normal in remainder of State in logging, stumping and naval stores operations. (South. For. Pest Rptr., Oct. Summ.). ARKANSAS - This species and *Ips* spp. still active across pine areas of State; heaviest in western area but limited to few local trees or small acreage. Some activity increasing in some sites not well suited to pine production over State. Young reproduction in heavy stands most commonly attacked; attention urged into winter. *D. terebrans* activity limited mostly to harvest-damaged trees, lightning strikes and shade trees in lawn areas; controls urged on valuable trees. (Ark. For. Pest Rpt., Oct.). OKLAHOMA - Killing drought-weakened pines in small area in western McCurtain County. (Okla. Coop. Sur.).

BARK BEETLES - *Ips avulsus* buildups occurred earlier in summer in ALABAMA and GEORGIA; subsided in July and August. Approximately 11.3 trees per thousand acres killed on Talladega and Shoal Creek Districts. NORTH CAROLINA - *Ips* spp. common secondary invaders in *Dendroctonus frontalis* (southern pine beetle) epidemic areas. SOUTH CAROLINA - *I. avulsus* activity detected over eastern half of Tyger and Enoree Districts and portions of Long Cane and Edgefield Districts of Sumter National Forest. ARKANSAS - *Ips* spp. active on Mena Ranger District, Ouachita National Forest, in area burned last fall. (South. For. Pest Rptr., Oct. Summ.). OREGON - Large numbers of *Dendroctonus* spp. leaving yellow pine poles used in construction in Jackson County. (Berry).

A PINE WEEVIL (Pissodes radiatae) - CALIFORNIA - Medium on bishop pine (Pinus muricata) twigs in Fort Bragg, Mendocino County. (Cal. Coop. Rpt.).

A WESTERN FALSE HEMLOCK LOOPER (Nepytia sp.) - OREGON - Heavy flight occurred in east Portland suburban area week of October 12. Eggs laid on shade and ornamental Douglas-firs; light to heavy defoliation may occur in localized areas next spring. (Orr, USFS).

EUROPEAN SPRUCE SAWFLY (Diprion hercyniae) - WISCONSIN - Collected for the first time in State near Amery, Polk County. Det. by B. D. Burks. (Wis. Ins. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - NORTH CAROLINA - Caused considerable damage to white pine plantation near Asheville, Buncombe County. (South. For. Pest Rptr., Oct. Summ.). TEXAS - Caused considerable damage to elms in local areas of Potter and Swisher Counties. (Tex. Coop. Rpt., Meisch).

A LIMACODID MOTH (Prolimacodes badia) - NORTH CAROLINA - Larvae reported feeding on maple trees at residence in Caldwell County; det. by D. A. Mount. (Andrews).

FALL CANKERWORM (Alsophila pometaria) - NORTH DAKOTA - Female emergence reached peak in southeastern areas. (Frye).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Problem on shade trees in most southern counties; especially heavy on poplar and fruitless mulberry trees in Las Cruces area, Dona Ana County. (N.M. Coop. Rpt.). ARKANSAS - Activity remained heavy in northwest area throughout summer, lighter than normal elsewhere. Nearly all larval feeding ceased; entering winter quarters. (Ark. For. Pest Rpt., Oct.). Active again on Pea Ridge National Military Park; controls underway. (South. For. Pest Rptr., Oct. Summ.).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Defoliating oak trees in Atoka, Pushmataha, McCurtain, Le Flore and Latimer Counties (southeast), Pontotoc County (south central), Pottawatomie and Seminole Counties (central), Washington and Tulsa Counties (northeast) and Pawnee and Payne Counties (north central). Other lepidopterous larvae found on oaks in southeast include: Anisota stigma (spiny oakworm) in Le Flore and Latimer Counties; Datana ministra (yellow-necked caterpillar) in McCurtain County, Schizura unicornis (unicorn caterpillar) in Atoka County, Acronycta afflicta (a noctuid) in Atoka and McCurtain Counties and H. astarte (a notodontid) in Le Flore, Johnston and Pottawatomie Counties. Det. by W. A. Drew. (Okla. Coop. Sur.).

WESTERN OAK LOOPER (Lambdina fiscellaria somnaria) - OREGON - Adult flight medium in infested oak groves in Polk and Yamhill Counties. (Larson, Oct. 3).

OAK SKELETONIZER (Bucculatrix ainsliella) - TENNESSEE - Detected in Hawkins County; 20,500 acres involved. (South. For. Pest Rptr., Oct. Summ.). This is the first ARS record for the State. (PPC).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Heavy in small shortleaf pines in Pushmataha and McCurtain Counties; light in Le Flore County. (Okla. Coop. Sur.).

A LEAF-FOOTED BUG (Leptoglossus clypealis) - NEBRASKA - Adults heavy on ponderosa pine windbreak in Lincoln County. Severe browning and needle drop evident; many nymphs present. (Pruess).

ELM LEAF BEETLE (Galerucella xanthomelaena) - COLORADO - Adults dispersing to overwintering sites in Larimer County. (Thatcher). NEBRASKA - Adults heavy in home in Lincoln County; some elm trees severely defoliated. (Pruess). This report and report in Red Willow County, cf. CEIR 14(32):915, two westernmost points of infestation in State. These are new county records. (Bergman).

LARGER ELM LEAF BEETLE (Monocesta coryli) - Epidemic in parts of Greenwood and McCormick Counties, SOUTH CAROLINA, Jones, Jasper and Putnam Counties, GEORGIA, Cannon County, TENNESSEE, and general throughout Piedmont regions of ALABAMA and NORTH CAROLINA. (South. For. Pest Rptr., Oct. Summ.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - TENNESSEE - Damage appears widespread over eastern and central areas. (South. For. Pest Rptr., Oct. Summ.).

APHIDS - CALIFORNIA - Adults and nymphs of Pterocomma populifoliae light on willow tree nursery stock in Arcata, Humboldt County. This is a new county record. Nymphs of Chaitophorus populellus heavy on silver poplar in Pleasant Hill, Contra Costa County. Lachnus salignus locally heavy on willow trees in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

BROAD-WINGED KATYDID (Microcentrum rhombifolium) - ARIZONA - Large numbers feeding on elms and other cultivated vegetation in Casa Grande, Pinal County. (Ariz. Coop. Sur.).

WALKINGSTICK (Diapheromera femorata) - ARKANSAS - Populations appear lower on Mena Ranger District, Ouachita National Forest, than in 1963. (South. For. Pest Rptr., Oct. Summ.).

A FALSE SPIDER MITE (Brevipalpus californicus) - CALIFORNIA - Heavy on maple trees in Oroville, Butte County. (Cal. Coop. Rpt.).

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Collected on ylang-ylang (Cananga odorata) and black sapote (Diospyros ebenaster) on September 28 by R. E. Brown in Miami, Dade County; these are new host records. (Fla. Coop. Sur.).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - FLORIDA - Moderate on 25 Jerusalem-thorn (Parkinsonia aculeata) plants in nursery in Miami, Dade County. (Knowles, Sept. 24).

FULLER ROSE BEETLE (Pantomorus godmani) - CALIFORNIA - Heavy locally on roses in Armona, Kings County. (Cal. Coop. Rpt.).

A BARK BEETLE (Xylosandrus compactus) - FLORIDA - Moderate on 10 percent of 100 dendrobium plants at orchid company in Homestead, Dade County. (Knowles, Sept. 23).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - NORTH CAROLINA - Infested asters in Gaston County. (Robertson).

AZALEA LACE BUG (Stephanitis pyrioides) - NORTH CAROLINA - Infested 2 large groups of azaleas locally in Alamance County. (Robertson).

A PYRRHOCORID BUG (Largus cinctus californicus) - CALIFORNIA - Nymphs medium on ornamental strawberry in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

COCCIDS - FLORIDA - Pseudaulacaspis pentagona (white peach scale) taken on stem of marlberry (Ardisia sp.) at La Belle, Hendry County, (Smith, Sept. 9); Duplaspidiotus tessarata infested stems of orchid at St. Petersburg, Pinellas County, (Miller, Sept. 11). These are new host records for State Department of Plant Industry. (Fla. Coop. Sur.). P. pentagona severe on stems of Chinese mulberry (Morus cathayana) at Ocala, Marion County, (Holder, Sept. 28). Unaspis euonymi (euonymus scale) severe on 95 percent of 30-40 euonymus plants inspected at Citra, Marion County. (Holder, Sept. 29). Pseudococcus adonidum (long-tailed mealybug) severe on 141 philodendron plants at Jacksonville, Duval County. (Barrett). P. citri (citrus mealybug) caused moderate damage to 10 percent of 500 Hoya sp. at nursery in Apopka, Orange County. (Holley, Musgrove, Sept. 22). Coccus viridis (green scale) infested gardenia at nursery in Conway, Orange County; 100 plants quarantined. (Crews, Sept. 30).

LARGER CANNA LEAF ROLLER (Calpodes ethlius) - FLORIDA - Caused moderate damage to 30 canna plants at Seffner, Hillsborough County. (Simmons, Sept. 25).

A CHRYSAUGID MOTH (Galasa nigrinoides) - NORTH CAROLINA - Heavy locally on boxwood in Burke County. (Wray, Sept. 21).

A GRASSHOPPER (Schistocerca obscura) - FLORIDA - Moderate on 10 schefflera plants at nursery in Bradenton, Manatee County. (Bickner, Sept. 23).

BULB MITE (Rhizoglyphus echinopus) - CALIFORNIA - Heavy on daffodil bulbs in nursery in Chico, Butte County. (Cal. Coop. Rpt.).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Medium on orchid flowering stock in Capitola, Santa Cruz County. (Cal. Coop. Rpt.).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - FLORIDA - Totals for 20-minute bite collections at Gainesville, Alachua County, October 3 as follows: Aedes infirmatus 58, Psorophora ferox 3 and Mansonia perturbans 2; totals for 15-minute collections on October 8 were Aedes infirmatus 17, Psorophora ferox 3 and Aedes atlanticus/tormentor 3. (Esser). OKLAHOMA - Several species heavy in Cotton County, moderate in Bryan, Payne and Cleveland Counties, and light in Washington County. (Okla. Coop. Sur.). NEVADA - Adults of Aedes dorsalis heavy in Lovelock, Pershing County. (Cooney).

HOUSE FLY (Musca domestica) - WYOMING - Adults causing considerable annoyance to homeowners and in restaurants in Fremont County. (Marks). OKLAHOMA - Moving into homes in large numbers in Payne County. Moderate in dairy barns in Cleveland County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MARYLAND - Light on dairy cattle at Mitchellville, Prince Georges County. (U. Md., Ent. Dept.).

BLACK BLOW FLY (Phormia regina) - SOUTH CAROLINA - Infested dehorned cattle in Orangeburg County; det. by C. W. Sabrosky. (Nettles et al., Sept. 14).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Heavy on cattle in Kay and Noble Counties; light (1 per 5 head) in Pushmataha County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - UTAH - Continues annoying to cattle in pastures near Brigham City, Box Elder County, and in southern Cache County. (Knowlton).

COLORADO - Adults averaged 200 per untreated animal on cattle in Las Animas County. (Hantsbarger). OKLAHOMA - Counts per head by county as follows: Payne, 200 on yearling steers; Pushmataha, 300 on bulls; Cleveland moderate to heavy; Bryan, Muskogee and Mayes moderate; and Cotton heavy. (Okla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - WYOMING - Common in farm flocks in Fremont County; only small populations found. (Marks).

BROWN DOG TICK (Rhipicephalus sanguineus) - OKLAHOMA - Heavy on dogs in Payne County. (Okla. Coop. Sur.).

PUSS CATERPILLAR (Megalopyge opercularis) - NORTH CAROLINA - Abundant on apple trees locally in Rockingham County; one person required medical attention from contact with larvae. (Wray, Sept. 18).

AN ASSASSIN BUG (Triatoma sp.) - TEXAS - Light, local infestations causing concern to residents of Guadalupe County. (New).

BLACK WIDOW SPIDER (Latrodectus mactans) - NEVADA - Large numbers around and entering garages, sheds and some homes in Reno, Washoe County. (Coop. Rpt.).



HOUSEHOLD AND STRUCTURAL INSECTS

ANTS - ARIZONA - Forelius spp. and Tapinoma spp. nesting in yards and invading homes in Casa Grande and Eloy areas, Pinal County. (Ariz. Coop. Sur.).

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla) - NORTH CAROLINA - Collected in Lenoir County home. (Wray, Sept. 24).

WEEVILS - OREGON - Brachyrhinus spp. entering homes in Medford area, Jackson County. (Berry, Oct. 3). NORTH CAROLINA - Cossonus corticola caused concern; present in closet in Gaston County home. (Wray, Sept. 29).

GOLDEN BUPRESTID (Buprestis aurulenta) - OREGON - Entering homes in Medford area, Jackson County. (Berry, Oct. 3).

A FALSE POWDER-POST BEETLE (Polycaon stouti) - CALIFORNIA - Light in hardwood flooring in residence in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

A MILLIPED - MICHIGAN - Adults continue much more numerous than usual in some Lower Peninsula counties; 3 quarts of specimens removed from Ingham County garage recently. (Palmer).

STORED-PRODUCT INSECTS

A CUCUJID (Oryzaephilus mercator) - CALIFORNIA - Heavy in dry dog food in retail store in Atascadero, San Luis Obispo County. (Cal. Coop. Rpt.).

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Moderate to heavy in sacked feed and seed in several feed stores in Quay County. (N.M. Coop. Rpt.).

LEPIDOPTEROUS LARVAE - UTAH - Heavily infesting large grain storage buildings at Moab, Grand County. Heavy in rolled barley in storage bins at Loa, Wayne County. (Knowlton, Argyle, Chapman).

TOBACCO MOTH (Ephestia elutella) - SOUTH CAROLINA - Infested tobacco packhouse; damaged some tobacco. Det. by Dr. R. C. Fox. (Nettles et al., Oct. 6).

Stored-Grain Pests in Alabama - RICE WEEVIL (Sitophilus oryzae) and SQUARE-NECKED GRAIN BEETLE (Cathartus quadricollis) noted in most corn examined in Washington, Clarke, Marengo, Perry, Bibb, Monroe and Dallas Counties. (Estes, Henderson, et al.). Floor sweepings at feed mill in Ranburne, Cleburne County, showed considerable numbers of SQUARE-NECKED GRAIN BEETLE, CONFUSED FLOWER BEETLE (Tribolium confusum), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), RICE WEEVIL, YELLOW MEALWORM (Tenebrio molitor) and LARDER BEETLE (Dermestes lardarius). (Barwood, Brackeen).

Stored-Grain Pests in Maryland - CADELLE (Tenebroides mauritanicus) larvae heavy, GRANARY WEEVIL (Sitophilus granarius) adults light and SAW-TOOTHED GRAIN BEETLE adults light in stored barley at Mitchellville, Prince Georges County. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

LADY BEETLES - GEORGIA - Chilocorus stigma (twice-stabbed lady beetle) very effective natural control of infestation of Phenacaspis sp. in Fannin County. (South, For. Pest Rptr., Oct. Summ.). ALABAMA - Gin trash samples collected in Randolph County showed high numbers of Coleomegilla maculata fuscilabris and Hippodamia convergens (convergent lady beetle), with latter species being twice as numerous as former species. (Barwood, Brackeen).

A GROUND BEETLE (Calosoma sycophanta) - ALABAMA - Considerable numbers of adults emerging in grassy areas previously infested with Pseudaletia unipuncta (armyworm) in Lee County. (Barwood).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 18 per 100 sweeps in alfalfa fields of Fremont County. (Marks).

FLOWER BUGS (Orius spp.) - WYOMING - Adults averaged 46 per 100 sweeps in alfalfa fields of Fremont County. (Marks).

A NEMESTRINID FLY (Neorhynchocephalus sackenii) - OREGON - Heavy parasitism by larvae on Melanoplus sanguinipes (migratory grasshopper) on rangeland in 20-mile area between Heppner and Vinson, Morrow County. Parasitism ranged 50-67 percent; very high considering low grasshopper population. Incidence of parasites may become higher; parasitism just well started. (Prescott, Oct. 3).

#### CORRECTIONS

CEIR 14(31):893 - HAWAIIAN INSECT NOTES - ANTHOCORID BUGS - End of line 6 should read Montandoniella...

CEIR 14(40):1107 - SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Last sentence should read: "Sexual forms still absent. (Wis. Ins. Sur.)."

CEIR 14(41):1135 - STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST - Table 2A, 1963 Ratio of Positive Cases to 100 Cases Negative. Change figure for "current cases" from 5.1 to 5,100.0.

#### ADDITIONAL NOTES

NEBRASKA - Considerable WESTERN CORN ROOTWORM (Diabrotica virgifera) adult activity noted in fields of corn in Hall County; tend to concentrate in leaf sheath on lower half of stalk. CORN LEAF APHID (Rhopalosiphum maidis) very light on some corn plants and CORN EARWORM (Heliothis zea) infestation and damage less than 1 percent on corn in Hall County. (Bergman). Lachnus sp. (an aphid) severe on ponderosa pine in Lincoln County. (Pruess).

OKLAHOMA - FALL ARMYWORM (Laphygma frugiperda) damaging young alfalfa in Noble County; averaged approximately 1 per square foot. CORN EARWORM heavy on sweet corn and light on tomatoes in home gardens in Kay County. Unspecified APHIDS heavy on cucumbers and squash in same area. (Okla. Coop. Sur.).



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

During the period October 4 - 10, TEXAS reported 4 screw-worm cases in 3 counties: Hidalgo (1), Brewster (2) and Pecos (1). No cases reported from NEW MEXICO; one case reported from Santa Cruz County, ARIZONA. Republic of Mexico reported 215 cases: Veracruz (8), San Luis Potosi (2), Nuevo Leon (2), Chihuahua (93), Sonora (79), Zacatecas (2), Durango (19), Tammulipas (9) and Coahuila (1). Sterile screw-worm flies released: Texas 20,974,250, New Mexico 2,888,000, Arizona 4,440,000 and Mexico 72,636,000.

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1962	1,675	41,437	52	2,498	3,221.1	1,658.8
1963	578	4,484	179	8,488	322.9	81.7
1964	4	119	134	4,837	2.98	2.46

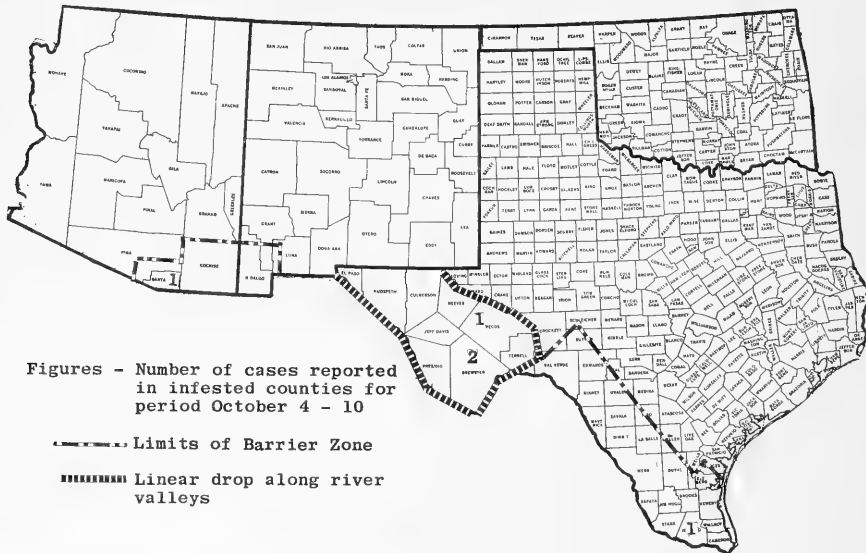
Table 1. Comparison of specimens reported during corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1963	390	4,209	37	1,129	1,054.05	372.8
1964	189	2,916	34	1,574	555.8	185.2

Table 2A. Mexican portion of Barrier Zone only.

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
1963	109	1,286	5	155	2,180.0	829.7
1964	184	2,760	6	713	3,066.6	387.09

\* 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.).



HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 705th meeting of the Hawaiian Entomological Society held on September 14, 1964.

A GRASSHOPPER (Schistocerca vaga (Scudder)) - The second local specimen of this grasshopper, an adult male, was captured by J. W. Beardsley August 10 on Sand Island, Oahu, in area directly across road from U.S. Coast Guard Station; an additional 8 specimens (3 females and 5 males) were captured August 12 in an area of approximately 50 acres in the immediate vicinity of the U.S. Coast Guard grounds by Beardsley and others. Many additional grasshoppers were noted in the area, but not collected; additional grasshoppers were noted and several collected the following afternoon. A number of other locations on Sand Island, near the airport and in the vicinity of the infested area, were searched with negative results. A single adult female was collected the afternoon of August 18 near the Funal boat works off Sand Island access road; the specimen died after 36 hours. So far, this is the only known specimen collected outside of Sand Island. In laboratory tests, grasshoppers fed readily on sugarcane leaves, Napier grass leaves and leaves of MacArthur palm, and fed slightly on leaves of citrus and pineapple. One female deposited an egg mass in soil, but it is not known if the eggs are viable. Of 4 females and 5 males held alive, only 1 female (collected August 14) remained alive. Several of the other specimens were apparently injured during capture. Inasmuch as this infestation is apparently very localized, it appears that there is a good chance for eradication. (J. W. Beardsley).

Spraying for S. vaga has been completed; approximately 320 acres of vegetation were treated. Of interest was the capture of 5 nymphs of this species, probably third stage, on a common weed (Waltheria americana). Also of interest was the finding of a wingless GRASSHOPPER (Paraldeмона mimica Scudder), many of which were feeding on pickleweed (Batis maritima) growing along ditches. (J. Kim).

A PARASITIC TACHINA FLY (Trichopoda pennipes (F.)) was recovered for the first time on the island of Maui. Field recoveries indicated that parasitism of southern green stink bug (Nezara viridula (L.)) was approximately 40 percent. (J. Kim, N. Miyahira).

AN ANTHOCORID BUG (Montandoniella moraguesi Puton), a predator of Cuban-laurel thrips (Gynaikothrips ficorum (Marchal)) and imported from the Philippines by N. Krauss, was recently recovered in the Pauoa area of Honolulu. Many adults and various nymphal stages were observed on leaves of Ficus retusa infested with Cuban-laurel thrips. The initial release of 100 adults of this predator was made June 2, 1964, in this area. From observations, it appears that M. moraguesi has become well established. (J. Kim).

AN APHID (Brachycolus heraclei Takahashi) - A heavy population of this aphid destroyed a celery planting in Lualualei Valley, Waianae, Oahu, the latter part of July 1964. (W. C. Mitchell, J. Kim).

A single adult of a TINEID MOTH (Ereunetis simulans (Butler)) was reared from larvae collected on monkeypod trees at Punchbowl National Cemetery the latter part of August 1964. Larvae were tunneling the bark of these trees; damage to the cambium was noted at several places. Larvae are scavengers feeding on fungi and have not been reported attacking live trees. Another insect species is perhaps involved with the observed damage, which was apparently incidental to feeding by E. simulans larvae in the bark. Det. by J. W. Beardsley. (W. C. Mitchell).

AN OLETHREUTID MOTH (Cryptophlebia ombrodelta (Lower)) - A larva was intercepted boring in a seed pod of Prosopis pallida (kiawe) from Oahu by C. Jones. This is a new host record for this species in the State. (E. S. Shiroma).

AN APHID (Neophyllaphis araucariae Takahashi), first discovered by B. Hu and N. Neff in Kapoho, Hawaii, on April 28, 1964, has subsequently been intercepted several times on Araucaria excelsa (Norfolk Island pine) being shipped out of the State. (E. S. Shiroma, B. Hu).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum (Marchal)) was reported from Hawaii on August 16, 1964, infesting banyans in Waiialoa Park, Hilo, Hawaii. This constitutes a new island record as well as a new record for Hawaii County. Of interest were larvae of an undetermined lacewing (Neuroptera) preying on the thrips. (J. Kim, E. Yoshioka).

A BARK BEETLE (Stephanoderes farinosus Blandford) - This beetle borer was reared from dying twigs of Litchi chinensis collected on Oahu. Det. by Dr. S. Wood, Brigham Young University. This is a new State record. (J. Kim, H. Nakao).

Distribution Maps of Some Economic Insects in Ohio

Reproduced on this and the following page are distribution maps prepared in Ohio (additional ARS records, if any, added). These maps give graphic illustration of the known distribution of plant pests. We are pleased to receive this type of information and would like to encourage other States to prepare maps of insect distribution. Such maps will be run as space is available. Distribution records as of October 9, 1964.



GREEN BUG (Schizaphis graminum)



APPLE FLEA WEEVIL  
(Rhynchaenus pallicornis)



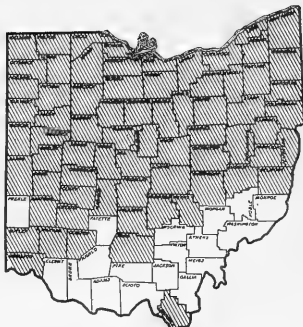
PEAR PSYLLA (Psylla pyricola)



PEAR LEAF BLISTER MITE  
(Eriophyes pyri)



CHERRY FRUIT FLY  
(*Rhagoletis cingulata cingulata*)



EUROPEAN PINE SHOOT MOTH  
(*Rhyacionia buoliana*)



PALES WEEVIL (*Hylobius pales*)



EUROPEAN PINE SAWFLY  
(*Neodiprion sertifer*)



ASIATIC OAK WEEVIL  
(*Cyrtopistomus castaneus*)



MIMOSA WEBWORM  
(*Homadaula albizziae*)



ROSE CHAFER  
(*Macrodactylus subspinosus*)



ASIATIC GARDEN BEETLE  
(*Maladera castanea*)



A GERANIUM PLUME MOTH  
(*Platyptilia pica*)






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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SPOTTED ALFALFA APHID ranged light to heavy in alfalfa in Yuma area of Arizona, with some sooty plants noted; showing late season increase on same crop in Mesa County, Colorado. PEA APHID extremely high on alfalfa in southern Wisconsin, averaging more than 1,000 per sweep in some fields. THREE-CORNERED ALFALFA HOPPER very heavy in alfalfa on Yuma Mesa and severely damaging several hundred acres of same crop in Mohave County, Arizona. VELVETBEAN CATERPILLAR defoliating approximately 2,000 acres of soybeans in Allendale County, South Carolina. (p. 1191). FALL ARMYWORM heavy on corn in areas of Nebraska and in wheat in Oklahoma; second outbreak of season reported in Bamberg County, South Carolina, with main damage to Bermuda grass. (p. 1162). GRASSHOPPERS damaging several thousand acres of fall grain in Utah and causing some damage to borders of winter wheat in South Dakota. (p. 1163).

Three additional CITRUS RUST MITE infestations found on lemons on Yuma Mesa of Arizona. (p. 1164). WESTERN GRAPE LEAF SKELETONIZER caused heavy damage to grapes in Clark County, Nevada. TOMATO PINWORM infestation heaviest observed in about 15 years in San Diego County, California; damaging tomato plants and fruit generally. (p. 1165).

BOLL WEEVIL late season buildups heavy in areas above and below the Cap Rock in Texas. BOLLWORMS heavy in cotton in areas of Texas and Oklahoma. New PINK BOLLWORM infestation located by light trap collections in Paradise Valley, Arizona. (p. 1166).

VARIABLE OAK LEAF CATERPILLAR and other lepidopterous larvae continue to defoliate oaks in Oklahoma. (p. 1167).

DETECTION

New State records reported were 4 AMBROSIA BEETLES in Indiana; *Monarthrum fasciatum*, *Xyleborus affinis*, *Xylosandrus germanus* and *Xyloterinus politus*. (p. 1167). New County records reported were EUROPEAN CORN BORER (*Ostrinia nubilalis*) in Jones County, North Carolina (p. 1162); SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) in Johnson, Massac and Pope Counties, Illinois (p. 1163); SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) in Gray, Wheeler, Collingsworth and Wilbarger Counties, Texas (p. 1167); MIMOSA WEBWORM (*Homadula albizziae*) in Edgar, Clark, Jasper, Crawford, Lawrence and Hamilton Counties, Illinois (p. 1167); IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) in Sarasota County, Florida, and in Bamberg County, South Carolina (p. 1170); and a HORNTAIL (*Xeris tarsalis*) in Sonoma County, California (p. 1170).

CORRECTIONS

See page 1170.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1172).

Estimated Damage and Crop Loss Caused by Insect/Mite Pests in California in 1963. (pp. 1173-1179).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Pecans and Cotton in Alabama and Cotton in Oklahoma in 1963. (pp. 1180-1182).

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

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-OCTOBER TO MID-NOVEMBER 1964

The Weather Bureau's 30-day outlook for mid-October to mid-November calls for temperatures to average above seasonal normals from the Plateau eastward to the Great Lakes and middle Mississippi Valley with greatest departures in the northern Plains and upper Mississippi Valley. Below normal temperatures are expected over the Atlantic Coast States and gulf coast region as well as in California. Near normal temperatures are anticipated in unspecified areas. Precipitation is expected to be subnormal over the northern half of the Nation from the Rockies eastward to the Atlantic coast and over the Tennessee Valley. Above normal amounts are called for over the Florida Peninsula as well as the southern Plains and California. Elsewhere near normal amounts are in prospect.

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

WEATHER OF THE WEEK ENDING OCTOBER 19

Warm, sunny days and cool nights -- typical Indian summer -- prevailed from Idaho to the Atlantic coast during the first part of the week before a cold front dropped the temperatures sharply. The heaviest rains fell from Florida to the Carolinas.

**TEMPERATURE:** High pressure prevailed early in the week across the entire Nation. Afternoon temperatures in the 70's and 80's were common over the western and central sections of the country. Cutbank, Montana, registered 85° on Monday and Tuesday. Early morning temperatures were generally in the 40's and 50's. Maritime polar air moved into the Far Northwest about midweek, dropping the temperatures sharply as it moved southeastward. By Sunday morning numerous locations registered subfreezing temperatures. Minimums in the 20's and 30's were common over the western and northern Great Plains. Goodland, Kansas, registered 25° Sunday morning. Weekly temperatures averaged warmer than usual over California, Arizona, and from Montana to the Atlantic Ocean, and below normal over the Far Northwest, the southern Great Plains, and the Southeast.

**PRECIPITATION:** Light rains fell over the central Plains early in the week. More generous rains fell over the Southeast in connection with a storm centered over the Gulf of Mexico. Tallahassee, Florida, received 5.62 inches on Wednesday from this storm. Meanwhile, Hurricane Isbell brought moderate to heavy rains over southern Florida -- 1.69 inches at Miami on Wednesday. As Isbell moved northward, it produced rains along the Atlantic coast. Maritime polar air, moving into the Far Northwest brought light rains, generally less than 0.5 inch, to Washington, Oregon, and nearby States during the latter half of the week. Wide areas from California to the Great Lakes received no rain or only light showers. Parts of the States from Alabama to Virginia received more than 1 inch. Totals exceeded 6 inches at Tallahassee, Florida, and Columbia, South Carolina. Most of the area from Arizona across the southern Plains to Mississippi and west of the Appalachians received less than 0.5 inch. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ILLINOIS - Ranged 50-140 (average 95) per 100 sweeps in alfalfa in southeast district; winged and wingless forms present. (Ill. Ins. Rpt.). WISCONSIN - Populations doubled since previous week; probably higher than sweep methods indicate as examination of individual stems showed many small nymphs behind leaf sheaths. Counts per sweep in 3 fields near Brodhead, Green County, on October 8 and 14 respectively, as follows: Field #1 - 300 and 700, field #2 - 200 and 400, field #3 - 100 and 100. Of these, 8 percent alates (2 percent males) at one location; 22 percent alates (4.5 percent males) at another location; and 28 percent alates (7 percent males) at third location. Examination of alfalfa stems in most heavily infested field showed 23 eggs on 50 stems examined. Surveys underway to determine extent of dispersion. Windrows appear to be influential factor in local dispersions. (Wis. Ins. Sur.). SOUTH DAKOTA - Sexual forms noted in Union County October 12; numbers very low, ranging 1-2 percent of population. (Hintz). NEBRASKA - Averaged 12 per 10 sweeps in Sarpy County alfalfa. (Bergman). OKLAHOMA - Light infestation of 10-60 per 10 sweeps noted in alfalfa in Caddo and Carter Counties; moderate (180 per 10 sweeps) in Jackson County. (Okla. Coop. Sur.). COLORADO - Showing late season increase on alfalfa in Mesa County; ranged 600-700 per 100 sweeps. (Bulla). ARIZONA - Ranged light to heavy in alfalfa in Yuma area; some sooty plants noted. (Ariz. Coop. Sur.). NEVADA - Occasional specimen collected in Panaca but none noted in Hiko, Lincoln County. (Bechtel, Lauderdale, Zoller).

PEA APHID (*Acyrtosiphon pisum*) - WISCONSIN - Extremely high in alfalfa in southern counties; averaged more than 1,000 per sweep in some fields and ranged 80-500 per sweep in many fields. Some plants show wilted effect. Males very common, oviparae appearing. Eggs averaged 1 per 30 stems examined in one field checked. (Wis. Ins. Sur.). ILLINOIS - Ranged 0-170 (average 43) per 100 sweeps in southeast district alfalfa. (Ill. Ins. Rpt.). NEBRASKA - Averaged 62 per 10 sweeps in Sarpy County alfalfa. (Bergman). UTAH - Numerous in short, succulent alfalfa in northern part of State generally. (Knowlton). NEVADA - Averaged 5 per sweep in alfalfa in Panaca and ranged 50-75 per sweep in Hiko, Lincoln County. (Bechtel, Lauderdale, Zoller). WASHINGTON - Averaged 1 per stem on seed alfalfa 6 inches high and ranged 30-50 on mature stands of forage at Walla Walla, Walla Walla County. (Halfhill).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Declining on alfalfa in Graham County. Ranged 20-150 per 100 sweeps in Yuma County; low on Yuma Mesa. (Ariz. Coop. Sur.). COLORADO - Counts remain high in alfalfa in Mesa County; ranged 200-300 per 100 sweeps. (Bulla). WYOMING - Adults averaged 12 per 100 sweeps in Washakie County alfalfa. (Marks).

PLANT BUGS - WYOMING - Adults of *Adelphocoris lineolatus* (alfalfa plant bug) averaged 10 per 100 sweeps in alfalfa in Washakie County. (Marks). NEBRASKA - *Lygus lineolaris* (tarnished plant bug) averaged 7 per 100 sweeps in Sarpy County alfalfa. (Bergman).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Very heavy on Yuma Mesa; 4,000 per 100 sweeps. Very heavy population at Bullhead City, Mohave County, causing severe injury to several hundred acres of alfalfa. (Ariz. Coop. Sur.). OKLAHOMA - Light (5-7 per 10 sweeps) in alfalfa in Caddo, Jackson and Carter Counties. (Okla. Coop. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Adults and nymphs noted in some fields of alfalfa. (Wis. Ins. Sur.).

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) - SOUTH CAROLINA - Defoliating approximately 2,000 acres of soybeans in Allendale County; some complete defoliation noted. (Nettles et al., Oct. 14).

ALFALFA CATERPILLAR (*Colias eurytheme*) - ARIZONA - Counts increased slightly in Yuma County alfalfa. (Ariz. Coop. Sur.). WASHINGTON - Averaged 1 larva per stem on 6-inch high seed alfalfa and mature forage alfalfa at Walla Walla, Walla Walla County. (Halfhill). MICHIGAN - Adults of this species, *Pieris rapae* (imported cabbageworm) and *Colias philodice* (clouded sulphur) continue to fly in sizeable numbers in southern part of State. (Newman).

GARDEN WEBWORM (*Loxostege similalis*) - ARIZONA - Averaged 5 per 100 sweeps in alfalfa on Yuma Mesa. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (*Plathypena scabra*) - MICHIGAN - Adults continue to emerge in southern tier of counties. (Newman).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - WISCONSIN - Adults common in many fields of alfalfa; averaged approximately 1 per sweep in some fields. Mating occurring. (Wis. Ins. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - COLORADO - Scattered adults collected on alfalfa in Larimer County. Few adults of *Bathyplectes curculionis* (a parasitic ichneumon) also being taken. (Simpson) WYOMING - Averaged 8 adults per 100 sweeps in alfalfa in Washakie County. (Marks). ILLINOIS - None found in alfalfa in southeast district. (Ill. Ins. Rpt.).

CORN ROOTWORMS (*Diabrotica* spp.) - NEBRASKA - Adults of *D. virgifera* (western corn rootworm) and *D. undecimpunctata howardi* (southern corn rootworm) ranged 2-5 per sweep in some alfalfa in Sarpy and Lancaster Counties and in south central area. *D. virgifera* adults frequently found in corn in south central counties and in Sarpy County. (Bergman). ILLINOIS - *D. undecimpunctata howardi* adults varied 10-110 (average 60) per 100 sweeps in alfalfa in southeast district. (Ill. Ins. Rpt.).

A SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) - NEW MEXICO - Adults ranged 1-3 per 25 sweeps in alfalfa in Dona Ana County. (N.M. Coop. Rpt.).

A FLEA BEETLE (*Systema taeniata*) - CALIFORNIA - Adults medium on alfalfa in Hanford, Kings County. (Cal. Coop. Rpt.).

FALL ARMYWORM (*Laphygma frugiperda*) - NEBRASKA - Larvae heavy in stalks and ears of corn in Thayer, Nuckolls and Webster Counties; approximately 3-4 larvae per plant causing noticeable feeding signs. Most infested corn of poor quality. (Bergman). OKLAHOMA - Heavy infestation of 8 per linear foot noted in wheat in Osage County. Moderate in alfalfa in Bryan County and ranged 3-4 per 10 sweeps (light) in alfalfa in Caddo and Jackson Counties. (Okla. Coop. Sur.). SOUTH CAROLINA - Second outbreak of season reported in Bamberg County; main damage occurred to Coastal Bermuda grass. Controls giving excellent results. (Nettles et al., Oct. 14).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NORTH CAROLINA - Tunnels noted in 24 percent of stalks in 10 fields of corn examined in Jones and Duplin Counties. Jones County is a new county record. (Mount). ALABAMA - Extremely high infestations noted in late fields and roasting-ear patches of corn in Morgan County; 2-4 larvae per stalk not uncommon. Infestation ranged 90-100 percent in many late garden plantings for roasting ears; yields 50-90 percent reduced. Larvae also noted in corn in Cullman, St. Clair, Blount, Jefferson and Shelby Counties. (Henderson, Rutledge et al.). Caused considerable lodging of corn in Madison County. (Buttram). ILLINOIS - Comparison of 36 counties surveyed in 1963 and 1964 showed average of 106 borers per 100 plants in 1963 compared with 95 in 1964; State average for all counties surveyed in 1964 is 100 borers per 100 plants. Large buildup of borers occurred in extreme southern part of State this year due to a third generation. Highest count in State was 329 borers per 100 plants in Pulaski and Alexander Counties. Disease and parasitism appear very



low. (Ill. Ins. Rpt.). WISCONSIN - Survey showed State average of 13 borers per 100 corn plants, considerably lower than average of 21 per 100 plants in 1963. (Wis. Ins. Sur.). MICHIGAN - Approximately one-third of larval injury observed in field noted in ears. (Newman).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ILLINOIS - Found for first time in Johnson, Massac and Pope Counties. None found in White, Saline, Gallatin or Hardin Counties. (Ill. Ins. Rpt.). ARKANSAS - Percent lodged cornstalks per acre, by district, as follows: Northwest 1.7, north central 1.1, northeast 10.0 and east central 13.9. State average is 8.5 percent. Number of lodged cornstalks per acre, by district, as follows: Northwest 165, north central 106, northeast 528 and east central 1,077. State average is 588 lodged stalks per acre. An unusual condition exists in northwest and north central areas this year, in that late-planted corn is not heavily infested as is general Statewide, but is heavily infested in northeast and east central areas. (Ark. Ins. Sur.).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - ALABAMA - Infestation extremely high in late fields of corn and in patches for roasting ears in Morgan County; 1-3 larvae per stalk not uncommon. Many late garden plantings for roasting ears 90-100 percent infested. (Henderson, Rutledge, et al.).

CORN EARWORM (Heliothis zea) - MICHIGAN - Field surveys in Barry, Calhoun, Eaton and Jackson Counties on October 14 showed 75 percent of larvae in late field corn killed by recent frosts. (Newman). NORTH DAKOTA - Few larvae taken from ears of popcorn at Fargo, Cass County. This is one of infrequent appearances of species in area. (Frye). CALIFORNIA - Larvae of this species and Spodoptera exigua (beet armyworm) medium on corn plantings in Arvin, Kern County. (Cal. Coop. Rpt.).

SORGHUM WEBWORM (Celama sorghiella) - ALABAMA - Rather heavy population damaged 10-acre field of late sorghum in Houston County. (White).

GRASSHOPPERS - UTAH - Damaging several thousand acres of fall grain in Box Elder County west of Brigham City-Tremonton area; controls underway on range and farms in Blue Creek, Howell and Snowville areas. (Thornley, Knowlton). SOUTH DAKOTA - Causing some damage to borders of winter wheat in Campbell, Walworth, Potter, Sully, Hughes, Lyman, Gregory and Tripp Counties. (Burge). NORTH DAKOTA - Egg survey in western third of State closely followed results of adult survey; most infestations light to moderate. Less than 1 percent of egg pods destroyed or infested with parasites and predators. Less than 1 percent desiccated in northern counties; 10 percent desiccated in southern counties. (Brandvik). WISCONSIN - Mating and egg laying by Melanoplus femurrubrum (red-legged grasshopper) continue. (Wis. Ins. Sur.).

A LEAF MINER (Liriomyza munda) - CALIFORNIA - Heavily damaged milo plantings in Rio Linda, Sacramento County. (Cal. Coop. Rpt.).

A PSYCHID MOTH (Apterona crenulella) - UTAH - Damaged bitterbrush (Purshia tridentata) in several areas of Morgan County. (Knowlton, Harrison).

A BILLBUG (Sphenophorus sp.) - ALABAMA - Destroyed approximately 3 acres of a 40-acre pasture of Bahia grass near Uriah, Monroe County. (Lemons).

A THrips (Chirothrips sp.) - ARIZONA - Necessitated controls on some fields of Bermuda grass in Yuma area. (Ariz. Coop. Sur.).

SPIDER MITES (Tetranychus spp.) - TEXAS - Heavy locally in Rusk County and damaging improved Bermuda grass pastures. (Burton).

TERMITES - TEXAS - Unspecified species damaging range grasses in local areas of Cooke County. (Tibbets).

FRUIT INSECTS

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MARYLAND - Larvae infested ripe peaches at Fairland, Montgomery County. (U. Md., Ent. Dept.). COLORADO - Few larvae found in some late, undeveloped peach fruits in Mesa County; very few found during regular harvest period. (Bulla).

YELLOW-NECKED CATERPILLAR (Datana ministra) - CALIFORNIA - Larvae, probably this species, locally heavy on apple foliage in San Leandro, Alameda County. (Cal. Coop. Rpt.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Some pupation noted in Oceana County peach orchards. (Howitt).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Wingless forms developing on peach in Yakima, Yakima County; no eggs found. (Powell, Oct. 9). COLORADO - Fall migrant movement nearly complete in Mesa County peach orchards; numerous colonies of egg-laying forms present, some turning reddish color at present. Colonies of egg-laying forms numerous in orchards with bindweed; moderate in clean-cultivated orchards. Fall controls recommended October 20-November 1. (Bulla).

WOOLLY APPLE APHID (Eriosoma lanigerum) - COLORADO - More abundant in apple orchards on Western Slope in various counties; probably due to reduced number of sprays and less effective materials. (Bulla).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on pear nursery stock locally in Saratoga, Santa Clara County. (Cal. Coop. Rpt.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - UTAH - Severe on apple foliage in home orchard at Smithfield, Cache County. (Knowlton).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larvae noted as rather heavy in pecans in Mobile and Baldwin Counties. These larvae will apparently overwinter in pecan shucks. (Eden).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Locally heavy and damaging to pecans in Bosque County. (Texas Coop. Rpt., Meisch).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Larvae heavy in yard trees in Livermore, Alameda County; locally heavy in Fresno, Fresno County. Dooryard trees particularly damaged this season in many northern localities. Heavy on late peach fruit locally in San Jose, Santa Clara County. (Cal. Coop. Rpt.). UTAH - Infesting walnuts at Brigham City, Box Elder County, and at Ogden, Weber County. (Knowlton, Wadley).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Continues present in Yuma area, Yuma County; adults still active. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Decrease in populations very evident in Yuma County. (Ariz. Coop. Sur.).

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - CALIFORNIA - Invaded nursery cans of young citrus trees and girdled plants in Fremont, Alameda County. (Cal. Coop. Rpt.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - Three additional infestations found on lemons on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.). FLORIDA - Moderate and general on 100 percent of many nursery plants of sweet orange at Avon Park, Highlands County. (Keen, Snell, Oct. 9).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - General and moderate on 100 percent of many citrus trees in nursery at Avon Park, Highlands County, (Keen, Snell, Oct. 9) and general and moderate on 90 percent of 2,300 nursery plants of sweet orange at Sorrento, Lake County, (Bentley, Oct. 7).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Continues present on tangerines in Yuma County; some treatments applied. (Ariz. Coop. Sur.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - NEVADA - Larvae still present on grapes in Las Vegas and North Las Vegas, Clark County; damage heavy. (Zoiler).

#### TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - MARYLAND - All stages noted on cabbage at Fairland, Montgomery County. Injury has been severe. (U. Md., Ent. Dept.).  
FLORIDA - Caused very light damage to 3 percent of celery in commercial planting at Sanford, Seminole County. (Desin, Oct. 13). NEW MEXICO - Mostly spotted, light infestations in Dona Ana County lettuce fields. (N.M. Coop. Rpt.).  
ARIZONA - Treatments continue on Yuma area, Yuma County, truck crops; all stages easily found. (Ariz. Coop. Sur.).

DIAMONDBACK MOTH (Plutella maculipennis) - MARYLAND - Larvae noted on cabbage at Fairland, Montgomery County. (U. Md.; Ent. Dept.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Treatments continue on truck crops in Yuma County. (Ariz. Coop. Sur.).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Severely damaging tomato plants and fruit generally in San Diego County; this is heaviest infestation noted in about 15 years. (Cal. Coop. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Late but extremely high "hatchout" observed on snap beans and cowpeas planted in conjunction with late corn in Morgan, Cullman and Blount Counties; some pupation still underway, although light frost occurred. Adult hibernation occurring in soil around bases of corn plants. (Henderson et al.).

CUCUMBER BEETLES (Diabrotica spp.) - ARIZONA - Feeding on sugar beets for seed in Dome area, Yuma County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Winged forms moving to isolated peach trees in potato-growing area of Weld County near Greeley. Wingless sexual forms appearing on peach; no eggs observed. (Simpson).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy on newly developing heads of Yuma County lettuce. (Ariz. Coop. Sur.).

HARLEQUIN BUG (Murgantia histrionica) - ALABAMA - Numerous adult populations noted feeding on collards and cabbage during past 16 days in gardens in western part of State. (Henderson et al.).

LEAF MINER FLIES (Liriomyza spp.) - FLORIDA - Caused very light damage to 16 percent of celery in commercial planting at Sanford, Seminole County. (Desin, Oct. 13).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - Averaged 19 percent in overwintering (orange colored) stage on sugar beets at Quincy, Grant County; 22,961 mites recovered on 300 beet leaves. (Powell, Oct. 9).

## COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Heavy, late season buildups occurring in Dickens, Hall, Garza, Motley and Kent Counties, below the Cap Rock in western area. Infestations also heavy in eastern Floyd and Crosby Counties above the Cap Rock. (Texas Coop. Rpt.). OKLAHOMA - Percent punctured squares 35 in Jackson County and 55 in Caddo County. Numerous adults found in cotton blooms in Carter County. (Okla. Coop. Sur.). ALABAMA - Large numbers of adults collected in gin trash in Macon County during surveys for Pectinophora gossypiella (pink bollworm). (Barwood et al.).

A WEEVIL (Anthonomus sp.) - ARIZONA - Population buildup continues in Pinal County; 5 per boll counted in one field. (Ariz. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - OKLAHOMA - Heavy infestations of 22-28 percent reported in cotton in Caddo and Jackson Counties. (Okla. Coop. Sur.). TEXAS - Heavy infestations in cotton general in Motley, Hall, Dickens and Garza Counties. (Rummel). ARIZONA - Eggs and small larvae continue to be found in cotton in Pinal and Yuma Counties; some damage still evident. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Lint cleaner inspections indicated many infested fields from Pima northwestward in Graham County. Infested fields located by field and gin trash inspections in Pinal County; 109 larvae taken from 3 lots of gin trash. Total of 307 moths taken in 2 light traps, making total of 1,144 moths taken in Maricopa County to October 16. New infestations located by light trap collection in Paradise Valley; 3 newly infested fields (2 in Mesa and 1 in Rainbow Valley) located by gin trash inspection; this makes total of 20 infested fields in Maricopa County to October 16. (Ariz. Coop. Sur.).

NEW MEXICO - Light to moderate in green bolls in cotton fields near Anapra, Dona Ana County; infestation ranged 6-40 percent in green bolls in area. Small numbers of larvae also collected from gin trash in cotton gins between La Union and Las Cruces. (N.M. Coop. Rpt.). OKLAHOMA - Inspections of gin trash recovered 5 larvae from 101 bushels in McCurtain County, 3 larvae from 20 bushels in Comanche County and 225 larvae from 127 bushels of gin trash in Tillman County. (Okla. Coop. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Remains moderate to heavy in Yuma County cotton. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Heavy migrations beginning in spotted areas in Yuma County. (Ariz. Coop. Sur.).

CELERY LEAF TIER (Udea rubigalis) - ARIZONA - Noted in cotton in Dome Valley, Yuma County. (Ariz. Coop. Sur.).

COTTON LEAFWORM (Alabama argillacea) - ALABAMA - Rather heavy population of larvae pupated in several cotton fields in Wilcox County during past 10 days. Has not moved into central section as yet; normally moves as far north as Jefferson County before killing frost ends migration. (Henderson et al.).

COTTON APHID (Aphis gossypii) - NEW MEXICO - Light to heavy, spotted infestations found in Dona Ana County cotton; honeydew a problem in several fields. (N.M. Coop. Rpt.).

## FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - TEXAS - Active infestations of Dendroctonus frontalis (southern pine beetle) located during September in Hardin, Jasper, Liberty, Orange, San Augustine and Tyler Counties. Activity continued decline throughout entire infestation area. Since June 1, total of 512 spot infestations located and controlled; 11,345 brood trees involved. Continued infestations of D. terebrans (black turpentine beetle) reported on National forests in Angulina, Houston, Jasper and

Trinity Counties. Ips avulsus, I. grandicollis and I. calligraphus caused no unusual damage. (Texas For. Pest Comm., Sept. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - COLORADO - Heavy on spruce in Colorado Springs, El Paso County. (Hantsbarger).

PINE WEBWORM (Tetralopha robustella) - FLORIDA - Infested several sand pine plants in nursery in Fort McCoy, Marion County. (Holder, Oct. 8).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Defoliating oaks in Garvin, Murray, Johnston, Marshall, Oklahoma, Lincoln, Ottawa, Washington, Osage and Coal Counties. Other lepidopterous larvae found on oaks in these areas include: Anisota stigma (spiny oakworm) in Oklahoma and Carter Counties; Datana ministra (yellow-necked caterpillar) in Oklahoma, Carter and Coal Counties; Schizura unicornis (unicorn caterpillar) in Oklahoma, Carter and Coal Counties; Heterocampa astarte (a notodontid moth) in Oklahoma, Garvin, Carter and Coal Counties; Acronycta afflicata (a noctuid moth) in Oklahoma County; and Euclea delphinii (a eucleid moth) in Coal and Murray Counties. (Okla. Coop. Sur.).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Light to heavy and defoliating poplar, fruitless mulberry and pecan trees in southern Dona Ana County; many poplar trees completely defoliated. (N.M. Coop. Rpt.). OKLAHOMA - Heavy on trees in Mayes County. (Okla. Coop. Sur.).

A SWALLOWTAIL BUTTERFLY (Papilio rutulus) - CALIFORNIA - Larvae medium on ash trees in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - TEXAS - Surveys made in several north plains and northwest counties; present in Potter, Hutchinson, Gray, Wheeler, Collingsworth and Wilbarger Counties. Gray, Wheeler, Collingsworth and Wilbarger Counties new county records. (Texas Coop. Rpt., Berry, Meisch).

AMBROSIA BEETLES - INDIANA - Four species collected for first time in State during 1964. Monarthrum fasciatum taken from pin oak, Xyleborus affinis and Xylosandrus germanus from river birch, and Xyloterinus politus from silver and red maples in Dubois County; Xyloterinus politus also collected from silver and red maples in Tippecanoe County. All collections made by Dr. R. L. Giese. (Bram).

BLACK PECAN APHID (Melanocallis caryaefoliae) - MARYLAND - Oviparous females noted on hickory at Chevy Chase, Montgomery County. (U. Md., Ent. Dept.).

A LEAFHOPPER (Alconeura unipuncta) - CALIFORNIA - Adults heavy on sycamore trees in Highlands, San Bernardino County. (Cal. Coop. Rpt.).

AN OAK KERMES SCALE (Kermes boguei) - OKLAHOMA - Found on oak trees in Murray, Carter and Coal Counties. (Okla. Coop. Sur.).

MIMOSA WEBWORM (Homadsula albizziae) - ILLINOIS - Distribution survey revealed following new county records: Edgar, Clark, Jasper, Crawford, Lawrence and Hamilton. None found in Douglas, Coles, Cumberland and Effingham Counties. (Ill. Ins. Rpt., Oct. 9).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Medium on chrysanthemums in Encinitas, San Diego County. (Cal. Coop. Rpt.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Larvae heavy on geranium nursery stock in Santa Clara, Santa Clara County. (Cal. Coop. Rpt.).

A PYRAUSTID MOTH (Ambia sp.) - FLORIDA - Larvae collected on leather hollyfern (Polystichum adiantiforme) at large fernery in Zellwood, Orange County; controls necessary. (VanPelt, Oct. 7).

A BRUSH-FOOTED BUTTERFLY (Agraulis vinillae) - CALIFORNIA - Larvae medium on passion-flower plants in San Martin, Santa Clara County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Lachnus salignus heavy on willow in Ravendale, Lassen County. Macrosiphoniella sanborni (chrysanthemum aphid) heavy on chrysanthemum growing stock in Fresno, Fresno County. (Cal. Coop. Rpt.). UTAH - Eulachnus rileyi very numerous on yellow pines in Ogden city area, Weber County. (Fronk, Knowlton). Fall migrant flight of unspecified aphids very heavy throughout Cache Valley. Periphyllus lyropictus (Norway-maple aphid) making sidewalks sticky in areas about Logan, Cache County; Salt Lake City, Salt Lake County; and Ogden, Weber County. (Knowlton). WYOMING - Large populations found on ornamental junipers at Laramie, Albany County. (Fronk). FLORIDA - Aphis gossypii (cotton aphid) general on about 200 of 1,000 ixora (Ixora spp.) plants in nursery in Pompano Beach, Broward County. (Clinton, Oct. 9). MARYLAND - Unspecified species infesting weeping willow at Baltimore. (U. Md., Ent. Dept.).

A RHOPALID BUG (Niestrea sidae) - TEXAS - Large numbers noted on shrubs in local areas of Marion County. (Morris).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - Discolored foliage of a number of Virginia-creeper in Logan-Wellsville area, Cache County, and at Price, Carbon County. (Knowlton).

COCCIDS - FLORIDA - Saissetia nigra (a soft scale) and Pinnaspis strachani (an armored scale) found on stems of 50 Snow Queen hibiscus plants at Cypress Gardens, Polk County. (Herrmann, Oct. 9). Asterolecanium bambusae and A. miliaris robustum (pit scales) infested 50 percent of plants inspected in nursery in Lakeland, Polk County. (Henderson, Oct. 6). ARIZONA - Icerya purchasi (cottony-cushion scale) very heavy on pittosporum shrubs in Kingman area, Mohave County. (Ariz. Coop. Sur.). CALIFORNIA - Chionaspis ortholobis (an armored scale) heavy on Ceanothis prostratus on State forestry land in Nevada City, Nevada County. Asterolecanium minus (a pit scale) heavy on live oak trees on ranch in Barberville, Mendocino County. (Cal. Coop. Rpt.).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - FLORIDA - General and severe on 50 percent of India-laurel fig (Ficus retusa) plants in 2 nurseries at Bradenton, Manatee County. (Buckner, Sept. 23 and Oct. 8).

LESSER BULB FLY (Eumerus tuberculatus) - CALIFORNIA - Larvae of this species and of Rhizoglyphus echinopus (bulb mite) heavy in rhizofidil bulbs in nursery in Chico, Butte County. (Cal. Coop. Rpt.).

ROSE-SLUG (Endelomyia aethiops) - UTAH - Severely defoliated roses at Hoytsville, Summit County; det. by B. D. Burks. (Knowlton).

A SPIDER MITE (Tetranychus neocaledonicus) - FLORIDA - Moderate to severe and generally distributed among plants of croton (Codiaeum sp.) in retail store at Mount Dora, Lake County. (Bentley, Oct. 8).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NORTH CAROLINA - Aedes sollicitans (salt-marsh mosquito) and Anopheles bradleyi present along coastal areas but not numerous. (Ashton). TEXAS - General level in September considerably in excess of that in August. South Park area of Beaumont becoming "trouble" area. Number of Culex salinarius in Pleasure Island area of Jefferson County indicates possibility of troublesome winter. Locally this species quite active at temperatures well below those suitable for efficient use of insecticides. (Jefferson Co. Mosq. Contr. Dist., Sept. Rpt.). UTAH - Causing some annoyance to Cache Valley residents, in Corinne-Bear River area of Box Elder County and west of Salt Lake City, Salt Lake County. (Knowlton).

HOUSE FLY (Musca domestica) - OKLAHOMA - Moderate in homes and barns in Cleveland County. (Okla. Coop. Sur.). NORTH DAKOTA - Unusually abundant at cattle sale ring; up to 75 per square yard. (Frye).

HORN FLY (Haematobia irritans) - OKLAHOMA - Moderate on cattle in Bryan, Mayes, Cleveland and Hughes Counties. Averaged 35 per head on calves in Marshall County and 50 per head on horses in Bryan County. (Okla. Coop. Sur.). NORTH DAKOTA - Occasionally 100 per side on darker animals; appearing on warmer days. (Frye).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - NORTH DAKOTA - Ranged up to 4 per hair part on calves. (Frye).

BLACK WIDOW SPIDER (Latrodectus mactans) - UTAH - Observed about a number of homes in Logan, Salt Lake City, Ogden and other northern and central communities recently. (Knowlton).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Being found in many homes and other buildings in Greer County. (Okla. Coop. Sur.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - WISCONSIN - Adults numerous and a nuisance in many areas. (Wis. Ins. Sur.). UTAH - Numerous on, about and entering 2 homes at Smithfield, Cache County. (Knowlton).

A BAT BUG (Cimex pilosellus) - COLORADO - Very noticeable infestation reported in home in Loveland, Larimer County. (Daniels).

STINK BUGS - OKLAHOMA - Invading homes in Pryor, Mayes County. (Okla. Coop. Sur.).

BALD-FACED HORNET (Vespa maculata) - UTAH - This and Vespa spp. numerous on and about home at Smithfield, Cache County. (Knowlton).

LARGER YELLOW ANT (Acanthomyops interjectus) - MARYLAND - Winged forms swarmed at house foundation at Avondale, Prince Georges County. (U. Md., Ent. Dept.).

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) - UTAH - Damaged hardwood floors in home at Providence, Cache County; det. by E. J. Gergery. (Knowlton).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - MARYLAND - Noted in home at Suitland, Prince Georges County, October 10. (U. Md., Ent. Dept.).

#### STORED-PRODUCT INSECTS

Stored-Grain Insects in Texas - Heavy infestations of CADELLE (Tenebroides mauritanicus), CIGARETTE BEETLE (Lasioderma serricornis), RED FLOUR BEETLE (Tribolium castaneum) and larvae of a PHYCITID MOTH (Cadra sp., probably C. cautella) reported in commercial nut-packing establishment in Dallas County. (Texas Coop. Rpt., Meisch).

#### BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 12 per 100 sweeps in alfalfa fields of Washakie County. (Marks).

FLOWER BUGS (Orius spp.) - WYOMING - Adults averaged 28 per 100 sweeps in alfalfa fields of Washakie County. (Marks).

BRACONID WASPS - ALABAMA - Numerous Ceratonia catalpae (catalpa sphinx) noted parasitized by these wasps in Mobile County; also parasitizing lesser numbers of Sibine stimulea (saddleback caterpillar). (Seibels, Robinson). WASHINGTON - Aphidius spp. ranged 3-10 per stem on both forage and seed alfalfa 6 inches high in Walla Walla area, Walla Walla County. (Halfhill, Oct. 9).

#### MISCELLANEOUS INSECTS

DERMESTID BEETLES - UTAH - Trogoderma simplex conspicuous in nests of leafcutting bees (Megachilidae) at Flowell, Millard County. Det. by J. M. Kingsolver. One Attagenus sp. also present. (Knowlton, Barnes).

PUMPKIN CATERPILLAR (Diaphania indica) - FLORIDA - Adult taken in Steiner trap at Lake Placid, Highlands County. (Morris, Oct. 8).

CICADAS (Tibicen spp.) - ALABAMA - Outbreak in Mobile County during week ending September 18 mainly T. chloromera and T. davisii. Det. by R. D. Froeschner. (Seibels et al.).

A BACKSWIMMER (Notonecta kirbyi) - CALIFORNIA - Medium in swimming pool in Walnut Creek, Contra Costa County. Backswimmers have been problem in swimming pools in great many areas this season. (Cal. Coop. Rpt.).

RING-LEGGED EARWIG (Euborellia annulipes) - NEW MEXICO - Specimen found in rug in home at University Park, Dona Ana County. (N.M. Coop. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Collected for the first time in Sarasota County, FLORIDA, and in Bamberg County, SOUTH CAROLINA. (PPC, South. Reg., Sept. Rpt.).

A HORNTAIL (Xeris tarsalis) - CALIFORNIA - Light infestation noted in wood in Santa Rosa, Sonoma County. This is a new county record. (Cal. Coop. Rpt.).

WASPS - ALABAMA - Numerous and large, newly formed groups of Polistes spp. observed throughout State; congregating on old nests prior to migrating to suitable hibernation locations. (Watters et al.).

#### CORRECTIONS

CEIR 14(11):179 - Stored-Product Insects in Alabama - First line: Sitophilus granarium should read Sitophilus granarius.





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

During the period October 11 - 17, TEXAS reported 10 screw-worm cases from 9 counties: El Paso (1), Jeff Davis (1), Presidio (1), Edwards (1), Frio (2), Starr (1), Gonzales (1), Sutton (1) and Deaf Smith (1). Case from Deaf Smith County being investigated; believed to have originated in New Mexico. ARIZONA reported 14 screw-worm cases from 5 counties: Cochise (6), Santa Cruz (3), Pinal (3), Gila (1) and Yuma (1). No cases reported from NEW MEXICO. Republic of Mexico reported 269 cases: Veracruz (1), San Luis Potosi (1), Neuvo Leon (12), Chihuahua (96), Sonora (87), Puebla (1), Durango (21), Tamaulipas (29) and Coahuila (11). Sterile screw-worm flies released: Texas 18,989,450, New Mexico 1,560,000, Arizona 6,400,000 and Mexico 62,740,000.

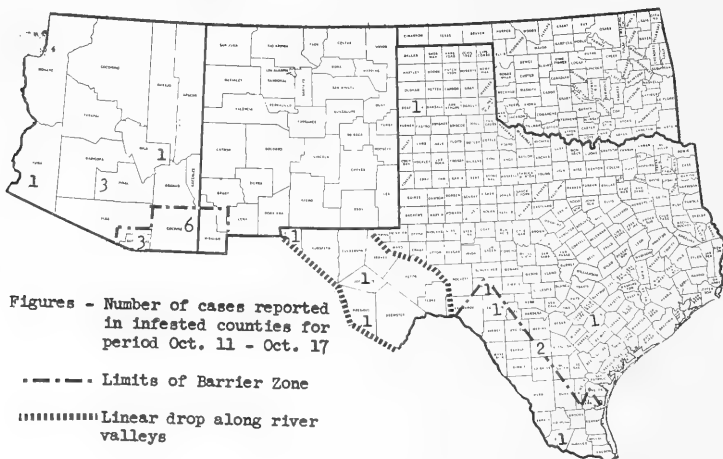
Year	Postive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1. Comparison of specimens reported during corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.						
1962	2,151	43,588	75	2,573	2,868.0	1,964.05
1963	411	4,895	234	5,722	175.6	85.5
1964	10	129	110	4,987	4.9	2.4

Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	313	4,522	46	1,175	680.4	384.85
1964	249	3,165	57	1,639	436.8	193.1

Table 2A. Mexican portion of Barrier Zone only.

1963	105	1,391	3	155	3,500.0	897.4
1964	235	2,995	24	745	979.16	402.01

\* 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.).



Figures - Number of cases reported in infested counties for period Oct. 11 - Oct. 17

----- Limits of Barrier Zone

..... Linear drop along river valleys

STATE OF CALIFORNIA  
DEPARTMENT OF AGRICULTURE  
SACRAMENTO

September 25, 1964

C O P Y

E-82-6

TO: All County Agricultural Commissioners

SUBJECT: Estimated Damage and Crop Loss Caused by Insect/Mite Pests - 1963

This report of estimated damage and dollar crop loss attributed to insect/mite pests is a summarization of special reports submitted by the County Agricultural Commissioners and other available information. Preparation of this information involves a great deal of work by each County, and yet this data must of necessity be considered an estimate only, as the final crop return information is not available at the required time of preparation. The majority of the county reports were complete, giving estimated crop value, percentage loss caused by insects and treatment costs on many of the 250 different kinds of commercial crops grown in the State on 131,000 farms. Acreages treated for Agricultural Pest Control amounted to 8,486,852 acres in 1963. Repeat application would be considered as separate applications and increase the total acreage by the number of acres treated. There was an increase of 1,276,310 acres treated in 1963. Ground applications decreased by 47,462 acres while aircraft application increased 549,327 acres. Aircraft application accounted for 80.4 percent and ground 19.6 percent of treatments applied. Field crops accounted for 5,292,309 acres treated, vegetables 1,456,993 acres, and fruits and other crops 1,737,550 acres. There are 1,482 licensed pest control operators in California, 509 airplane pilots and 250 apprentice pilots. Weather conditions during 1963 varied from normal patterns and many species of insect/mites developed severe pest populations relatively rapidly.

Tallying of related pests comprising more than one species as a group was more prevalent this year in field reports than has formerly been done. However, when damage/loss is attributed to a single species it is so credited. For a more accurate representation of state-wide losses, the maximum-minimum value is given rather than striking an average.

Estimates in the pests of animals continue to be partially incomplete due to lack of centralized reporting, consequently they represent only a limited number of counties. Forest pests are included through cooperation with the U.S. Forest Service. In the case of Structural Pest Control reports, estimated dollar costs for individual structural pests are impossible to completely assess because treatment for combination of insect pests, rodents and wood rots is a general practice in the industry.

The attached table represents the breakdown of assigned damage/loss dollar value.

/s/ Ronald M. Hawthorne

Ronald M. Hawthorne  
Economic Entomologist

Robert W. Harper, Chief  
Bureau of Entomology

Attach.

CROP LOSS ESTIMATE REPORT FOR CALIFORNIA - 1963

	Assessable Yield Loss (\$)	Control Cost (\$)	% Loss of Crop Value	Estimated Overall Loss (\$)
<u>Insects</u>				
Mites (nonspecific)				
Citrus red mite ( <u>Panonychus citri</u> )	20,044,136	9,509,911	.022-10	29,554,047
Citrus red mite ( <u>Panonychus citri</u> )	5,315,640	2,852,115	1-6	7,867,755
European mite ( <u>Brevibia praetiosa</u> )	103,000	98,000	5	201,000
European red mite ( <u>Panonychus ulmi</u> )	869,000	880,000	5-5	1,749,000
Pacific spider mite ( <u>Tetranychus pacificus</u> )	2,017,000	304,600	4-4.5	2,321,600
Pear leaf blister mite ( <u>Eriophyes pyri</u> )	25,000	68,000	25-6	91,000
Tomato russet mite ( <u>Aculus lycoopersci</u> )		75,000	3	75,000
Two-spotted spider mite ( <u>Tetranychus telarius</u> )	3,021,650	1,493,100	1-10	4,514,745
A spider mite ( <u>Eotetranychus willamettei</u> )	52,000	42,900	1-4.5	94,900
Mites All - Total	31,445,426	15,023,626		46,469,052
<u>Mites All - Total</u>				
European earwig ( <u>Forficula auricularia</u> )	2,000	1,300	1-10	3,300
Field crickets ( <u>Gryllus spp.</u> )	2,000,000	1,000,000	3	3,000,000
Grasshoppers	80,750	31,280	5-3	112,030
Thrips (nonspecific)	5,111,697	1,996,200	.055-7	6,507,897
Citrus thrips ( <u>Scirtothrips citri</u> )	1,295,040	671,474	1-2.6	1,966,514
Pear thrips ( <u>Taeniothrips inconsequens</u> )	20,000	50,000	.2	70,000
Thrips All - Total	6,426,737	2,117,674		8,544,411
<u>Thrips All - Total</u>				
Leafhoppers (nonspecific)	5,887,600	3,819,470	.052-5.5	9,707,070
Beet leafhopper ( <u>Circulifer tenellus</u> )	183,000	95,000	1.4-5	278,000
Grape leafhoppers ( <u>Erythroneura spp.</u> )	1,836,895	1,041,669	1.56-5	2,878,564
Leafhoppers All - Total	7,907,495	4,956,139		12,863,634
<u>Leafhoppers All - Total</u>				
Mealybugs (nonspecific)	100,900	45,300	.007-5.4	146,200
Citrus mealybug ( <u>Pseudococcus citri</u> )	2,650,000	125,000	.5	2,775,000
Mealybugs All - Total	2,750,900	170,300		2,921,200
<u>Mealybugs All - Total</u>				
Pear psylla ( <u>Psylla pyricola</u> )	966,482	463,000	1-39	1,429,482
Whiteflies	28,400	5,000	10	33,400

Insects	Assessable Yield Loss (\$)	Control Cost (\$)	% Loss of Crop Value	Estimated Overall Loss (\$)
<u>Lygus bugs (Lygus spp.)</u>	16,697,714	6,882,312	.021-13.4	23,580,026
Stink bugs	4,687,520	1,964,125	.01-9	6,651,645
<u>Aphids (nonspecific)</u>	12,084,136	7,929,320	.9-20	20,013,456
Apple aphid (Aphis pomi)	5,000	26,500	1-2	31,500
Apple grain aphid (Rhopalosiphum fitchii)	209,550	54,625	1-6	264,175
Cabbage aphid (Brevicoryne brassicae)	504,000	542,900	2-7	1,046,900
Green peach aphid (Myzurus persicae)	2,911,190	2,857,710	1-7	5,768,900
Lettuce root aphid (Pemphigus bursarius)	100,900	20,000	5	120,900
Mealy plum aphid (Hyalopteris pruni)	6,000	4,814	2	10,814
Meon aphid (Aphis gossypii)	225,500	22,000	1-2	247,500
Pea aphid (Acyrthosiphon pisum)	1,775,000	575,000	1-2	2,350,000
Rosy apple aphid (Anuraphis rosae)	140,000	190,000	2-2.1	330,000
Spotted alfalfa aphid (Therioaphis maculata)	359,910	100,660	.92-5	460,570
Walnut aphid (Chromaphis juglandicola)	359,340	239,900	1-10	590,240
<u>Aphids All - Total</u>	<u>18,671,526</u>	<u>12,563,429</u>		<u>31,234,955</u>
<u>Scales (nonspecific)</u>	245,040	915,528	1.09-11.5	1,160,568
Black scale (Saissetia oleae)	2,809,000	939,700	5-5	3,748,700
California red scale (Aonidiella aurantii)	720,500	854,287	1.2-3	1,574,787
European fruit lecanium (Lecanium corni)	10,000	100,000	2	110,000
Greedy scale (Aspidiotus camelliae)	2,750	6,000	1	8,750
Olive scale (Parlatoria oleae)	1,262,238	1,018,792	.070-3.5	2,281,030
San Jose scale (Aspidiotus perniciosus)	2,112,954	1,216,376	0.2-5	3,329,330
Yellow scale (Aonidiella citrina)	277,040	1,039,780	1	1,316,820
<u>Scales All - Total</u>	<u>7,439,522</u>	<u>6,090,463</u>		<u>13,529,985</u>
<u>A vinegar fly (Drosophila melanogaster)</u>	310,000	25,000	5-2	335,000
<u>Walnut husk fly (Rhagoletis completa)</u>	165,000	110,000	3-10	275,000
<u>Alfalfa looper (Autographa californica)</u>	326,500	500,600	1-5.4	827,100
<u>Armyworm (Pseudaletia unipuncta)</u>	4,621,741	1,142,530	.020-5	5,764,271
<u>Artichoke plume moth (Platyptilia carduidactyla)</u>	317,190	246,810	5-40	564,000
<u>Beet armyworm (Spodoptera exigua)</u>	1,600,000	1,600,000	2.5-4	3,200,000
<u>Black cutworm (Agrotis ipsilon)</u>	100,000	90,000	---	190,000
<u>Cabbage looper (Trichoplusia ni)</u>	2,892,000	2,881,000	3-11	5,773,000

Insects	Assesable Yield Loss (\$)	Control Cost (\$)	% Loss of Crop Value	Estimated Overall Loss (\$)
Codling moth ( <u>Carpocapsa pomonella</u> )	1,208,123	2,218,832	3-12	3,426,955
Corn earworm ( <u>Heliothis zea</u> )	22,460,807	9,443,656	.015-17.6	31,904,463
Cutworms	4,055,653	1,429,110	.1-3.6	5,484,763
Imported cabbageworm ( <u>Pieris rapae</u> )	43,000	60,000	1	103,000
Navel orangeworm ( <u>Paramyeloides transitella</u> )	169,000	26,000	2-3.5	195,000
Orange tortrix ( <u>Argyrotaenia citrana</u> )	1,037,000	315,000	2-5	1,352,000
Oriental fruit moth ( <u>Grapholitha molesta</u> )	712,673	1,242,620	.099-3	1,955,293
Peach twig borer ( <u>Anarsia lineatella</u> )	1,420,522	2,922,774	.073-5.71	4,343,296
Potato tuberworm ( <u>Gnorimoschema operculella</u> )	983,446	645,650	2.86-5.8	1,629,096
Red-humped caterpillar ( <u>Schizura concinna</u> )	13,250	10,900	5	24,150
Salt-marsh caterpillar ( <u>Estigmene acrea</u> )	154,000	143,000	4	297,000
Sunflower moth ( <u>Homoeosoma electellum</u> )	1,012	1,200	5	2,212
Tobacco hornworm ( <u>Protoparce sexta</u> )	117,055	40,400	2-7	157,455
Western peach tree borer ( <u>Sanninoidea exitiosa graefi</u> )	126,270	186,000	2.1-3	322,270
Western yellow-striped armyworm ( <u>Prodenia praeifica</u> )	616,600	483,333	---	1,099,933
Alfalfa weevil ( <u>Hypera postica</u> )	150,000	115,250	1.6-6	265,250
Cucumber beetles ( <u>Diabrotica</u> spp.)	45,000	36,000	2-1	81,000
A ground beetle ( <u>Harpalus pennsylvanicus</u> )	140,325	55,000	.5	195,325
Elm leaf beetle ( <u>Galerucella xanthomelaena</u> )	---	25,000	5	25,000
Grain storage insects	353,000	110,000	1-1.5	463,000
Tobacco flea beetle ( <u>Epirix hirtipennis</u> )	61,000	68,000	.05	129,000
Saw-toothed grain beetle ( <u>Oryzaephilus surinamensis</u> )	500	1,500	1	2,000
Shot-hole borer ( <u>Scolytus rugulosus</u> )	911,400	225,000	2-10	1,136,400
Striped flea beetle ( <u>Phyllotreta striolata</u> )	3,500,000	1,250,000	5	4,750,000
Wireworms	12,000	6,100	.1-2	18,100

	Insects	Assessable Yield Loss (\$)	Control Costs (\$)	% Loss of Crop Value	Estimated Overall Loss (\$)
Cabbage maggot ( <u>Hylemya brassicae</u> )	554,600	125,000	1-10	679,600	
Onion maggot ( <u>Hylemya antiqua</u> )	6,500	4,000	1	10,500	
Leaf miners (nonspecific)	155,980	603,010	1	759,000	
A rice leaf miner ( <u>Hydrellia griseola</u> )	215,000	144,000	.1-1	359,000	
A leaf miner ( <u>Liriomyza</u> sp.)	40,000	80,000	.1	120,000	
Leaf miners All - Total	410,980	827,010		1,238,000	
Tadpole shrimp ( <u>Triops longicaudatus</u> )	285,000	146,600	1-2	431,600	
Agricultural Pests - Total	148,985,629	80,037,523		229,023,152	
<u>Pests of Animals</u>					
Cattle lice ( <u>Haematopinus</u> spp., <u>Bevicola</u> spp., <u>Trichodectes</u> spp., <u>Linognathus</u> spp.)	30,986	108,450	.22-10	139,436	
Common cattle grub ( <u>Hypoderma lineatum</u> )	1,375,317	706,000	.09-16	2,081,317	
Horn fly ( <u>Haematobia irritans</u> )	50,000	80,000	.05-.16	130,000	
Horse flies ( <u>Tabanus</u> spp.)	108,087	5,600	.07-2	113,687	
Mosquitoes	---	150,000	2	150,000	
Northern fowl mite ( <u>Ornithonyssus sylviarum</u> )	---	708,000		708,000	
Pests of Animals - Total	1,564,390	1,758,050		3,322,440	
Agricultural & Animal Pests - Total	150,550,019	81,795,573		232,345,592	

	Estimated Value of Stumpage Killed
Forest Pests	
Western pine beetle ( <u>Dendroctonus brevicomis</u> )	5,000,000
Mountain pine beetle ( <u>Dendroctonus monticolae</u> )	4,800,000
Fir engraver ( <u>Scolytus ventralis</u> )	3,000,000
Douglas-fir beetle ( <u>Dendroctonus pseudotsugae</u> )	1,700,000
Jeffrey pine beetle ( <u>Dendroctonus jeffreyi</u> )	1,000,000
	.75
	1.00
	.40
	.10
	.50

Forest Pests

- California flatheaded borer (Melanophila californica)
- Flatheaded fir borer (Melanophila drummondi)
- California five-spined ips (Ips confusus)
- A pine engraver (Ips oregonis)
- Lodgepole needle miner (Eragora milleri)

Forest Pests - Total

% Loss of Crop Value	Estimated value of Stumpage Killed
.10	150,000
.10	125,000
.10	125,000
.10	100,000
(unknown)	---
	16,800,000

STRUCTURAL PEST CONTROL

Structural pests are those referred to as household pests and wood destroying pests, or organisms, or such other pests as may include those which infest households or other structures including railroad cars, ships, docks and airplanes, or the contents thereof.

Due to the fact that geographical and climatic conditions vary over the entire State, pest problems differ enormously in various areas. However, the following list represents those pests on which the most calls are received from the general public.

From an economic standpoint, termites are again considered the most important. Termite inspection reports registered with the State of California during 1963 totalled 308,541, a 25 percent increase over 1962. Of this number, 24.88 percent or 77,089 disclosed no infestation of any kind. Of the remainder, infestations reported were as follows: 42.3 percent of all structures inspected had subterranean termite infestation; 31.9 percent were infested with Kalotermes termite; 1.91 percent were infested with beetle or other wood destroying insects; and .4 percent disclosed dampwood termite infestations. As in 1962, however, pest control operators received far more calls for cockroaches than for termites.

The following are the ten most important household pests which gave the homeowner, restaurant owner, industrialist and food processing plant owner the most trouble in 1963, listed in order of their importance:

COCKROACHES

- Oriental cockroach (Blatta orientalis)
- Brown-banded cockroach (Supella supellectillum)
- American cockroach (Periplaneta americana) and other species
- ANTS
  - Argentine ant (Iridomyrmex humilis)
  - Southern fire ant (Solenopsis xyloni)
- A powder-post termite (Cryptotermes brevis)

TERMITES

- Subterranean termites (Reticulitermes spp.)
- Drywood termites (Kalotermes spp.)
- A dampwood termite (Zootermopsis angusticollis)
- SPIDERS
  - Black widow spider (Latrodectus mactans)
- Wolf and garden spiders
- Pavement ant, carpenter ants, thief ant, Pharoah ant and harvester ants



Household Pests (Continued)

STORAGE PESTS

Saw-tooth grain beetle  
(Oryzaephilus surinamensis)

Drugstore beetle

(Stegobium paniceum)

Indian-meal moth

(Plodia interpunctella)

Mediterranean flour moth

(Anagasta kuhniella)

Granary weevil

(Sitophilus granarius)

FLEAS AND BROWN DOG TICK

Cat flea

(Ctenocephalides felis)

Dog flea

(Ctenocephalides canis)

Brown dog tick

(Rhipicephalus sanguineus)

EARWIGS AND CRICKETS

CARPET BEETLES, MOTHS AND SILVERFISH

BEES AND WASPS

Honey bee

(Apis mellifera)

A carpenter bee

(Xylocopa tabaniformis orpifex)

Wasps

(Poliistes spp.)

SOWBUGS, PILLBUGS, SCORPIONS, CENTIPEDES,  
CLOVER MITES, FUNGUS GNATS & DARKLING BEETLES

Structural Pests - Total -

(Including loss by individuals due to  
damage to food, fiber and materials  
discarded)

\$ 98,000,000

GRAND TOTAL - ALL PESTS

\$ 347,145,592

## ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Alabama IN Pecans DURING 1963  
 (Commodity) (State or District) (Year)

A. Pest or pest complex: Black pecan aphid, yellow aphids, pecan nut casebearer, hickory shuckworm, pecan weevil and others.

B. Number of trees<sup>a</sup> produced (From CRS) No. 945,393

C. Average yield per tree<sup>a</sup> (From CRS) Units/ 55 lbs.

D. Price<sup>b</sup> per unit ( lb. )<sup>c</sup> (From CRS) \$/ 0.185

E. Trees<sup>a</sup> needing control No. 900,000

F. Trees<sup>a</sup> treated No. 103,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 20

I. Loss in yield, units per tree<sup>a</sup>, C x H Units/ 11 lbs.

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

K. Loss in quality, \$ per tree<sup>a</sup> \$/ 11.00

L. Yield loss for all trees<sup>a</sup>, (E-F) x I Units 8,767,000 lbs.

M. Control cost, \$ per tree<sup>a</sup> \$/ 8.60

N. Control cost for all trees<sup>a</sup>, F x M \$ 885,800

O. Yield loss for all trees<sup>a</sup>, (E-F) x J \$ 1,625,880

P. Quality loss for all trees<sup>a</sup>, (E-F) x K \$ 8,767,000

Q. Combined control cost and losses, N + O + P \$ 11,278,680

R. Percent loss due to each insect in the complex; See comment

Comment: Black pecan aphid 40 percent; yellow aphids 20 percent; pecan nut casebearer 20 percent; hickory shuckworm 15 percent; pecan weevil 4 percent; others 1 percent.

- 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 H. Frank McQueen

Date May 8, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Cotton (lint) Cotton (seed) (Commodity or Crop)

A. Pest or pest complex: Boll weevil, bollworm, tobacco budworm, spider mites and other species. Pest or pest complex: Boll weevil, bollworm, tobacco budworm, spider mites and other species.

B. Number of acres a produced (From CRS) 832,000 No. 832,000

C. Average yield per acres a (From CRS) 508 lbs. Units/ 508 lbs.

D. Price<sup>b</sup> per unit ( lb ) c (From CRS) 0.329 \$/ 0.329

E. Acres a needing control No. 650,000

F. Acres a treated No. 423,327

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 10

I. Loss in yield, units per acre a, C x H Units/ 50.8 lbs.

J. Loss in yield, \$ per acre a, D x I \$/ 16.71

K. Loss in quality, \$ per acre a \$/ 0

L. Yield loss for all acres a, (E-F) x I Units 11,514,988 lbs.

M. Control cost, \$ per acre a, \$/ 6.40

N. Control cost for all acres a, F x M \$ 2,709,292.00

O. Yield loss for all acres a, (E-F) x J \$ 3,787,705.00

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

Q. Combined control cost and losses, N + O + P \$ 6,496,997.00

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

Comment: Boll weevil 40 percent; bollworm 22 percent; tobacco budworm 23 percent; spider mites 12 percent; others 3 percent.

- 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 H. Frank McQueen  
Date May 8, 1964

ATTACKING Cotton (seed) Cotton (seed) (Commodity or Crop)

A. Pest or pest complex: Boll weevil, bollworm, tobacco budworm, spider mites and other species. Pest or pest complex: Boll weevil, bollworm, tobacco budworm, spider mites and other species.

B. Number of acres a produced (From CRS) 832,000 No. 832,000

C. Average yield per acres a (From CRS) 0.43 ton Units/ 0.43 ton

D. Price<sup>b</sup> per unit ( ton ) c (From CRS) 46.75 \$/ 46.75

E. Acres a needing control No. 650,000

F. Acres a treated No. 423,327

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 10

I. Loss in yield, units per acre a, C x H Units/ 0.43 ton

J. Loss in yield, \$ per acre a, D x I \$/ 2.10

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

L. Yield loss for all acres a, (E-F) x I Units 9,746 tons

M. Control cost, \$ per acre a, \$/ Charged to lint -0-

N. Control cost for all acres a, F x M \$ Charged to lint -0-

O. Yield loss for all acres a, (E-F) x J \$ 476,013.00

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

Q. Combined control cost and losses, N + O + P \$ 476,013.00

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

Comment: Boll weevil 40 percent; bollworm 22 percent; tobacco budworm 23 percent; spider mites 12 percent; others 3 percent.

- 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 H. Frank McQueen  
Date May 8, 1964

## ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Cotton IN Oklahoma DURING 1963  
 (Commodity) (State or District) (Year)

A. Pest or pest complex: Bollworms, boll weevil, fleahoppers, others.

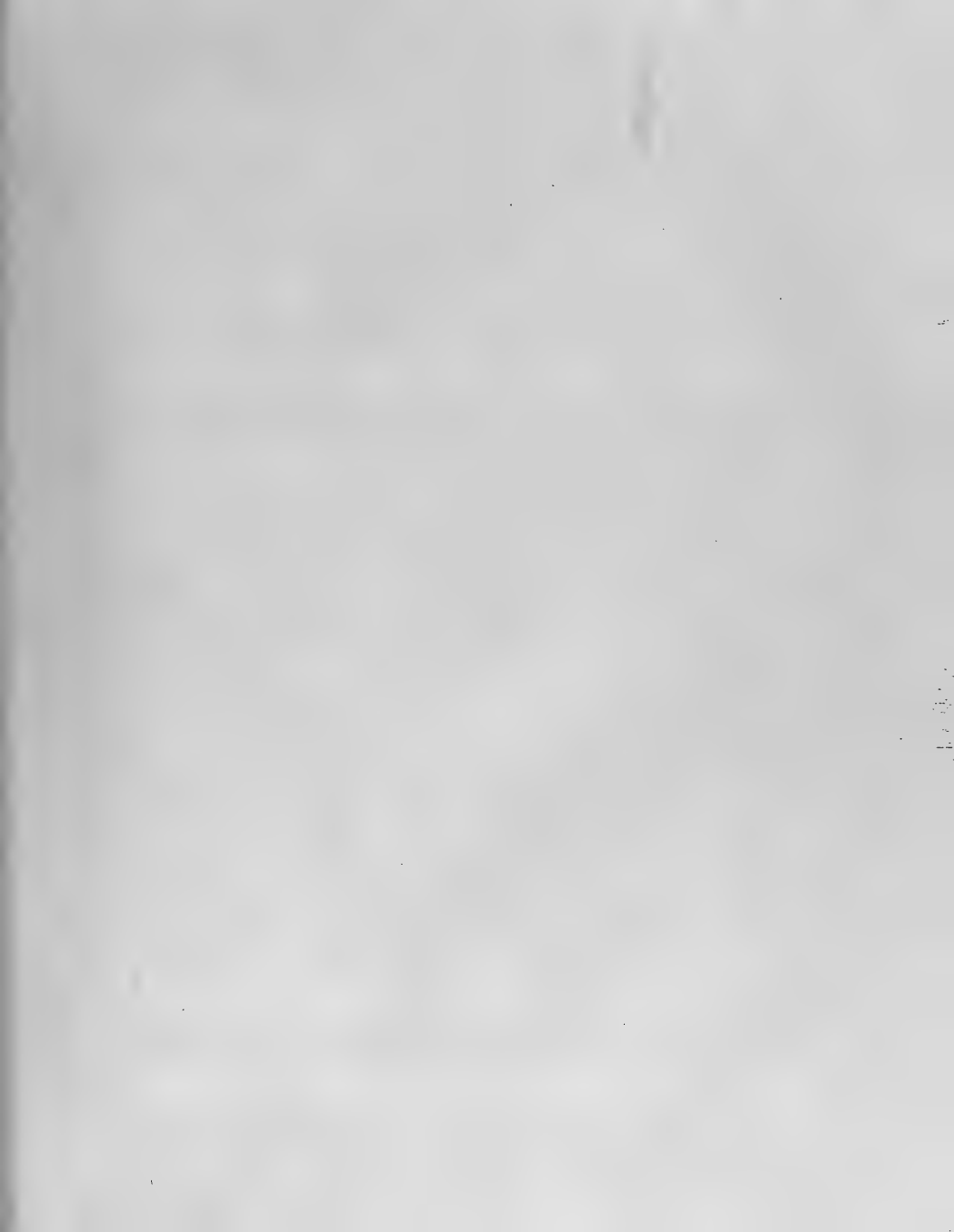
B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No.	<u>575,000</u>
C. Average yield per <u>acres</u> <sup>a</sup> (From CRS)	Units/	<u>267 lbs.</u>
D. Price <sup>b</sup> per unit ( lbs. ) <sup>c</sup> (From CRS)	\$/	<u>0.299</u>
E. <u>Acres</u> <sup>a</sup> needing control	No.	<u>385,250</u>
F. <u>Acres</u> <sup>a</sup> treated	No.	<u>200,330</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>42.4</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/	<u>113.20 lbs.</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/	<u>33.84</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units	<u>20,932,944 lbs.</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>13.45</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$	<u>2,694,438</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$	<u>6,257,692</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$	<u>-----</u>
Q. Combined control cost and losses, N + O + P	\$	<u>8,952,130</u>
R. Percent loss due to each insect in the complex:		<u>See comment</u>

Comment: Bollworms 60 percent; boll weevil 20 percent; fleahoppers 10 percent; others 10 percent.

- 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 Sidney E. Kunz

Date May 18, 1964



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF AGRICULTURE

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

THREE-CORNERED ALFALFA HOPPER and YELLOW-STRIPED ARMYWORM heavy in alfalfa in areas of Arizona. (p. 1185). CORN EARWORM larval infestation in late field and sweet corn in Michigan higher than in 1963; commercial injury relatively light, however. PINK SCAVENGER CATERPILLAR larvae heavy in previously damaged corn ears from Washington County north to Tennessee River in Alabama, and cornstalk destruction by EASTERN SUBTERRANEAN TERMITES common in most fields in same area. FALL ARMYWORM continues damaging small grains and pastures over large portion of central Texas. (p. 1186).

Single ORIENTAL FRUIT FLY male trapped in St. Petersburg, Florida. This will not be considered an established infestation unless additional specimens are recovered. (p. 1188). CITRUS FLAT MITE heavy and requiring treatments on tangerines in Yuma County, Arizona. (p. 1189).

CABBAGE LOOPER heavy in lettuce fields in Yuma and Maricopa Counties, Arizona, (p. 1189), and several species of APHIDS damaging same crop over wide areas of lower Rio Grande Valley in Texas (p. 1190).

PINK BOLLWORM infestations continue to be found in cotton in Maricopa, Pinal and Graham Counties, Arizona. (p. 1190).

DETECTION

First State reports included a LEAFHOPPER (Empoasca mexara) from California (p. 1185), a CORN LEAFHOPPER (Dalbulus maidis) from Louisiana (p. 1186), CHERRY FRUIT FLY (Rhagoletis cingulata cingulata) from Louisiana (p. 1187) and a WALNUT HUSK FLY (Rhagoletis suavis) from Oregon (p. 1188). New county records were SWEETCLOVER WEEVIL (Sitona cylindricollis) (p. 1184) and ALFALFA WEEVIL (Hypera postica) (p. 1185) in Taos County, New Mexico; EUROPEAN CORN BORER (Ostrinia nubilalis) in Talladega County, Alabama, (p. 1186); SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) in Union County, Illinois, (p. 1186); a CONIFER SAWFLY (Zadiprion rohwleri) in Lincoln County, Nevada, (p. 1191); MIMOSA WEBWORM (Homadaula albizziae) in Effingham, Fayette, Macoupin, Jersey and Calhoun Counties, Illinois, (p. 1191); and WHITE-FRINGED BEETLES (Graphognathus spp.) in Limestone County, Alabama, Baker County, Georgia, Richmond County, North Carolina and Giles County, Tennessee, (pp. 1194-1195).

CORRECTIONS and ADDITIONAL NOTES

See page 1195.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1197).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Sweet Corn, Corn, Oats, Barley, Wheat, Forage (Legumes), Apples, Potatoes, Peas and Sugar Beets in Minnesota in 1963. (pp. 1198-1202).

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

WEATHER OF THE WEEK ENDING OCTOBER 26

Cool, sunny, rainless weather predominated over most of the Nation during the week ending Monday, October 26. A few isolated downpours occurred over the southern Great Plains.

TEMPERATURE: Polar continental air covered most of the Nation as high pressure prevailed during most of the week from the West to the Atlantic coast. Afternoons were mild, sunny, and pleasant; nights were cool. Temperatures over much of the area east of the Mississippi River averaged 6° to 10° below normal. Freezing temperatures occurred over the northern and central portions of States bordering on the gulf. Tallahassee, Florida, registered 32° on Wednesday morning, October 21. Scattered light frost occurred from Mississippi to Georgia and in northwestern Florida. West of the high pressure area, tropical continental air pushed northward. Santa Maria, California, registered 99° on Monday, October 19. Temperatures over the Pacific Coastal States, Nevada, and western Arizona averaged slightly above normal.

PRECIPITATION: Fewer clouds than usual for the time of year were seen over the Far Northwest. Light rain occurred over parts of Washington and Oregon, but the weekly totals generally did not exceed 0.25 inch. During the first part of the week, light rain fell along the middle Atlantic coast and from Michigan to the Atlantic Ocean. Amounts were mostly less than 0.50 inch except over New England where the precipitation ranged from 0.50 inch to more than 2 inches, being heaviest in northern Maine. Heavy, isolated showers fell over parts of Texas, Oklahoma, and central and southeastern Kansas. A few totals exceeded 4 inches. Except as mentioned above, most of the Nation received no rain or only light showers. Some areas, where rain had not fallen for several weeks, were becoming unusually dry. Light snow fell in the higher mountains of Colorado, from Iowa to Ohio, and northeastward to New England. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Remains about same as previous week. Winged forms decreased noticeably; ranged 7-10 percent, approximately 1 percent males. All apterous forms oviparae; oviposition increased; average eggs per stem 1.4 on green and 7.4 on dry alfalfa in field with population of about 900 aphids per sweep. Egg counts in adjoining field (about 300 aphids per sweep) averaged 0.2 per stem on green and 2.3 per stem on dry alfalfa. (Wis. Ins. Sur.). SOUTH DAKOTA - Sexual forms collected at Lake-Moody County line in Moody County. (Walstrom, Kindler). NEBRASKA - General but light in panhandle and southwest; highest counts, 42 per sweep in Scotts Bluff County. (Manglitz). Averaged 15 per sweep in Custer and ranged 60-80 in Garfield and Loup Counties. (Bergman). NEW MEXICO - Very light and spotted in Bernalillo County alfalfa. (N.M. Coop. Rpt.). NEVADA - Noted for first time this season in Lyon County alfalfa; highest counts 2 per sweep in several Mason Valley fields. (Bechtel). OREGON - Light infestations found for first time this season in Gilliam, Morrow and Umatilla Counties. (Goeden).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Decreased somewhat; ranged 3-60 per sweep in Waukesha, Walworth and Rock Counties. Winged forms comprised less than 10 percent of population. (Wis. Ins. Sur.). NEBRASKA - Counts per sweep in alfalfa averaged 40 in Garfield and Loup Counties, 125 in Custer County. (Bergman). NEW MEXICO - Generally light in alfalfa in Bernalillo and Sandoval Counties. (N.M. Coop. Rpt.). UTAH - Very numerous on succulent alfalfa in Farmington-Bountiful area of Davis County. (Knowlton). NEVADA - Only occasional specimens found in alfalfa in Mason Valley, Lyon County. (Bechtel).

PLANT BUGS (Lygus spp.) - NEBRASKA - Adults of L. lineolaris (tarnished plant bug) per sweep in alfalfa averaged 6 in Custer County and 2 in Garfield and Loup Counties. (Bergman). UTAH - Lygus spp. continue moderate on alfalfa and weeds in Davis County. (Knowlton).

SAY STINK BUG (Chlorochroa sayi) - ARIZONA - Averaged 20 per 100 sweeps in Yuma County alfalfa. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Few nymphs and adults still present in alfalfa. (Wis. Ins. Sur.).

A LEAFHOPPER (Empoasca mexara) - CALIFORNIA - Present on alfalfa in El Centro-Westmorland area, Imperial County. This recently named species causes stunting and yellowing of alfalfa. Collected August 28, 1964, and determined by R. A. Flock; verified by H. B. Cunningham. This is a new State record. (Cal. Coop. Rpt.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Moderate to heavy in alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Adults ranged 5-12 per 25 sweeps in Bernalillo County alfalfa. (N.M. Coop. Rpt.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Scattered, heavy populations damaging alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Light to medium in alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

CELERY LEAF TIER (Udea rubigalis) - ARIZONA - Light in alfalfa in Gila Valley area of Yuma County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larvae averaged 1-3 per 25 sweeps in Bernalillo County alfalfa. (N.M. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - NEW MEXICO - Averaged 1 per 25 sweeps on alfalfa in Taos County on July 22, 1964. This is a new county record. (N.M. Coop. Rpt.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEW MEXICO - Collected on alfalfa May 26, 1964, at Alcalde, Taos County. This is a new county record. Previously collected on sweetclover at Regina and on alfalfa at Sandoval, Sandoval County. (N.M. Coop. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ALABAMA - Light infestations observed in late corn in Talladega County. This is a new county record. (McQueen). ILLINOIS - Of borers collected during fall survey, only 13 percent found diseased; this is lowest incidence of disease ever found in field-collected borers in State. Similar collections made during first-generation survey this year showed 65 percent of borers diseased. (Ill. Ins. Rpt.). MICHIGAN - Fall survey indicated incidence of larval infestation increased slightly over that of 1963. (Newman). MINNESOTA - Survey indicates populations down considerably in 1964 in all districts compared with 1963 populations. (Minn. Ins. Rpt., Oct. 16). SOUTH DAKOTA - Preliminary observations indicate population considerably lower than previous years except in scattered locations and in southeast region. (Hintz).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ILLINOIS - Found for first time in Union County. None found in Saline, Williamson, Jackson or Randolph Counties. (Ill. Ins. Rpt., Oct. 16).

CORN EARWORM (Heliothis zea) - FLORIDA - This and Anticarsia gemmatalis (velvet-bean caterpillar) severe and nearly defoliating 5 acres of peanuts at Pinecrest, Hillsborough County. (Custead, Oct. 13). ALABAMA - Heavy in one acre of extremely late corn for roasting ears in Coosa County. Corn in late fields heavily damaged in Coosa, Talladega and Clay Counties. Sap beetles always present in medium to heavy numbers in ears damaged by H. zea. (Cowan et al.). NEBRASKA - Larval infestations and damage less than 1 percent in corn in central area. (Bergman). MICHIGAN - Fall survey indicated larval infestation in late field and sweet corn to be higher than in 1963; commercial injury relatively light, however, as result of late appearance of moths. (Dowdy).

PINK SCAVENGER CATERPILLAR (Sathrobrotia rileyi) - ALABAMA - Larvae heavy in ears of corn previously damaged by Heliothis zea (corn earworm) from Washington County north to Morgan County. (Henderson et al.).

FALL ARMYWORM (Laphygma frugiperda) - TEXAS - Damage to small grains and native and improved pastures reported from over wide area of central, east central and south central portions of State. (Texas Coop. Rpt.).

RICE WEEVIL (Sitophilus oryzae) - ALABAMA - Adults light in ears of corn in Coosa County field; very few noted in fields in Clay and Talladega Counties. (McQueen).

A CORN LEAFHOPPER (Dalbulus maidis) - LOUISIANA - This vector of corn stunt collected from corn by L. W. Hepner and W. A. Douglas at Alexandria, Rapides Parish, August 24. Other collections in State include Alexandria on May 8, June 5 and August 22 and Washington, Saint Landry Parish, August 22, by S. D. Hensley and L. D. Newsom. Species also collected at Shongaloo, Webster Parish, and at Homer, Claiborne Parish, by L. D. Newsom during last week of August. All determinations verified by J. P. Kramer. These are first reports of species in the State. (Newsom).

DELPHACID PLANTHOPPERS - FLORIDA - Species found in light numbers on rice at Kramer Island, Belle Glade, Palm Beach County, included Sogatia cubana, S. furcifera complex, Megamelus paleatus and Delphacodes propinqua. (Humphries, Oct. 21).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - ALABAMA - Cornstalk destruction common in most fields from southern part of State to Tennessee Valley; infestations much heavier in late corn and in smaller fields bordering woods and fence rows. Unusual infestation noted in Lee County destroying several stalks of sugarcane. (Henderson, Rutledge, Hagler, et al.).

A TERMITE - TEXAS - Undetermined species noted as heavy locally on oats in Madison County. (Randolph).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Surveys during past few weeks showed infestation very low this fall. (Somsen, Peters).

GRASSHOPPERS - UTAH - Continue very numerous in some areas near Farmington and Centerville, Davis County, and southeast of Salt Lake City, Salt Lake County. (Knowlton). COLORADO - Fall surveys indicate very light, low density populations on 10,500 acres of rangelands in northeast. (Watson). NEW MEXICO - Grasshoppers, mostly Melanoplus spp., very abundant in alfalfa, fence rows and orchards in southern Bernalillo and Sandoval Counties. Grasshopper mortality quite heavy, probably due to a fungus (Empusa sp.); dead and dying grasshoppers clinging to vegetation. (N.M. Coop. Rpt.). WISCONSIN - Females of Melanoplus femurrubrum (red-legged grasshopper) still producing eggs. (Wis. Ins. Sur.).

MORMON CRICKET (Anabrus simplex) - IDAHO - Scattered infestations noted on Packer John Peak in Valley County east of Cascade; additional reports indicate possible buildup. (PPC, West. Reg., Sept. Rpt.).

GREEN JUNE BEETLE (Cotinis nitida) - NORTH CAROLINA - Larvae heavy in several fescue pastures in Chatham County. Det. by D. A. Mount. (Vaughn).

A MEALYBUG (Chorizococcus rostellum) - CALIFORNIA - Medium on Bermuda grass in Burbank, Los Angeles County. (Cal. Coop. Rpt.).

CLOVER MITE (Bryobia praetiosa) - WYOMING - Small infestations found in lawns in Worland, Washakie County. (Marks, Oct. 16).

#### FRUIT INSECTS

CHERRY FRUIT FLY (Rhagoletis cingulata cingulata) - LOUISIANA - Collected from wild cherry at Arabi, Saint Bernard Parish, on June 13, 1964. This is a new State record. Species apparently present in State for several years on this host, but this is first authentic record. (Newsom).

GREEN PEACH APHID (Myzus persicae) - MASSACHUSETTS - Fall migrants very abundant on peach foliage; depositing nymphs in western area. Very few oviparae mature but some observed by buds. Egg laying just started as evidenced by few green eggs. (Wave).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Numerous, heavy infestations on roots of apples in Coosa County; heavily damaged 25-foot tree in Clay County. (McQueen).

CODLING MOTH (Carpocapsa pomonella) - UTAH - Larvae infested 100 percent of apples in several home orchards at Logan and Smithfield, Cache County. (Knowlton). NEW MEXICO - Damage light in properly treated orchards in Albuquerque area, Bernalillo County, and Belen and Los Lunas areas, Valencia County. (N.M. Coop. Rpt.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - FLORIDA - Scattered on leaves of 10 percent of 3,800 peach trees at Leesburg, Lake County. (Bentley, Oct. 15).

SHOT-HOLE BORER (Scolytus rugulosus) - CALIFORNIA - Heavy in pear trees in Hollister, San Benito County. (Cal. Coop. Rpt.).

A PIT SCALE (Asterolecanium pustulans) - FLORIDA - Moderate on 15 Dorsett Golden apple plants in nursery in Miami, Dade County. (McFarlin, Oct. 14).

BROWN SOFT SCALE (Coccus hesperidum) - FLORIDA - Localized on leaves of 15 apple plants inspected in nursery in Miami, Dade County. (McFarlin, Oct. 14).

A WALNUT HUSK FLY (Rhagoletis suavis) - OREGON - Collected in the State for the first time in Hood River, Hood River County, apparently infesting black walnut. Collected on sticky board and sticky carton traps used in R. completa (walnut husk fly) survey. Det. by R. H. Foote and F. L. Blanc. (Goeden).

WALNUT HUSK FLY (Rhagoletis completa) - OREGON - Surveys during 1964 season revealed infestations in following counties: Jackson, Hood River, Umatilla, Wasco, Union and Malheur. Heaviest in Jackson County; little or no increase in area over that of 1963. (Larson). CALIFORNIA - Larvae heavy in late Alberta peaches in Beaumont, Riverside County. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - CALIFORNIA - Medium, damaging walnut trees in Paradise, Butte County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy on walnut trees in Vista, San Diego County. (Cal. Coop. Rpt.).

AVOCADO BROWN MITE (Oligonychus punicae) - CALIFORNIA - Heavy on walnut trees in Vista, San Diego County. (Cal. Coop. Rpt.).

A DARKLING BEETLE (Bothriotes sp.) - TEXAS - Locally heavy on pecans in Comanche County. (Dickson).

A FILBERT APHID (Myzocallis coryli) - UTAH - This and other species very numerous on filbert at Logan, Cache County. (Knowlton).

ORIENTAL FRUIT FLY (Dacus dorsalis) - FLORIDA - Single male collected in Steiner trap at 3829 Second Avenue North in St. Petersburg, Pinellas County. Trap in calamondin tree. Additional traps using methyl eugenol for attractant placed in area. (Carroll, Oct. 15). This is not considered an established infestation unless additional specimens are recovered. (PPC).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Trapping conducted in States of Chiapas, Yucatan, Campeche, Oaxaca, Tabasco, Guerrero, Veracruz, Tamaulipas, Nuevo Leon, Mexico, Hidalgo, Puebla, Jalisco, Colima, Sinaloa, Sonora and Baja California and Territory of Quintana Roo. Inspection of 3,098 traps negative. (PPC, Mex. Reg., Sept. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - In Municipio Tijuana, Baja California, 4,677 inspections of 1,000 traps on 700 properties yielded 11,036 marked males, 2 native males and 7 native females. In Municipio Tecate, Baja California, 696 inspections of 120 traps on 60 properties yielded 1,732 marked specimens and one native male. In Municipio Ensenada, Baja California, 879 inspections of 220 traps on 100 properties yielded 5,942 marked specimens, 2 native males and 2 native females. During 1964 to September 30, total of 92 native specimens trapped in Baja California; for same period and location in 1963, total of 126 specimens trapped. Liberations in State as follows: Tijuana - 5 releases, 924,000 males; Tecate - 4 releases, 132,400 males; and Ensenada - 5 releases, 5,942 male and female specimens. (PPC, Mex. Reg., Sept. Rpt.). ARIZONA - Trapping in Santa Cruz and Pima Counties negative. (PPC, West. Reg., Sept. Rpt.).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Continues to damage citrus trees in Tucson area, Pima County. (Ariz. Coop. Sur.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Adults heavy on citrus in Madera, Madera County, and Fair Oaks, Sacramento County. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Survey of 47,067 citrus trees on 1,333 properties in States of Nuevo Leon, Sonora and Baja California negative. Total of 10,556 host trees on 53 properties treated in Nuevo Leon. Biological Control Zone - Inspection of 5,660 citrus trees on 6 properties in Municipios Higo and Guemez, Tamaulipas, revealed 64 infested trees

on 3 properties. Liberation of 38,000 specimens of Prospaltella opulenta (a parasitic eulophid) made at Paso de Ovejas, Veracruz, and 406,600 in State of Yucatan and Territory of Quintana Roo. (PPC, Mex. Reg., Sept. Rpt.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Moderate on 90 percent of 4,000 sweet orange nursery trees at Tavares, Lake County. (Bentley, Oct. 12).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Moderate on 90 percent of 10,000 sweet orange nursery trees at Avon Park, Highlands County, (McAulay, Nelson, Oct. 9); moderate on 60 percent of 100,000 sweet orange nursery trees at Okeechobee, Okeechobee County, (McAulay, Oct. 8); and moderate on 95 percent of 7,712 tangelo nursery trees at Tavares, Lake County, (Bentley, Oct. 12).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Heavy; still requiring treatment on tangerines in Yuma County. (Ariz. Coop. Sur.).

Citrus Insect Situation in Florida - Mid-October - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 56 percent of groves (norm 64 percent); 29 percent economic (norm 37 percent). Strong, upward trend in all districts will continue for several weeks. All districts will have important infestations, but statewide population expected to remain below normal. Highest districts west and south, east very low. CITRUS RED MITE (Panonychus citri) infested 28 percent of groves (norm 42 percent); 4 percent economic (norm 19 percent). TEXAS CITRUS MITE (Eutetranychus banksi) infested 18 percent of groves (norm 20 percent); 4 percent economic (norm 5 percent). Population will increase slightly from very low levels of past month. All districts low; only scattered infestations will be important. All SCALE INSECTS near low to moderate levels at end of September. Little change expected. Only local infestations likely to require control. Population of WHITEFLIES decreasing and will approximate normal low for October. Fruit drop, largely the result of Hurricanes Cleo, August 27, and Dora, September 10, above normal in 37 percent of groves and important in 18 percent. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

#### TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Heavy in lettuce fields of Yuma and Maricopa counties; number one lettuce problem. New hatches require increased control activity. (Ariz. Coop. Sur.). TEXAS - Heavy and damaging potatoes in Brazos County. (Tyman). ARKANSAS - Reduced to low numbers by virus disease on kale and other greens crops in upper Arkansas River Valley; disease first appeared in early October. (Ark. Ins. Sur.).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Medium on lettuce in Maricopa County; continues to require treatment. Light and localized in Yuma County. (Ariz. Coop. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Light to medium in lettuce fields of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - LOUISIANA - Inspections in southern area revealed 8 new infested properties in Livingston Parish and 1 each in East Feliciana, Tangipahoa and St. Helena Parishes. Isolated, heavy infestation, first reported this year, found in St. Landry Parish. GEORGIA - Additional infested property found in Decatur County. (PPC, South. Reg., Sept. Rpt.).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - Damaged 10 of 100 sweetpotatoes examined in heavily infested area of 10-acre field in Benson-Newton Grove area. (Mount)..

FLEA BEETLES - ALABAMA - Several species caused unusual amount of damage to young turnips in Clay County. (Cowan et al.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Localized and moderate on 50 percent of 6,000 tomato plants at Temple Terrace, Hillsborough County. (Simmons, Oct. 15).

APHIDS - TEXAS - Several species damaging lettuce over wide areas of lower Rio Grande Valley. (Texas Coop. Rpt.).

MELON APHID (Aphis gossypii) - ARIZONA - Scattered in lettuce fields in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

TURNIP APHID (Hyadaphis pseudobrassicae) - ALABAMA - Light on turnips and radishes in Coosa, Clay and Talladega Counties. (McQueen).

SQUASH BUG (Anasa tristis) - CALIFORNIA - Heavy on squash in Encanto, San Diego County. (Cal. Coop. Rpt.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - ALABAMA - Destroying mature watermelons in Morgan County. (Henderson, Rutledge, Hagler, et al.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy, damaging blackeye beans in Kingsburg, Fresno County. (Cal. Coop. Rpt.).

#### COTTON INSECTS

BOLLWORMS (Heliothis spp.) - ARIZONA - Heavy populations continue to damage late cotton in Maricopa County. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Infestations continue to be found in cotton in Maricopa, Pinal and Graham Counties. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Increasing in late maturing cotton in Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.).



FOREST, ORNAMENTAL AND SHADE TREE INSECTS

CONIFER SAWFLIES - NEVADA - Several specimens of Zadiprion rohweri collected on Pinus monophylla northwest of Hiko, Lincoln County, October 14; this is a new county record. (Bechtel, Lauderdale, Zoller). FLORIDA - Eggs and clusters of partly grown larvae of Neodiprion excitans on pond pine foliage 7 miles north of Alachua, Alachua County. (Hetrick, Oct. 13).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Epidemic remains very similar to September report. (For. Pest Newsltr.).

ORANGE TORTRIX (Argyrotaenia citrana) - OREGON - Defoliating Japanese pine seedlings in greenhouse in Portland, Multnomah County. (Larson).

AN APHID (Schizolachnus piniradiatae) - UTAH - Very numerous on yellow pines at Farmington and Bountiful, Davis County. (Knowlton).

FALL CANKERWORM (Alsophila pometaria) - MINNESOTA - Adult surveys conducted October 1-16 indicate much lower populations than in previous 2 years in Minneapolis-St. Paul area. Oaks and elms in area severely defoliated from 1962 through 1964. (Minn. Ins. Rpt.).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteeo) - TEXAS - Moderate to heavy on oaks locally in Marion County. (Dean).

A NOTODONTID MOTH (Datana robusta) - TEXAS - Larvae, probably this species, damaged oaks locally in Brazos County. (Texas Coop. Rpt., Meisch).

WALKINGSTICK (Diapheromera femorata) - ARKANSAS - Present in small numbers in northwest area; much smaller numbers than in past few years. (Ark. Ins. Sur.).

APHIDS - CALIFORNIA - Lachnus salignus heavy on weeping willow trees east of Seward, Humboldt County, and in Macdoel, Siskiyou County. Aphis pomi (apple aphid) medium on evergreen pear (Pyrus kawakamii) in Clovis, Fresno County. (Cal. Coop. Rpt.). COLORADO - Periphyllus negundinis (boxelder aphid) very numerous on boxelder in Palmer Lake area, El Paso County. Colonies contain apterous viviparae, alate viviparae and numerous immature stages. (Colo. Ins. Sur.). UTAH - Pterocomma smithiae extremely abundant on willow trees at Murray, Salt Lake County. (Knowlton, Burningham). ARKANSAS - Drepanaphis sp. became numerous on red maple in Fayetteville area, Washington County. (Ark. Ins. Sur.). WISCONSIN - Capitophorus elaeagni present in large numbers; secreting considerable honeydew on Russian-olive in Dane County locally. (Wis. Ins. Sur.).

A WILLOW LEAF GALL SAWFLY (Euura californica) - CALIFORNIA - Larvae heavy and damaging willow nursery stock in Colma, San Mateo County. (Cal. Coop. Rpt.).

A LEAF-CUTTING ANT (Acromyrmex versicolor versicolor) - ARIZONA - Damaging leaves and causing defoliation of young trees and shrubs in Tucson area, Pima County. (Ariz. Coop. Sur.).

MIMOSA WEBWORM (Homadula albizziae) - ILLINOIS - Found for first time in Effingham, Fayette, Macoupin, Jersey and Calhoun Counties. None noted in Pike, Scott or Greene Counties. (Ill. Ins. Rpt., Oct. 16).

BOX ELDER BUG (Leptocoris trivittatus) - COLORADO - All stages except eggs numerous on boxelder in Palmer Lake area, El Paso County. (Colo. Ins. Sur.).

SPIDER MITES (Tetranychus spp.) - ALABAMA - Caused considerable damage and defoliation to azaleas and holly plantings in Lee, Clay and other central counties. (McQueen).

AZALEA LEAF MINER (Gracilaria azaleella) - FLORIDA - General on 50 percent of 4,000 azalea plants in nursery in Jacksonville, Duval County. (King).

AN OLETHREUTID MOTH (Strepsicrates sp.) - FLORIDA - This and Hyphantria cunea (fall webworm) scattered and moderate on 5 percent of 1,000 Burford holly plants at Plymouth, Orange County. (Musgrove, Oct. 8).

EUONYMUS SCALE (Unaspis euonymi) - ALABAMA - Extremely heavy and damaging on euonymus plants in Lee and Blount Counties. (Carter et al.).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Heavy and damaged pittosporum hedges in Kingman, Mohave County. (Ariz. Coop. Sur.).

A WAX SCALE (Ceroplastes sp.) - NORTH CAROLINA - Infested gardenias in Orange County. (Robertson).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Medium locally on Erythrina sp. in Fresno, Fresno County. (Cal. Coop. Rpt.).

Coccids in Florida - Aspidiotus lataniae (an armored scale) and Coccus pseudo-hesperidum (a soft scale) collected on stems of Tithonia rotundifolia at Hialeah, Dade County. (Stegmaier, Sept. 20). Pseudaonidia clavigera (an armored scale) severe on stems of waxmyrtle (Myrica sp.) at St. Petersburg, Pinellas County. (Bingaman, Sept. 22). Ischnaspis longirostris (black thread scale) general on leaves of thorny elaeagnus at nursery at Hialeah, Dade County. (McFarlin, Sept. 9). A. destructor (coconut scale) severe on Dieffenbachia sp. plants in supermarket at St. Petersburg. (Bingaman, Barber, Oct. 6). Pseudaulacaspis pentagona (white peach scale) taken on stem of Sedum sp. at nursery in Lake Como, (Oct. 8) and locally on stems of mock-orange plants in nursery at Florahome, Putnam County. (Graham, Oct. 13). All these records are new host records for Florida Department of Plant Industry. (Fla. Coop. Sur.). A. lataniae general and moderate on 80 percent of 100 azalea plants at Cypress Gardens, Polk County. (Henderson, Oct. 9). Pseudococcus adonidum (long-tailed mealybug) severe on 60 percent of 500 assorted succulents at nursery and retail store in Jacksonville, Duval County, (King, Oct. 16), and infesting 10 percent of 100 orchid plants in greenhouse at Zellwood, Orange County, (Musgrove, Oct. 5). Diaspis boisduvalii (an armored scale) moderate and scattered on Margaret Moran cattleya orchid; 10 percent of 38,000 plants infested at Homestead, Dade County. (Knowles). Comstockiella sabalis (an armored scale) severe on 50 undetermined palms in nursery in Plymouth, Orange County. (Musgrove, Oct. 8).

FULLER ROSE BEETLE (Pantomorus godmani) - CALIFORNIA - Larvae heavy on honeysuckle in San Rafael, Marin County, and medium on dahlias in San Francisco, San Francisco County; more prevalent in northern area this season than in past 3 seasons. (Cal. Coop. Rpt.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - FLORIDA - Infestation of probably this species caused severe damage in localized areas to 10 percent of 5,000 peat and peperomia (Peperomia obtusifolia) samples (stem, root and soil) in nursery at Apopka, Orange County. (Musgrove, Oct. 7).

AN ERIOPHYID MITE (Eriophyes buceras) - FLORIDA - General and moderate on 5 oxhorn bucida (Bucida buceras) plants in nursery in Miami, Dade County; caused leaf damage. (McFarlin, Oct. 14).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - FLORIDA - Mosquitoes collected in 15-minute bite period at Gainesville, Alachua County, included 25 Aedes infirmatus, 2 A. vexans, 1 Psorophora ferox and 1 P. confinnis. (Esser, Oct. 18).

HOUSE FLY (Musca domestica) - ARKANSAS - Numerous and annoying; numbers quite high in school buildings in some areas. (Ark. Ins. Sur.). WYOMING - Numerous complaints concerning annoyance in homes in Rock Springs, Sweetwater County. (Marks).

FLIES - COLORADO - Several species entered farm dwelling in Larmier County; control efforts gave little effect. (Daniels).

BROWN DOG TICK (Rhipicephalus sanguineus) - CONNECTICUT - Several infestations in dwellings reported during past month. (Charpentier, Oct. 20). MARYLAND - Larvae collected from dog in Anne Arundel County. (U. Md., Ent. Dept.). CALIFORNIA - Locally heavy on dog in San Pedro, Los Angeles County; normal fall infestations in Sacramento Valley continued later this season due to warm weather. (Cal. Coop. Rpt.).

CATTLE LICE - UTAH - Becoming a problem in several Emery County herds. (Olson, Knowlton).

WASPS - UTAH - Unspecified species troublesome in several schoolrooms at Logan, Cache County. (Knowlton).

BLACK WIDOW SPIDER (Latrodectus mactans) - UTAH - Found in garage and on foundations of 2 homes at Logan, Cache County. (Knowlton).

#### HOUSEHOLD AND STRUCTURAL INSECTS

WEEVILS (Brachyrhinus spp.) - NORTH CAROLINA - B. rugifrons noted in 2 homes in Gaston County. Det. by D. A. Mount. (Mixon, Craven). MARYLAND - Adults of B. rugosostriatus noted in home at Chestertown, Kent County. (U. Md., Ent. Dept.). CALIFORNIA - B. rugosostriatus heavy and invading home in Alton, Humboldt County. (Cal. Coop. Rpt.).

A GROUND BEETLE (Galerita sp.) - NORTH CAROLINA - Present in home in Surry County for several weeks. (Robertson).

BOXELDER BUG (Leptocoris trivittatus) - MINNESOTA - Continues as nuisance to homeowners over State. (Minn. Ins. Rpt., Oct. 16). WISCONSIN - Apparently causing much concern to homeowners. (Wis. Ins. Sur.). MARYLAND - Swarming on buildings and trees on properties in Anne Arundel County and at Baltimore. (U. Md., Ent. Dept.).

ORIENTAL COCKROACH (Blatta orientalis) - UTAH - Numerous in some homes at Centerville, Davis County. (Knowlton).

LARGER YELLOW ANT (Acanthomyops interjectus) - MARYLAND - Winged forms a nuisance about 2 properties in Baltimore. (U. Md., Ent. Dept.).

CLOVER MITE (Bryobia praetiosa) - WYOMING - Infestation noted in home in Laramie, Albany County. (Fronk). UTAH - Entering some homes in Salt Lake-Sandy area, Salt Lake County. (Knowlton).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - MARYLAND - Infesting dry foods at a location in Bowie, Prince Georges County. (U. Md., Ent. Dept.).

RED FLOUR BEETLE (Tribolium castaneum) - NORTH CAROLINA - Infested bagged flour in Wake County home. (Mount).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - MARYLAND - Larvae found in bureau drawers in home at Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

CIGARETTE BEETLE (Lasioderma serricorne) - NORTH CAROLINA - Infested spices in home in Lee County. (Mount).

RED-LEGGED HAM BEETLE (Necrobia rufipes) - CALIFORNIA - Heavy in restaurant-bar and in manufacturing establishment in San Francisco, San Francisco County. (Cal. Coop. Rpt.).

A DRYWOOD TERMITE (Incisitermes sp.) - TEXAS - Several specimens collected from newly constructed homes in Matagorda County. (Hamman).

BAMBOO POWDER-POST BEETLE (Dinoderus minutus) - ALABAMA - Adults and larvae, probably this species, extremely heavy in bamboo staves used in packaging cotton cloth; cloth imported to Lanett, Chambers County, from the Orient. (Barwood, Cook).

#### STORED-PRODUCT INSECTS

Stored-Grain Insects in Alabama - Large numbers of the following pests were found in old feed and seed store and warehouse in Opelika, Lee County, where proprietor indicated there were no stored-grain insects of any consequence: Acanthoscelides obtectus (bean weevil), Callosobruchus maculatus (cowpea weevil), Tribolium castaneum (red flour beetle), T. confusum (confused flour beetle) Sitophilus oryzae (rice weevil), Stegobium paniceum (drugstore beetle), Lasioderma serricornis (cigarette beetle), Rhyzopertha dominica (lesser grain borer), Oryzaephilus surinamensis (saw-toothed grain beetle), Cryptolestes pusillus (flat grain beetle), Laetheticus oryzae (a darkling beetle), Cathartus quadricollis (square-necked grain beetle), Tenebrio obscurus (dark mealworm), T. molitor (yellow mealworm), Tenebroides mauritanicus (cadelle) and Dermestes maculatus (hide beetle). (Blake, Carter, et al.).

PSOCIDS - NORTH CAROLINA - Infested stored oatmeal in Pitt County; storage area being used for school lunch program. (Weeks, Jones, Oct. 16).

#### BENEFICIAL INSECTS

A DAMSEL BUG (Nabis sp.) - NEBRASKA - Adults averaged 2 per 10 sweeps in alfalfa in Custer County. (Bergman).

LADY BEETLES (Hippodamia spp.) - NEBRASKA - Adults averaged 1 per 10 sweeps in alfalfa in Custer County and 1 per sweep in Garfield and Loup Counties. (Bergman).

PREDACEOUS MITES - ARKANSAS - Two new species of Erythraeidae recently determined and named. Balaustium dowelli and Erythraeus whitcombi first taken on cotton in Conway County in 1963; collected again on same host and in same county in 1964. Adults of both species observed feeding on eggs of Heliothis zea (bollworm). Determination and naming by R. L. Smiley. See also Proc. Ent. Soc. Washington 66(2):110. (Ark. Ins. Sur.).

#### MISCELLANEOUS INSECTS

WHITE-FRINGED BEETLES (Graphognathus spp.) - KENTUCKY - Three specimens found south of Murray, Calloway County, August 31; 16 acres treated in vicinity of find. (PPC, Centr. Reg., Sept. Rpt.). New infestations found in Davidson, Lawrence and Maury Counties, TENNESSEE; collected for the first time in Giles County. One specimen collected in Bonnie Oaks area, Hamilton County, only find this season in area. Small infestations or spot infestations found in number of NORTH CAROLINA counties; most infestations treated when found. Treatment completed at Camp Lejeune Marine Base, Onslow County; Red Springs, Robeson County; and all known infestations in Nash and Duplin Counties. Collected for the first time in Richmond County. In SOUTH CAROLINA, minor extensions in known infested counties treated. Extensions of old infestations or new spot infestations found in Crawford, Decatur, Early, Houston, Seminole, Telfair and Webster Counties, GEORGIA; collected for the first time in Baker County. Small extensions found in infested areas of Calhoun, Escambia and Leon Counties, FLORIDA. Surveys in 23 ALABAMA counties revealed new infested areas in Calhoun, Etowah, Limestone and Shelby Counties; Limestone a new county record. Checks in Mobile County nursery

area so favorable that proposed aerial treatment not required. Adult inspections made in several MISSISSIPPI counties negative. All known infested acreage in East Feliciana, St. James and St. John the Baptist Parishes, LOUISIANA, treated. Additional acreage found infested in Acadia, Lafayette, St. Tammany and Tangipahoa Parishes. Total acreage found infested in 1964 in ARKANSAS lowest since 1960. (PPC, South, Reg., Sept. Rpt.).

A CUBAN MAY BEETLE (*Phyllophaga bruneri*) - FLORIDA - Collected at 3325 N.W. 183rd Street, Miami, October 9 in blacklight trap; this is northernmost record. Collected at Fairchild Tropical Garden, Miami, Dade County, October 16; this is southernmost record. (Brown).

LESSER MEALWORM (*Alphitobius diaperinus*) - MARYLAND - Large numbers of adults present in litter in chickenhouse in Wicomico County. (U. Md., Ent. Dept.).

A VINEGAR FLY (*Drosophila* sp.) - ARKANSAS - Very numerous during past 4-5 weeks in northwest area; moisture conditions with high humidity may be contributing factors. (Ark. Ins. Sur.).

#### CORRECTIONS

CEIR 14(11):191 - LESSER PEACH TREE BORER (*Synanthedon pictipes*) should read (*Synanthedon pictipes*).

CEIR 14(42):1148 and 14(43):1167 - VARIABLE OAK LEAF CATERPILLAR - Line 8 in both paragraphs: *Acronycta afflicta* should read *Acronicta afflicta*.

CEIR 14(43):HIGHLIGHTS and page 1162 - EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NORTH CAROLINA - Delete Jones County as new county record. Reported previous week (CEIR 14(43):1142).

#### ADDITIONAL NOTES

OKLAHOMA - SPOTTED ALFALFA APHID (*Therioaphis maculata*) light (15-30 per 10 sweeps) in Choctaw County alfalfa; absent in Jackson County. TARNISHED PLANT BUG (*Lygus lineolaris*) light to moderate (2-6 per 10 sweeps) in alfalfa in Choctaw County. CORN EARWORM (*Heliothis zea*) moderate (4-6 per 10 sweeps) in alfalfa in Jackson and Tillman Counties. Unspecified ARMYWORMS damaged Bermuda grass and alfalfa in Bryan County; damage severe on isolated lawns. BOLLWORM (*H. zea*) continues heavy in most southeast and southwest cotton-growing areas. Total of 111 PINK BOLLWORM (*Pectinophora gossypiella*) larvae collected from 531 bushels of gin trash inspected in 8 counties. VARIABLE OAK LEAF CATERPILLAR (*Heterocampa manteo*) continues to defoliate oaks throughout eastern area. HORN FLY (*Haematobia irritans*) ranged 300-500 per head on cows in McCurtain, Pushmataha and Choctaw Counties; averaged 200 per head in Payne County; moderate on cattle in Mayes, Cleveland and Bryan Counties. STABLE FLY (*Stomoxys calcitrans*) moderate (3-5 per head) on cows in McCurtain, Pushmataha and Choctaw Counties. COCKROACHES moderate in Cleveland County homes and FIELD CRICKETS (*Gryllus* spp.) moderate in and around homes in Mayes County. FLEAS (*Ctenocephalides* spp.) causing problems on pets in Payne County. CONVERGENT LADY BEETLE (*Hippodamia convergens*) ranged 3-7 and DAMSEL BUGS (*Nabis* spp.) averaged 10 per 10 sweeps in alfalfa in Jackson and Tillman Counties. (Okla. Coop. Sur.).

MINNESOTA - FOREST TENT CATERPILLAR (*Malacosoma disstria*) - Preliminary egg-mass survey reports indicate buildup in north central area. Special inspection made of birch trees during past 2 weeks. Birches have now shed most leaves; swellings on branches and trunks more discernible. Untreated trees in infested areas show marked increase in percent of infestation. European white birch appears to be most susceptible species inspected; field stock exposed to *M. disstria* and not previously treated showed up to 30 percent infestation. Paper birch raised under similar conditions showed lower degree of infestation, but was also susceptible. (Minn. Ins. Rpt.).

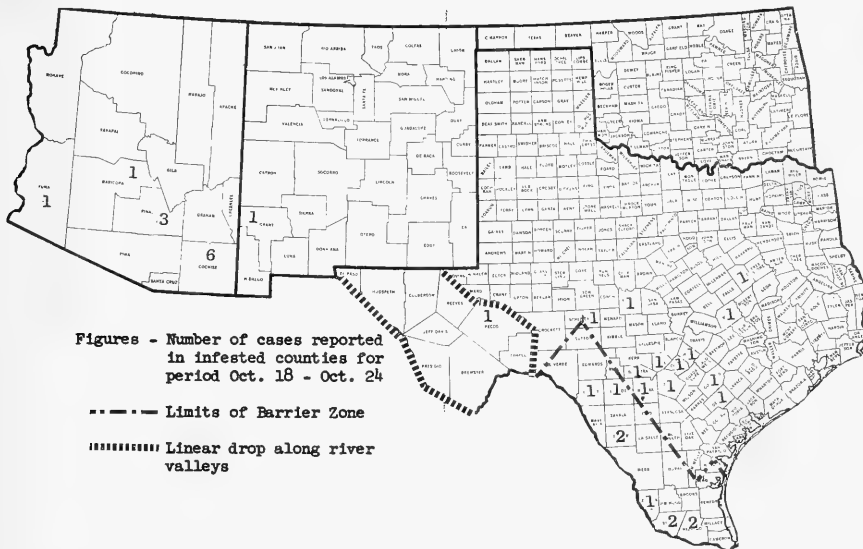


STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period October 18 - 24, TEXAS reported 22 screw-worm cases from 20 counties: Milam (1), Pecos (1), Kinney (1), Uvalde (1), Dimmit (2), Zapata (1), Starr (2), Hidalgo (2), Medina (1), Bexar (1), Bandera (1), Schleicher (1), McCulloch (1), Kendall (1), Comal (1), Hays (1), Gonzales (1), De Witt (1) and Limestone (1). NEW MEXICO reported 1 case in Grant County. ARIZONA reported 11 cases from 4 counties: Cochise (6), Pinal (3), Maricopa (1) and Yuma (1). Republic of Mexico reported 117 cases: Chihuahua (52), Tamaulipas (3), Coahuila (3), Durango (10), Nuevo Leon (4), San Luis Potosi (2) and Sonora (43). Sterile screw-worm flies released: Texas 20,508,250, New Mexico 2,500,000, Arizona 6,122,000 and Mexico 51,706,000.

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	2,424	46,012	90	2,663	2693.3	1727.8
1963	261	5,156	256	5,978	101.95	86.2
1964	24	153	148	5,095	16.21	3.0
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	282	4,804	30	1,205	940.0	398.7
1964	121	3,286	26	1,665	465.4	197.3
Table 2A. Mexican portion of Barrier Zone only.						
1963	95	1,486	0	155	0.0	958.7
1964	105	3,100	4	749	2625.0	413.9

\* 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.).



Figures - Number of cases reported in infested counties for period Oct. 18 - Oct. 24

--- Limits of Barrier Zone

..... Linear drop along river valleys

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Minnesota DURING 1963 (Year)

(State or District)

ATTACKING Sweet corn (Commodity or Crop)

ATTACKING Corn (Commodity or Crop)

A. Pest or pest complex: European corn borer, corn earworm

B. Number of acres <sup>a</sup> produced (From CRS) No. 92,900

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 4.08 tons

D. Price<sup>b</sup> per unit ( ton )<sup>c</sup> (From CRS) \$/ 17.00

E. Acres <sup>a</sup> needing control No. -----

F. Acres <sup>a</sup> treated No. 91,951

G. Reduction due to not treating where needed:

H. Loss in yield, percent % -----

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

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

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

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

M. Control cost, \$ per acre <sup>a</sup>, \$/ 3.50

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

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

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

Q. Combined control cost and losses, N + O + P \$ 321,479

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

Comment: Canning and freezing companies only.

- 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 R. Flankard  
Date March 13, 1964

A. Pest or pest complex: Soil insects

B. Number of acres <sup>a</sup> produced (From CRS) No. 5,124,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 69 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 1.00

E. Acres <sup>a</sup> needing control No. 2,000,000

F. Acres <sup>a</sup> treated No. 1,100,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 10

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ 6.9 bu.

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 6.90

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

L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 6,210,000

M. Control cost, \$ per acre <sup>a</sup>, \$/ 1.00

N. Control cost for all acres <sup>a</sup>, F x M \$ 1,000,000

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 6,210,000

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

Q. Combined control cost and losses, N + O + P \$ 7,310,000

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

Comment: \_\_\_\_\_

- 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 R. Flankard  
Date March 13, 1964



ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Minnesota DURING 1963 (State or District) (Year)  
 ATTACKING Oats (Commodity or Crop)  
 ATTACKING Barley (Commodity or Crop)

A. Pest or pest complex: All insects

B. Number of acres <sup>a</sup> produced (From CRS) No. 719,000

C. Average yield per acres <sup>a</sup> (From CRS) Units/ 36 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 1.00

E. Acres <sup>a</sup> needing control No. 1,200

F. Acres <sup>a</sup> treated No. 900

G. Reduction due to not treating where needed:

H. Loss in yield, percent % Trace

I. Loss in yield, units per acre <sup>a</sup>, C X H Units/ -----

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

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

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

M. Control cost, \$ per acre <sup>a</sup>, \$/ 2.00

N. Control cost for all acres <sup>a</sup>, F x M \$ 1,800.00

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

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

Q. Combined control cost and losses, N + O + P \$ 1,800.00

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

Comment: \_\_\_\_\_

- 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 R. Flisberg  
 Date March 13, 1964

A. Pest or pest complex: All insects

B. Number of acres <sup>a</sup> produced (From CRS) No. 3,290,000

C. Average yield per acres <sup>a</sup> (From CRS) Units/ 51 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 0.60

E. Acres <sup>a</sup> needing control No. 2,000

F. Acres <sup>a</sup> treated No. 1,502

G. Reduction due to not treating where needed:

H. Loss in yield, percent % Trace

I. Loss in yield, units per acre <sup>a</sup>, C X H Units/ -----

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

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

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

M. Control cost, \$ per acre <sup>a</sup>, \$/ 2.00

N. Control cost for all acres <sup>a</sup>, F x M \$ 3,004.00

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

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

Q. Combined control cost and losses, N + O + P \$ 3,004.00

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

Comment: \_\_\_\_\_

- 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 R. Flisberg  
 Date March 13, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Wheat  
(Commodity or Crop)

ATTACKING Peas (legumes)  
(Commodity or Crop)

A. Pest or pest complex: Aphids, wheat stem maggot

A. Pest or pest complex: All insects

B. Number of acres<sup>a</sup> produced (from CRS) No. 577,000

C. Average yield per acre<sup>a</sup> (From CRS) Units/bu. 24.7

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 2.10

E. Acres<sup>a</sup> a needing control No. 0

F. Acres<sup>a</sup> a treated No. 0

G. Reduction due to not treating where needed:

H. Loss in yield, percent % Trace

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

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

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

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

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

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

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

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

Q. Combined control cost and losses, N + O + P \$ None

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

B. Number of acres<sup>a</sup> produced (From CRS) No. 2,407,000

C. Average yield per acre<sup>a</sup> (From CRS) Units/----- 2.55 tons

D. Price<sup>b</sup> per unit ( ton )<sup>c</sup> (From CRS) \$/ 18.00

E. Acres<sup>a</sup> a needing control No. 200,000

F. Acres<sup>a</sup> a treated No. 6,670

G. Reduction due to not treating where needed:

H. Loss in yield, percent % -----

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

J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ 1.00

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

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

M. Control cost, \$ per acre<sup>a</sup> \$/ 2.00

N. Control cost for all acres<sup>a</sup>, F x M \$ 17,240

O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 191,380

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

Q. Combined control cost and losses, N + O + P \$ 208,620

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

Comment: \_\_\_\_\_

Comment: \_\_\_\_\_

- 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 R. Flaskerd  
Date March 13, 1964

Submitted by R. Flaskerd  
Date March 13, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Apples  
(Commodity or Crop)

ATTACKING Potatoes  
(Commodity or Crop)

A. Pest or pest complex: All insects

B. Number of acres <sup>a</sup> produced (From CRS) No. 2,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/150 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/3.00

E. Acres <sup>a</sup> needing control No. 2,000

F. Acres <sup>a</sup> treated No. 2,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % -----

I. Loss in yield, units per acre <sup>a</sup>, C X H Units/-----

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

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

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

M. Control cost, \$ per acre <sup>a</sup> \$/150

N. Control cost for all acres <sup>a</sup>, F x M \$ 300,000

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

P. Quality loss for all acres <sup>a</sup>, (E-F) x K \$ 88,500\*

Q. Combined control cost and losses, N + O + P \$ 388,500

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

Comment: Commercial apple growers only.

\*Quality loss is 10 percent of total acreage.

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).  
show which in ( ).

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

Submitted by R. Flankard  
Date March 13, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Peas (Commodity or Crop) SUGAR BEETS (Commodity or Crop)

A. Pest or pest complex: ALL INSECTS

Table with 10 columns: B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R. Rows include: Number of acres produced, Average yield per acre, Price per unit, Acres needing control, Acres treated, Reduction due to not treating, Loss in yield, Loss in yield per acre, Loss in yield per acre, Loss in quality, Yield loss for all acres, Control cost, Yield loss for all acres, Quality loss for all acres, Combined control cost and losses, Percent loss due to each insect.

Comment:

- 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 R. Flankard Date March 13, 1964

ATTACKING Peas (Commodity or Crop)

A. Pest or pest complex: Pea aphid

Table with 10 columns: B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R. Rows include: Number of acres produced, Average yield per acre, Price per unit, Acres needing control, Acres treated, Reduction due to not treating, Loss in yield, Loss in yield per acre, Loss in yield per acre, Loss in quality, Yield loss for all acres, Control cost, Yield loss for all acres, Quality loss for all acres, Combined control cost and losses, Percent loss due to each insect.

Comment: Cuming and Freewing companies only

- 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 R. Flankard Date March 13, 1964



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Hyattsville, Maryland 20781

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*Cooperative*

**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

THREE-CORNERED ALFALFA HOPPER remains high in alfalfa in areas of Arizona, with severe girdling evident in many fields. (p. 1205). EUROPEAN CORN BORER light to heavy in northern areas of Alabama. (p. 1206).

WALNUT HUSK FLY larvae heavy in black walnuts in Sutter County, California. This is first larval infestation in county; adults trapped earlier. (cf. CEIR 14 (41):1128). In Arizona, ORANGE-DOG heavy and defoliating citrus in Pima County; 7 CITRUS RUST MITE infestations found in Yuma County to date, with controls effective; and CITRUS FLAT MITE necessitated controls on tangerines and oranges in Yuma and Maricopa Counties. (p. 1207). WESTERN GRAPE LEAF SKELETONIZER appears to have spread from originally infested areas in Clark County, Nevada; larvae found in Pine Creek area of Spring Mountains west of Las Vegas. (1208).

SALT-MARSH CATERPILLAR larvae migrating and damaging lettuce and sugar beets in Yuma and Maricopa Counties, Arizona. (p. 1208).

DOUGLAS-FIR TUSSOCK MOTH damage to Christmas tree stands quite serious in California this season. BAGWORM populations unusual and damaging in Shelby County, Alabama; tremendous outbreak expected in 1965 if controls not applied. (p. 1209).

A BROWN SPIDER (Loxosceles reclusa) becoming more numerous in several areas of Oklahoma. (p. 1211).

DETECTION

New county records reported were SPOTTED ALFALFA APHID (Therioaphis maculata) in Clark County, South Dakota, (p. 1205); SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) in Limestone, Morgan, Cullman, Blount, Shelby, Bibb, Perry, Marengo, Clarke and Washington Counties, Alabama, (p. 1206); SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) in Tulsa County, Oklahoma, (p. 1208); and an APHID (Therioaphis tiliae) in Santa Clara County, California, (p. 1209).

CORRECTIONS

See page 1212.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1214).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Rice, Soybeans and Cotton in Arkansas in 1963. (pp. 1215-1216).

Survey for Predators in Cotton as Used in Arkansas. (pp. 1217-1218).

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Reports in this issue are for week ending October 30, unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

NOVEMBER 1964

The Weather Bureau's 30-Day Outlook for November calls for temperatures to average above seasonal normals over the northern two-thirds of the Nation east of the Rockies and over the southern Plateau in the West. Below normal averages are predicted for the Northwest. In regions not specified near normal temperatures are in prospect. Precipitation is expected to exceed normal over the central Plains, Florida and west of the Continental Divide except for the southern Plateau where subnormal amounts are anticipated. Subnormal totals are also predicted from the northern Plains to the Atlantic Coast and over the Ohio and Tennessee River Valleys and the Middle Atlantic States. Elsewhere precipitation should total about normal.

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 2

Mild, sunny weather prevailed across the Nation. Some generous rains fell over the interior valleys of California and southwestern Missouri - two areas that had been missed by earlier October rains.

TEMPERATURE: Temperatures averaged above normal over almost the entire Nation. The exceptions were the interior valleys of California, the Columbia River Valley from near Pendleton to Portland, South Carolina, and the coastal portions of North Carolina and Virginia. A large area from central South Dakota to northern Texas averaged more than 6° above normal. Over New Mexico, daytime temperatures averaged 9° above normal and minimums averaged 4° above normal. The northern Rocky Mountains and northern Great Plains were mild at the beginning of the week but turned cooler during the week. Most eastern stations recorded warm afternoons and cool nights.

PRECIPITATION: Rains at midweek and on Sunday provided 2 to 3 inches along the north coast and in the mountains of California and 1 to 2 inches as far south as Bakersfield. Crane, Missouri, received 3.77 inches of rain on Monday, October 23. The generous rains in California and southwestern Missouri were especially significant because neither of those areas had received important rainfall since October 1 and some localities were becoming critically dry. Heavy rains flooded a highway near Blackwell, Oklahoma. Memphis, Tennessee, received 1.66 inches on Wednesday. Other areas that received more than 1 inch of rain during the week were south central Texas, the lower east coast of Florida, and isolated spots in Tennessee and Ohio. Arizona, New Mexico, western Texas, central and southern Colorado, western Kansas, central and eastern Nebraska, and eastern South Dakota received no rain or only light sprinkles.

Light snow and snow mixed with rain fell over the northern Rocky Mountains and northern Great Plains early in the week. By 1 a.m. Wednesday, Cutbank, Montana, had received 1 inch and by 7 a.m., Jamestown, North Dakota, had received 2 inches of snow. By Thursday, the snow had extended eastward to Wisconsin and by Friday, light snow was falling in northern New England. Snow fell in the central Rocky Mountains and western South Dakota on Saturday. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Decreasing; counts on observation field near Brodhead revealed 475 per sweep compared with 900 previous week. In another field, populations averaged 37 per sweep compared with 300 previous week; counts 26 per sweep in third field compared with 95 previous week. Alate viviparae ranged 7-20 percent; males ranged 3-7 percent. Examination of stems revealed little change in number of eggs compared with previous week. Egg counts about half of what they were in these fields this time in 1963; however, peak population only about half that reached last season. (Wis. Ins. Sur.). SOUTH DAKOTA - Sexual forms collected in Clark County. Averaged 612 per 100 sweeps, with 7 percent being egg-laying forms and 2 percent winged. This is a new county record. (Hintz). NEBRASKA - Averaged 8 per sweep in Madison County. (Bergman). ARKANSAS - Ranged 400-500 per 100 sweeps of 15-inch net in alfalfa in northwest. (Ark. Ins. Sur.). OKLAHOMA - Light to absent in alfalfa in Washington, Rogers and Tulsa Counties; ranged 0-10 per square foot. (Okla. Coop. Sur.). NEW MEXICO - Light, spotted infestations noted in alfalfa in Taos and Eddy Counties. (N.M. Coop. Rpt.). NEVADA - Found for first time this season in Fallon and Swingle Bench, Churchill County; Fernley, Lyon County; and Reno-Sparks area, Washoe County. Counts per sweep averaged 10 in Swingle Bench and 2 in other localities. (Bechtel, Cooney).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Decrease continues; counts westward along Wisconsin River average about 20 per sweep although a few fields in southern counties still have counts of over 100 per sweep. High percentage of males present in several Rock County fields; mating noted. (Wis. Ins. Sur.). NEBRASKA - Averaged 200 per sweep in Madison County alfalfa. (Bergman). ARKANSAS - Surveys negative in alfalfa in northwest. (Ark. Ins. Sur.). NEW MEXICO - Populations very light in alfalfa checked near Taos, Taos County. (N.M. Coop. Rpt.). UTAH - Moderate on alfalfa at Murray and Granger, Salt Lake County. (Knowlton). NEVADA - Ranged 75-150 per sweep in Fallon, Churchill County. Averaged less than 20 per sweep in Swingle Bench, Churchill County; Fernley, Lyon County; and Reno-Sparks area, Washoe County. (Bechtel, Cooney).

PLANT BUGS (Lygus spp.) - ARKANSAS - L. lineolaris (tarnished plant bug) ranged 25-30 per 100 sweeps in alfalfa in northwest. (Ark. Ins. Sur.). UTAH - Lygus spp. continue moderate on uncut alfalfa and road-side weeds in Salt Lake County. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Populations remain high in alfalfa in Yuma and Maricopa Counties; severe girdling evident in many fields. (Ariz. Coop. Sur.). NEVADA - Averaged 50 per sweep in alfalfa in Moapa Valley, Clark County. (Lauderdale).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Adults heavy in alfalfa in Yuma and Maricopa Counties; larval numbers remain small in most fields. (Ariz. Coop. Sur.). UTAH - Present in alfalfa in Davis and Salt Lake Counties. (Knowlton).

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae medium on alfalfa plantings in Colusa, Colusa County. (Cal. Coop. Rpt.).

ZEBRA CATERPILLAR (Ceramica picta) - NEVADA - Averaged 1 per sweep in alfalfa in Fallon, Churchill County, and in Lovelock, Pershing County; migrations underway. (Bechtel, Cooney, Lauderdale).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Heavy numbers of adults swept from alfalfa at Crownsville, Anne Arundel County. (U. Md., Ent. Dept.). DELAWARE - Adults, as indicated by tanglefoot traps, active in alfalfa locally in New Castle County. Newly deposited eggs on dead stems; ranged 0.9-1 egg per stem during past 2 weeks. (Burbutis, Bray).



APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - First activity of season noted in wheat; counts per linear foot averaged 150 in Craig and 8 in Mayes Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Averaged 6 per 25 sweeps in rye field in Rock County; nearly all males although single apterate vivipara present. (Wis. Ins. Sur.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Surveys negative in northeastern counties. (Okla. Coop. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Adults averaged 10 per 25 sweeps in rye in Rock County; mostly females. (Wis. Ins. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - ARIZONA - Scattered infestations continue to be found in sorghum in Graham, Greenlee and Cochise Counties. (Ariz. Coop. Sur.).

RHODES-GRASS SCALE (Antonina graminis) - ARIZONA - Heavy and damaging Bermuda grass lawns in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

A SNAIL (Hawaiiia minuscula) - CALIFORNIA - Population heavy on lawn in Stockton, San Joaquin County. (Cal. Coop. Rpt.).

#### FRUIT INSECTS

LEAF CRUMPLER (Acrobasis indigenella) - CALIFORNIA - Adults and larvae heavy on peach trees locally in Lemon Grove, San Diego County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Appearing in damaging numbers on many young and older isolated apple trees in Marshall and Etowah Counties. Serious root-system damage observed; adults mostly underground but a few patches noted on protected areas of trunks and limbs. (McQueen). NEW MEXICO - Present on foliage of apple trees in several orchards in Rio Arriba and Taos Counties. (N.M. Coop. Rpt.).

A SPIDER MITE (Tetranychus mcdanieli) - NEW MEXICO - Mostly light, with occasional heavy infestation on apple foliage in Velarde area, Rio Arriba County. (N.M. Coop. Rpt.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Larvae heavy in black walnuts in Yuba City, Sutter County. This is the first larval infestation in county; adults trapped earlier, cf. CEIR 14(41):1128. (Cal. Coop. Rpt.). UTAH - Damaging English and black walnuts at Ogden, Weber County. (Knowlton).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Heavy and defoliating citrus trees in Tucson area, Pima County. (Ariz. Coop. Sur.).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Small, scattered infestations becoming a problem on lemons in Yuma County. (Ariz. Coop. Sur.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - ARIZONA - Total of 7 infestations found in Yuma County to date; controls generally effective. (Ariz. Coop. Sur.). FLORIDA - Moderate on 25 percent of 1,200 citrus plants in nursery at Wimauma, Hillsborough County. (Custead, Oct. 19).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Prevalent in areas of Yuma and Maricopa Counties; controls necessary on tangerines and oranges. (Ariz. Coop. Sur.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - NEVADA - Larvae found in canyon grape (Vitis arizonica) in Pine Creek area of Spring Mountains west of Las Vegas, Clark County. This appears to represent spread from originally infested areas of Las Vegas and North Las Vegas since Pine Creek and other Spring Mountains areas were surveyed in prior years. (Kinard, Zoller).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy on olive leaves and fruit locally in Oroville, Butte County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Severe on stems of 132 persimmon plants in nursery at Glen Saint Mary, Baker County. (Collins, Oct. 21).

#### TRUCK CROP INSECTS

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Migrating larvae causing damage to lettuce not protected by barriers in Yuma County and in scattered areas of Maricopa County. Sugar beet test fields also heavily damaged in Yuma County. October plantings of sugar beets in Roll area completely destroyed. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Medium to heavy and damaging lettuce in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

A PYRAUSTID MOTH (Lineodes integra) - CALIFORNIA - Larvae present locally in tomato patch in Los Angeles, Los Angeles County. (Cal. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Large numbers present in asparagus in Bixby area, Tulsa County. (Okla. Coop. Sur.). This is first ARS record for county. (PPC).

FLEA BEETLES (Chaetocnema spp.) - OKLAHOMA - Moderate in crinkled mustard in Bixby area, Tulsa County. (Okla. Coop. Sur.).

WIREWORMS (Conoderus spp.) - NORTH CAROLINA - C. falli (southern potato wireworm) and C. vespertinus (tobacco wireworm) damage commonly observed in sweetpotatoes in auction at Tabor City; however, none of 75 lots observed seriously damaged for fresh market purposes. (Mount).

TURNIP APHID (Hyadaphis pseudobrassicae) - OKLAHOMA - Moderate in crinkled mustard and collards and light on turnips in Bixby area, Tulsa County. (Okla. Coop. Sur.).

PLANT BUGS (Lygus spp.) - OKLAHOMA - Heavy on crinkled mustard in Bixby area, Tulsa County. (Okla. Coop. Sur.).

RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) - OKLAHOMA - Moderate numbers on asparagus in Bixby area, Tulsa County. (Okla. Coop. Sur.).

TURNIP MAGGOT (Hylemya floralis) - MARYLAND - Heavy in garden turnips at Greenbelt, Prince Georges County. (U. Md., Ent. Dept.).

MILLIPEDES - WISCONSIN - Noted feeding in radishes in Dane County. (Wis. Ins. Sur.).

#### COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Found during gin-trash inspections in Garvin, Jefferson, Marshall, Stephens, Comanche, Coal, McClain and Pittsburg Counties. Counts ranged from 0.1 per bushel in Coal County to 5.5 per bushel of trash in Jefferson County. (Okla. Coop. Sur.). ARIZONA - New infestations and increases in previously known infestations continue to be detected in Maricopa County. Gin-trash inspections in Cochise County detected infestations at San Simon and Bowie. (Ariz. Coop. Sur.).

A WEEVIL (Anthonomus sp.) - ARIZONA - New infestations continue to be found in cotton in Yuma County and in central and southern areas. Increases noted in many known infestations. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Again seriously damaged about 100 acres of 6 to 7-year-old pines along western line of Conecuh County. Extensive damage occurred in 1963 in same area. Every tip of every pine in this loblolly planting appears to have had 1-5 larvae feeding during the year. Pupae now overwintering. (McQueen).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - CALIFORNIA - Eggs, pupae and adults heavy in Cedar Pass-Alturas areas in white fir in Modoc County. Damage to Christmas tree stands quite serious this season. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - ALABAMA - Unusually heavy and damaging on small loblolly pines in Etowah County; scales so heavy that trees appeared bluish-white. (McQueen). COLORADO - Heavy on spruce in Larimer County. (Kincaid, Hantsbarger). NEBRASKA - Phenacaspis sp. present on spruce in Howard County. (Roselle).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - FLORIDA - Some clusters of larvae present on slash pine (Pinus elliottii) in understocked old field area at Gainesville, Alachua County. Det. by L. A. Hetrick. (Hetrick, Oct. 17).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Continues heavy on oaks in McCurtain and Cherokee Counties; lighter numbers in Washington, Tulsa, Craig, Mayes and Rogers Counties. (Okla. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Larvae heavy and feeding on Pacific madrone (Arbutis menziesi) in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

LINDEN LOOPER (Erannis tiliaria) - MICHIGAN - Adults taken in blacklight trap in Livingston County during warm evenings of October 26-28. (Dowdy).

IO MOTH (Automeris io) - OKLAHOMA - Larvae damaging redbuds in Rogers County. (Okla. Coop. Sur.).

APHIDS - WASHINGTON - Fall migrants of Prociphilus venafuscus unusually abundant; collecting in tremendous numbers on green ash trunks in Pullman and vicinity, Whitman County. Applications to reduce incidence of leaf curling next spring underway. (Johansen, Oct. 23). CALIFORNIA - Phyllaphis fagi heavy on European beech (Fagus sylvatica) nursery stock in San Carlos, San Mateo County. Therioaphis tiliariae nymphs heavy on linden in San Jose, Santa Clara County; this is a new county record. (Cal. Coop. Rpt.). NEVADA - Drepanaphis acerifoliae (painted maple aphid) heavy on maple in Reno-Sparks area, Washoe County. (Bechtel). NEW MEXICO - Unspecified species heavy on willow trees at Santa Fe, Santa Fe County. Honeydew problem and nuisance on walks and cars under trees. (N.M. Coop. Rpt.). UTAH - Periphyllus lyropictus (Norway-maple aphid) and a linden aphid continue troublesome along Salt Lake City streets, Salt Lake County. Aphids numerous on paper birch and hazelnut foliage at Logan, Cache County. (Knowlton).

A SPIDER MITE (Tetranychus canadensis) - ARIZONA - Present on ash trees in city of Yuma, Yuma County. (Ariz. Coop. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Unusual and damaging populations observed in Shelby County; about 100 redeciders on two adjoining large lawns at north edge of Alabaster heavily damaged; covered with overwintering bags containing eggs. Tremendous outbreak expected in April 1965 if not controlled. (McQueen).

A TISCHERIID MOTH (Tischeria omissa) - CALIFORNIA - Larvae medium; mining holly-hock leaves in Johnstonville, Lassen County. (Cal. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - MARYLAND - Adults injurious to chrysanthemums locally at Cambridge, Dorchester County. (U. Md., Ent. Dept.). ALABAMA - Adults feeding on goldenrods and other native flowering plants on southwest area. (McQueen).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - ALABAMA - Feeding on goldenrod and other native flowering plants throughout southwest. (McQueen).

APHIDS - WASHINGTON - Viviparae, alatoid nymphs and alatae (pink form) of Macrosiphum euphorbiae (potato aphid) heavily infesting planter boxes of petunia in Yakima, Yakima County. This is unusual host in State. (Landis, Oct. 23). CALIFORNIA - Rhopalosiphum conii heavy on waterhemlock (Cicuta douglasii) in Likely, Modoc County. (Cal. Coop. Rpt.). MARYLAND - Macrosiphoniella sanborni (chrysanthemum aphid) heavy on chrysanthemums locally in Dorchester and Prince Georges Counties. (U. Md., Ent. Dept.).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Feeding on goldenrods and other native flowering plants throughout southwest. (McQueen).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Adults and nymphs in tremendous numbers feeding on goldenrods in Baldwin and Mobile Counties. (McQueen).

Coccids in Florida - Parlatoria proteus (an armored scale) infested 20 plants of dwarf date palm (Phoenix roebelenii) at Pine Castle, Orange County. (Crews, Oct. 26). Pseudaulacaspis major (an armored scale) infested governors-plum (Flacourtia sp.) at West Palm Beach, Palm Beach County. (Mounts, Oct. 20). Icearya purchasi (cottony-cushion scale) moderate to severe on 60 pittosporum plants in nursery at Indian Harbor, Brevard County. (Levan, Oct. 21). Pseudaonidia duplex (camphor scale) noted on stems and leaves of pyracantha on school grounds at Gainesville, Alachua County. (Graham, Oct. 23). Fiorinia theae (tea scale) infested Japonica euonymus at nursery in Bostwick, Putnam County, (Graham, Oct. 26); plants temporarily under quarantine until infestation eliminated (Fla. Coop. Sur.).

TEA SCALE (Fiorinia theae) - ALABAMA - Unusually heavy on old, unattended camellia plantings in Baldwin County. (McQueen).

A THRIPS (Frankliniella sp.) - FLORIDA - Moderate to severe on leaves of belladonna-lily (Amaryllis belladonna) in nursery at Palm Bay, Brevard County. (Levan, Oct. 20).

APPLE MAGGOT (Rhagoletis pomonella) - WISCONSIN - Maggots, probably this species, present in numbers of 4 per 20 fruits of hawthorn in park in Beloit, Rock County. Larvae half grown in one instance. (Wis. Ins. Sur.).

AN ERIOPHYID MITE (Cecidophyopsis sp.) - CALIFORNIA - Heavy on yucca nursery plant leaves in Goleta, Santa Barbara County. (Cal. Coop. Rpt.).

A MILLIPED (Diploiluis latistriatus latistriatus) - WASHINGTON - Immatures and adults damaging gardens for past several years at Ellensburg, Kittitas County. (Redmond, Oct. 23).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Continue active in Farmington-Kaysville area, Davis County. (Knowlton). NORTH CAROLINA - Aedes sollicitans (salt-marsh mosquito) abundant in marshes of Pamlico County but not numerous in open. Lighting at rate of 10 per minute in marsh. Brief flareup of Culex spp. occurred in Kinston-Goldsboro



area following flooding but problem over now. (Ashton). FLORIDA - Aedes vexans, A. atlanticus/tormentor and A. infirmatus among species causing annoyance to Boy Scouts camping in woodland area at O'Leno State Park, Columbia County. (Mead, Oct. 23).

HOUSE FLY (Musca domestica) - OKLAHOMA - Heavy in Pushmataha and Payne Counties, moderate in Cotton and Cleveland Counties, and light in Mayes County. Many adults entering homes as cold weather approaches. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Averaged 150 per head on cows in Payne County and 300 per head in Pushmataha County. Light to moderate on cattle in Cleveland and Bryan Counties. (Okla. Coop. Sur.).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - NORTH DAKOTA - Remains moderately abundant on range cattle in southeastern area. (Noetzel).

BLACK WIDOW SPIDER (Latrodectus mactans) - UTAH - Several specimens noted in garage at residence in Midvale, Salt Lake County. (Knowlton).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Becoming more numerous in several areas of State. (Okla. Coop. Sur.).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Moderate on cattle in Pushmataha County and heavy in Choctaw County. (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - MARYLAND - Infestations noted in homes in Anne Arundel and Montgomery Counties. (U. Md., Ent. Dept.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Invaded several additional homes in Salt Lake City-Holladay area, Salt Lake County. (Knowlton).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - MARYLAND - Adults numerous in home at Adelphi, Prince Georges County. (U. Md., Ent. Dept.). UTAH - Infested flour and home in Salt Lake City, Salt Lake County. (Knowlton).

INDIAN-MEAL MOTH (Plodia interpunctella) - DELAWARE - Larvae common on walls in home in New Castle County. (MacCreary). MARYLAND - Larvae abundant in kitchens of homes in Cecil and Prince Georges Counties. (U. Md., Ent. Dept.).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Causing a nuisance in and about several homes in Anne Arundel, Harford and Howard Counties. (U. Md., Ent. Dept.). OKLAHOMA - Entering homes in Cleveland County. (Okla. Coop. Sur.). NEBRASKA - Adults annoying in homes in Cherry County. (Bergman). WYOMING - Adults continue annoying in some homes in Torrington, Goshen County. (Marks).

A LEAF-FOOTED BUG (Leptoglossus occidentalis) - COLORADO - Annoying in dwelling in Denver. (Hantsbarger).

GERMAN COCKROACH (Blattella germanica) - WYOMING - Annoying in home at Hawk Springs, Goshen County. (Marks).

PSOCIDS - NORTH CAROLINA - Infesting sugar and cereal products in housetrailer in Wake County. (Robertson).

A SOLDIER FLY (Hermetia illucens) - NORTH CAROLINA - Larvae infesting house-trailer in Columbus County. Circumstances of infestation not known. (Robertson).

CLOVER MITE (Bryobia praetiosa) - WYOMING - Causing some concern to homeowners in Goshen County. (Marks).

SOWBUGS - WASHINGTON - Undetermined species more common in homes than usual at Friday Harbor, San Juan County; caused no damage. (Baker, Oct. 23).

#### STORED-PRODUCT INSECTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - WYOMING - Light in 2 granaries near Torrington, Goshen County. (Marks).

#### BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - ARKANSAS - Most numerous beneficial species in alfalfa and small grains in northwest area. (Ark. Ins. Sur.).

HYMENOPTEROUS PARASITES - ARKANSAS - Unspecified species noted in northwestern area alfalfa and small grains. (Ark. Ins. Sur.).

#### MISCELLANEOUS INSECTS

FALL CANKERWORM (Alsophila pometaria) - MICHIGAN - Adults collected in blacklight trap in Livingston County recently. (Dowdy).

PUSS CATERPILLAR (Megalopyge opercularis) - NORTH CAROLINA - Larvae collected on Burford holly in Richmond County. (Flynt, Robertson).

CLIMBING CUTWORMS (Lithophane spp.) - MICHIGAN - Adults of three species taken at Livingston County blacklight trap recently. (Dowdy).

FULLER ROSE BEETLE (Pantomorus godmani) - CALIFORNIA - Adults of this species and Nemocestes incomputus (a weevil) heavy about residence in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

A SCARAB (Euparia castanea) - FLORIDA - Collected in Solenopsis geminata (fire ant) mound at Cassia Station, Lake County. (Desin, Oct. 22).

A ROVE BEETLE - WASHINGTON - Adults of undetermined species causing nuisance at Friday Harbor, San Juan County. (Baker, Oct. 23).

LARGER YELLOW ANT (Acanthomyops interjectus) - DELAWARE - Adult flights common in New Castle County. (MacCreary).

A BRACONID (Perilitus coccinellae) - COLORADO - Reared from Hippodamia convergens (convergent lady beetle) collected in Larimer County. (King, Simpson).

#### CORRECTIONS

CEIR 14(44):1183 - DETECTION - Line 5: SWEETCLOVER WEEVIL (Sitona cylindricollis) should read (p. 1186).



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

During the period October 25 - 31, TEXAS reported 12 screw-worm infestations from 11 counties: Starr 1, Zapata 1, Webb 2, Frio 1, Gillespie 1, Hays 1, Travis 1, Milam 1, Lampasas 1, McLennan 1, and Henderson 1. ARIZONA reported 13 cases from 5 counties: Cochise 5, Santa Cruz 2, Pima 2, Graham 1 and Pinal 3. No cases were reported from NEW MEXICO. Republic of Mexico reported 291 cases: Sonora 117, Chihuahua 97, Tamaulipas 20, Coahuila 20, Durango 18, Nuevo Leon 8, Veracruz 8, San Luis Potosi 2 and Puebla 1. Sterile screw-worm flies released: Texas 17,690,250, Arizona 6,794,000, New Mexico 1,616,000 and Mexico 55,935,200.

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	1,475	47,487	114	2,777	1,293.8	1,710.0
1963	369	5,525	299	6,277	123.4	88.0
1964	12	164	173	5,268	6.93	3.11

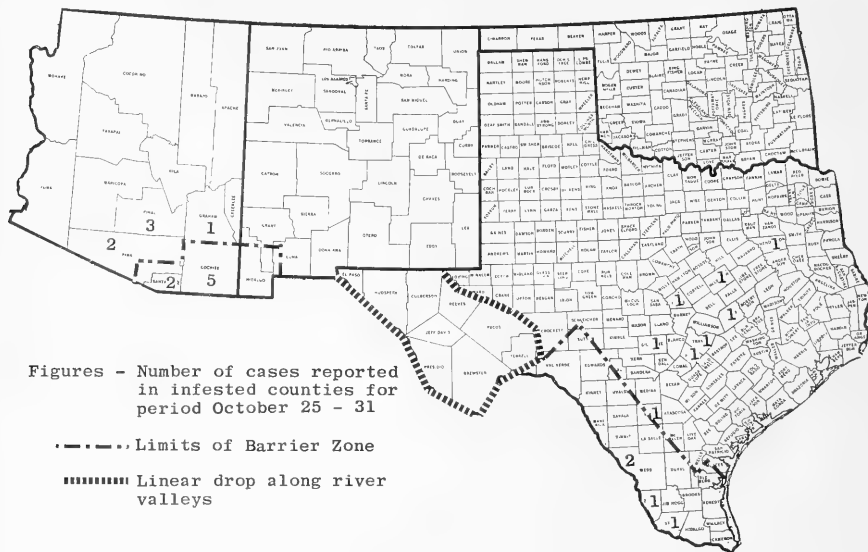
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.\*

1963	281	5,085	37	1,242	759.45	409.42
1964	276	3,562	46	1,711	600.00	208.18

Table 2A. Mexican portion of Barrier Zone only.

1963	65	1,551	0	155	0.0	1,000.6
1964	262	3,362	13	762	2,015.38	441.2

\* 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 Arkansas DURING 1963  
 (State or District) (Year)

ATTACKING Rice (foliage treatment)  
 (Commodity or Crop)

A. Pest or pest complex: Rice stink bug

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No. <u>389,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/ <u>42.5 crt.</u>
D. Price <sup>b</sup> per unit ( <u>crt.</u> ) <sup>c</sup> (From CRS)	\$/ <u>5.00</u>
E. <u>Acres</u> <sup>a</sup> needing control	No. <u>18,672</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>18,672</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>-----</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/ <u>-----</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/ <u>-----</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>-----</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>2.00</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>37,344</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>-----</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>-----</u>
Q. Combined control cost and losses, N + O + P	\$ <u>37,344</u>
R. Percent loss due to each insect in the complex:	See comment

Comment: Rice stink bug 100 percent

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

Submitted by W. P. Boyer

Date \_\_\_\_\_

ATTACKING Rice (seed treatment)  
 (Commodity or Crop)

A. Pest or pest complex: Rice water weevil and a colaspis

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No. <u>389,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/ <u>42.5 crt.</u>
D. Price <sup>b</sup> per unit ( <u>crt.</u> ) <sup>c</sup> (From CRS)	\$/ <u>5.00</u>
E. <u>Acres</u> <sup>a</sup> needing control	No. <u>311,200</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>311,200</u>
G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>-----</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/ <u>-----</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/ <u>-----</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>-----</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>0.75</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>233,400</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>-----</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>-----</u>
Q. Combined control cost and losses, N + O + P	\$ <u>233,400</u>
R. Percent loss due to each insect in the complex:	See comment

Comment: Rice water weevil 80 percent, a colaspis 20 percent

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

Submitted by W. P. Boyer

Date \_\_\_\_\_

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Soybeans Cotton  
 (Commodity or Crop) (Commodity or Crop)

A. Pest or pest complex: Corn earworm, green stink bug, southern green stink bug

B. Number of acres	a produced (From CRS)	No.	2,923,000
C. Average yield per acre	a (From CRS)	Units/	17.5 bu.
D. Price <sup>b</sup> per unit ( bu. )	c (From CRS)	\$/	2.65
E. Acres	a needing control	No.	614,600
F. Acres	a treated	No.	584,600
G. Reduction due to not treating where needed:			
H. Loss in yield, percent		%	33
I. Loss in yield, units per acre	a, C x H	Units/	5.8 bu.
J. Loss in yield, \$ per acre	a, D x I	\$/	15.37
K. Loss in quality, \$ per acre	a	\$/	1.17
L. Yield loss for all acres	a, (E-F) x I	Units	174,000 bu.
M. Control cost, \$ per acre	a	\$/	2.00
N. Control cost for all acres	a, F x M	\$	1,169,200
O. Yield loss for all acres	a, (E-F) x J	\$	461,100
P. Quality loss for all acres	a, (E-F) x K	\$	35,100
Q. Combined control cost and losses, N + O + P		\$	1,665,400
R. Percent loss due to each insect in the complex: <u>corn earworm 95; stink bugs 5</u>			

Comment: Acraige of soybeans treated has increased each of past four years

- 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 H. P. Boyer

Date \_\_\_\_\_

A. Pest or pest complex: Bollworm, boll weevil, mites, aphids, plant bugs

B. Number of acres	a produced (From CRS)	No.	1,230,000
C. Average yield per acre	a (From CRS)	Units/	595 lbs. lint
D. Price <sup>b</sup> per unit ( lbs. )	c (From CRS)	\$/	0.331
E. Acres	a needing control	No.	840,000
F. Acres	a treated	No.	835,170
G. Reduction due to not treating where needed:			
H. Loss in yield, percent		%	35
I. Loss in yield, units per acre	a, C x H	Units/	205 lbs. lint
J. Loss in yield, \$ per acre	a, D x I	\$/	67.85
K. Loss in quality, \$ per acre	a	\$/	5.00 in 1962
L. Yield loss for all acres	a, (E-F) x I	Units	990,150 lbs. ,
M. Control cost, \$ per acre	a	\$/	12.00
N. Control cost for all acres	a, F x M	\$	10,022,040
O. Yield loss for all acres	a, (E-F) x J	\$	327,715
P. Quality loss for all acres	a, (E-F) x K	\$	24,150
Q. Combined control cost and losses, N + O + P		\$	10,373,905
R. Percent loss due to each insect in the complex: <u>Bollworm 60; boll weevil 15; mites 4; aphids 1</u>			

Comment: Seed loss - \$44,550; cost of insect scouting - \$25,000. These costs should be added giving total of \$10,513,455

- 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 H. P. Boyer

Date \_\_\_\_\_

Survey Methods

Survey for Predators in Cotton as Used in Arkansas

By W. P. Boyer

A survey method for predators in cotton that does not require added time while scouting for economic pests has been developed and is being used in Arkansas.

Lincoln (1955) tested several methods of survey for predators in cotton. He concluded that:

1. Sweeping, shaking plants over a cloth frame and bloom inspection have little to recommend them. These methods were inefficient and qualitatively did not appear to give a true sample.
2. The whole plant examination was the most effective method. However, examining 30 plants required 50 minutes.
3. Predators can be adequately surveyed by recording the predators observed while making the usual survey for boll weevil, bollworm, plant bugs, aphids and spider mites.

The method of survey adopted in Arkansas and used extensively in 1963 and 1964 is based on Lincoln's earlier work. Predators scouted for are:

Big-eyed bugs (Geocoris spp.), an insidious flower bug (Orius insidiosus), nabids (Nabis spp.), lady beetles (all species) and lacewing larvae (Chrysopa spp.). Lady beetle adults and larvae are recorded separately. Counts of nymphs and adults of the hemipterous predators are combined when recorded.

The survey procedure is:

1. Record the number of predators seen on and in the 200 squares while making the 200-square point sample count (Ark. Agric. Expt. Sta. Bul. 666).
2. Record the number of predators seen in terminals (top 6 inches) and on 100 leaves while making the standard 100 terminal count and the standard 100 leaf count. In Arkansas, the 100 terminals and leaves are selected by examining 25 terminals and leaves at random following each of the 50-square samples taken in point sampling (Ark. Agric. Expt. Sta. Bul. 666).
3. Add the numbers of predators observed in procedure 1 and 2.

To further test this method against whole plant examination, six cotton insect scouts made both counts weekly in one field each for a period of several weeks in 1963. A total of 69 counts by each method was made. In making the whole-plant counts 100 plants per field were examined by selecting 25 consecutive plants at each of four locations.

Results:	Total Specimens						Grand Total
	BEB	IFB	NAB	LBA	LBL	LWL	
Squares	37	34	4	119	22	17	233
Terminals & Leaves	38	50	6	87	11	15	207
TOTAL	75	84	10	206	33	32	440
Whole plants	120	152	20	290	53	69	704
Fast Count expressed as percentage of whole-plant count	62.5	55.3	50	71	62.3	46.3	62.5

These data show that the fast counting method accounts for 62.5 percent as many predators as does whole plant examination.

The counting period covered several weeks with counts being made before and after insecticidal applications.

Legend:

BEB - Big-eyed bugs  
IFB - An insidious flower bug  
NAB - Nabids  
LBA - Lady beetle adults  
LBL - Lady beetle larvae  
LWL - Lacewing larvae

Literature Cited:

Lincoln, Charles. 1955. Survey Method for Predators in Cotton. CEIR 5:1077.





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**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

PEA APHID continues to increase in many fields of alfalfa in Wisconsin, with several thousand per sweep in few fields. BEET ARMYWORM medium to heavy in alfalfa in Gila Valley and Deer Valley in Arizona. (p. 1221).

Phenomenal increase of CITRUS RUST MITE on Florida citrus carried population into high range normal for October; further increase expected through November. CITRUS RED MITE population in Florida lowest for October in 14 years of record, with no important increase expected before December. BLACK PECAN APHID and BLACK-MARGINED APHID causing severe damage to pecan border trees in Butte County, California. (p. 1223).

TOMATO PINWORM causing medium damage to tomato plants and fruit in areas of San Diego County, and infestations vary up to 100 percent in Yolo County, California. (p. 1224).

DETECTION

A WEEVIL (Pachytychius haematocephalus) reported from Albany County, New York, as a nuisance in a home during the summer of 1964 is the first record of the species as well as the genus in the United States. The pest is quite common in middle Europe and in England, breeding in pods of birdsfoot-trefoil. (p. 1227). First State records reported were an APHID (Chaitophorus stevensis) from Utah (p. 1225), and an APHID (Aphis oenotherae) from Hawaii (p. 1230). New County records reported were BLACK PECAN APHID (Melanocallis caryaefoliae) in Butte County (p. 1223), MEALY PLUM APHID (Hyalopterus pruni) in Ventura County (p. 1225), and TOMATO PINWORM (Keiferia lycopersicella) in Yolo County (p. 1224), all in California. Report of tomato pinworm in Yolo County is northernmost record in California.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1229).

Hawaiian Insect Notes. (p. 1230).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Corn (For Grain), Soybeans (For Beans), Alfalfa, Clover-Timothy, Apples, Tomatoes (For Processing) and Tobacco in Maryland in 1963. (pp. 1231-1234).

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Reports in this issue are for week ending November 6, unless otherwise indicated.

WEATHER OF THE WEEK ENDING NOVEMBER 9

Substantial rains fell over an area extending from San Antonio, Texas, to Green Bay, Wisconsin. Indian summer continued over the East.

**TEMPERATURE:** Temperatures averaged above normal over most of the Nation and much above normal in central portions. A few scattered locations averaged slightly cooler than normal. Most of the northern and central Great Plains averaged more than 6° above normal. Temperature departures exceeded plus 12° over northern Missouri and southeastern Iowa. Fair skies prevailed over most of the Nation at the beginning of the week. On Monday, November 2, temperatures climbed to the 70's and 80's over most of the central and southern Great Plains. A few stations in south central South Dakota registered maximums in the 80's. About Wednesday, a dome of high pressure centered over the Rocky Mountains, brought chilly weather to the mountains and adjacent plains. By Friday morning freezing temperatures were recorded over extreme western Texas. El Paso, Texas, registered 31° Friday morning. Afternoons continued mild. Temperatures climbed to the 60's over parts of Montana on several days. Warm, sunny days and cool nights typical of Indian summer continued over the East. Afternoon temperatures reached the 70's at some locations in Michigan on Tuesday and Wednesday. Some cooling occurred late in the week over New York and New England when afternoon temperatures reached only the 40's and 50's.

**PRECIPITATION:** At the beginning of the week, a cool front extended from the Red River of the North to extreme western Texas. As a front moved slowly eastward it produced substantial rains in an irregular band extending over south central Texas to Wisconsin. San Antonio, Texas, received 3.34 inches of rain on Wednesday. Parts of Oklahoma received from 2 to 4 inches and some localities in west central and southwestern Oklahoma received between 5 and 6 inches. A few light showers fell in northwestern Missouri, and Clinton, Iowa, received the first measurable rain in more than 30 days. Green Bay, Wisconsin, received 1.20 inches. Rains fell late in the week over the Far Northwest. Some coastal portions of Oregon received about 4 inches, but drought continued over some sections of the country. High winds caused blowing dust over the eastern plains of Colorado and the Nebraska Panhandle. The light rains in Wyoming did little to relieve the dry conditions which continued over most of the State. No rain of importance fell in southern Illinois and Indiana. Ohio continued dry and Pennsylvania received less rain than in any week since early summer. Ponds and wells were drying in Pennsylvania and forest fires increased in rainless West Virginia. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Populations continue to decrease in observation fields in Brodhead area. Counts November 4 averaged 500 per sweep in uncut field of alfalfa with 10 percent being alate viviparae and 10 percent males; population only 9 per sweep in an adjacent field. Egg counts increased noticeably in uncut field; averaged 17 per stem compared with 7 per stem previous week. Little change in egg numbers noted in cut field; all eggs black, indicating oviposition essentially complete in that field. Observations in other areas revealed substantial increase in populations with threefold increase in fields of alfalfa in western Dane and northern Iowa Counties since last observation 3 weeks ago. (Wis. Ins. Sur.). KANSAS - Field examinations of aphids collected in northern area from Marshall County west to Cheyenne County indicated oviparous females only in Cheyenne County. Counts averaged close to 100 aphids per sweep in fields surveyed. Honeydew present in many fields. (Manglitz, Oct. 28). ARKANSAS - Counts ranged from 200 to as high as 3,000 per 100 sweeps in Washington and Madison Counties; present in all fields checked. (Ark. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Continues to increase in many fields; several thousand per sweep present in few fields. Very few predators and parasites and low incidence of disease noted in most fields. (Wis. Ins. Sur.). ARKANSAS - Small numbers, first collection for fall season, noted in northwest. (Ark. Ins. Sur.). NEW MEXICO - Generally light on alfalfa checked in Dona Ana County; ranged from 15-30 to 40-60 per 25 sweeps, depending on height of alfalfa. (N.M. Coop. Rpt.). WASHINGTON - All stages present on alfalfa grown for seed and forage; 20 percent adults. Counts per sweep ranged 1-2 on seed and 10-15 on hay 12 inches high. Adults of Aphidius pulcher (a parasitic braconid) ranged 1-2 per sweep. These observations made October 23 at Walla Walla, Walla Walla County. (Halfhill).

COWPEA APHID (Aphis craccivora) - ALABAMA - Noted as quite plentiful on cowpeas in Lee County during entomology class field trip. (Blake, Carter).

PLANT BUGS (Lygus spp.) - NEW MEXICO - Ranged 8-14 per 100 sweeps on old alfalfa stands in Dona Ana County. (N.M. Coop. Rpt.). ARKANSAS - L. lineolaris (tarnished plant bug) ranged 20-25 per 100 sweeps in alfalfa in northwest area. (Ark. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Populations decreasing in alfalfa in Yuma, Maricopa and Pinal Counties; averaged 125 per 100 sweeps. (Ariz. Coop. Sur.).

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Medium to heavy populations appearing in alfalfa in Gila Valley of Yuma County and in areas of Deer Valley in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - ARIZONA - Small populations infesting alfalfa in Yuma Mesa area of Yuma County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARKANSAS - Larvae ranged 20-30 per 100 sweeps in alfalfa in Washington and Madison Counties; adult activity very low. (Ark. Ins. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - ARKANSAS - Moths very active in northwest; large numbers occur around lights at night at Fayetteville. Larvae ranged 15-20 per 100 sweeps in alfalfa. (Ark. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Adults still active in alfalfa in one area of New Castle County, as indicated by tanglefoot traps and newly deposited eggs; eggs averaged 125 per 100 stems (both dead and green) in one field. (Burbatis). ARKANSAS - None found in fields surveyed in Washington and Madison Counties. (Ark. Ins. Sur.).

FIELD CRICKETS (*Gryllus* spp.) - ALABAMA - Extensive feeding on leaves of white clover noted in Clay County. (Barwood).

FALL ARMYWORM (*Laphygma frugiperda*) - OKLAHOMA - Heavy on young alfalfa in Grady County and light (3 per 10 sweeps) on same host in Tillman County. (Okla. Coop. Sur.). ALABAMA - Rather high population of early stage larvae damaged small grain for grazing on 2 dairy farms in Chambers County in mid-October. Cool night temperatures since that time reduced larval numbers. (Easterwood, Stephenson).

CORN EARWORM (*Heliothis zea*) - ALABAMA - Corn harvest well underway; observations show larval damage to ears to be more than usual in Bibb County. (Odom). NEBRASKA - Damage and infestations less than 1 percent in corn in north and northeast areas this season. (Bergman).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - INDIANA - A multivoltine strain infested 100 percent of plants in experimental field of dent corn planted June 22 in Vanderburgh County; averaged 8 borers per stalk. Larvae primarily in fifth stage; however, third and fourth-stage larvae also noted. (Everly).

SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*) - ALABAMA - Overwintering larvae observed in 10-15 percent of tap roots of plants in patch of late corn in Lee County. (Blake, Carter).

CORN LEAF APHID (*Rhopalosiphum maidis*) - INDIANA - Colonies still common on corn by November 1 in Vanderburgh County. (Everly). OKLAHOMA - First activity of season noted in field of wheat in Logan County; averaged 4 per linear foot. (Okla. Coop. Sur.). ALABAMA - Noted as still quite plentiful on late corn in Lee County during entomology class field trip. (Blake, Carter).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - WASHINGTON - Adults and nymphs heavy in 30-acre field of winter wheat at Toppenish, Yakima County. (Hagel). ARKANSAS - Very small numbers found in wheat in northwest area. (Ark. Ins. Sur.).

GREENBUG (*Schizaphis graminum*) - OKLAHOMA - Surveys in Logan and Kingfisher Counties negative. (Okla. Coop. Sur.). ARKANSAS - Only an occasional specimen noted in wheat in northwest. (Ark. Ins. Sur.).

SORGHUM MIDGE (*Contarinia sorghicola*) - KANSAS - Damage to sorghum in Riley County, reported in CEIR 14(42):1142, confirmed as having been caused by this species. Det. by G. Steyskal. (Peters).

GRASSHOPPERS - UTAH - Still damaging fall grains over several thousand acres of dry farms in Box Elder County. (Knowlton).

BANKS GRASS MITE (*Oligonychus pratensis*) - NEW MEXICO - Spotted, light to heavy populations of unspecified species reported in CEIR 14(37):1046 as discoloring foliage of field corn near McIntosh, Torrance County, determined as this species. (N.M. Coop. Rpt.).

GREEN JUNE BEETLE (*Cotinis nitida*) - NORTH CAROLINA - Larvae averaged 2 per square foot in areas of fescue pasture in Chatham County. (Campbell).

AN APHID (*Aphis bonnevillensis*) - UTAH - Less numerous on greasewood in rangeland areas of Millard and northern Utah Counties than during 1962 and 1963 seasons. (Knowlton).

A CHINCH BUG (*Blissus leucopterus* ssp.) - TEXAS - Light, local infestations noted in lawns in Denton County. (Turney).

CRANE FLIES (*Tipula* spp.) - NORTH CAROLINA - Large numbers reported flying over lawn in Wake County and in schoolyard in Rowan County. (Mount).



TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Causing concern to ranchers in localized areas of Kinney County. (Davis).

A SNAIL (Oxychilus sp.) - CALIFORNIA - Probably O. cellarius, heavy in dichondra lawn in Delano, Kern County. (Cal. Coop. Rpt.).

#### FRUIT INSECTS

BLACK SCALE (Saissetia oleae) - CALIFORNIA - Medium on fig trees in Brawley, Imperial County. This scale has a different host preference in the desert area than in other areas. (Cal. Coop. Rpt.).

ORANGE-DOG (Papilio cresphontes) - ARIZONA - Very heavy on citrus in backyard plantings in Casa Grande and Coolidge areas, Pinal County. (Ariz. Coop. Sur.). CALIFORNIA - Light on oranges in Brawley and El Centro, Imperial County. This pest is slowly moving northward in the desert area. (Cal. Coop. Rpt.).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - Scattered and severe on leaves of Murcott mandarin at Windermere, Orange County. (Griffith, Oct. 27).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Controls necessary in some areas of Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

Citrus Insect Situation in Florida - End of October - CITRUS RUST MITE (Phyllocoptura oleivora) infested 65 percent of groves (norm 69 percent); 50 percent economic (norm 42 percent). A phenomenal high rate of increase carried population into high range normal for this period. Further increase expected through November. Infestations similar on fruit and leaves. Highest districts west, south, and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 18 percent of groves (norm 24 percent); 8 percent economic (norm 7 percent). Gradual increase expected. Scattered, heavy infestations will be important, especially in young groves. Populations in all districts in low range. CITRUS RED MITE (Panonychus citri) infested 26 percent of groves (norm 46 percent); 4 percent economic (norm 21 percent). Lowest population for October in 14 years of record. No important increase expected before December. A few groves may have moderate to heavy infestations. Highest district west. GLOVER SCALE (Lepidosaphes gloverii) above normal; near high range. Slight increase expected; highest districts south and central. PURPLE SCALE (Lepidosaphes beckii) above normal; in moderate range; slight increase expected. Highest districts south and central. CHAFF SCALE (Parlatoria pergandii) above normal; in moderate range. Increase expected; highest district south. YELLOW SCALE (Aonidiella citrina) above normal; in moderate range. Little change expected; highest district is central. Scale insects will be important only in scattered and localized areas. This applies to above species and to Unaspis citri and Pinnaspis strachani which are above normal in abundance. WHITEFLY populations decreasing to unimportant level but are still above normal. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

BLACK PECAN APHID (Melanocallis caryaefoliae) - CALIFORNIA - Causing severe damage to pecan border trees in Chico, Butte County. This is a new county record. (Cal. Coop. Rpt.).

BLACK-MARGINED APHID (Monellia costalis) - CALIFORNIA - Causing severe damage to pecan border trees in Chico, Butte County. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Rather heavy numbers of full-grown larvae overwintering in pecan shucks in Mobile, Baldwin, Lee, and other counties. (Eden et al.).

WALNUT HUSK FLY (Rhagoletis completa) - UTAH - Moderate in black walnuts in area of Logan, Cache County. Light at Providence, Cache County. (Knowlton, Hanson). CALIFORNIA - Causing medium damage to walnut fruit in Madera, Madera County. (Cal. Coop. Rpt.).

A FALSE WIREWORM (Eleodes cordata) - CALIFORNIA - Adults heavy, damaging walnut grafts in Paso Robles, San Luis Obispo County. (Cal. Coop. Rpt.).

#### TRUCK CROP INSECTS

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Generally light with a few heavy infestations on lettuce in Maricopa County. Occasional light infestations noted in Yuma County. (Ariz. Coop. Sur.).

BET Armyworm (Spodoptera exigua) - ARIZONA - Scattered and light in lettuce fields in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Decreasing but migrating larvae continue problem on lettuce in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Heavy on greenhouse tomatoes in Dallas and Hopkins Counties. (Meisch). ARIZONA - Scattered, medium infestations on lettuce in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Larvae medium on strawberry plants in Fresno, Fresno County. (Cal. Coop. Rpt.).

TURNIP APHID (Hyadaphis pseudobrassicae) - WASHINGTON - Heavy on turnips grown for seed at Royal City, Grant County. (Landis, Oct. 22).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Causing medium damage to tomato plants and fruit in the Los Penisquitos Ranch area and Escondido area, San Diego County. Varying infestations, up to 100 percent, in the Woodland area, of Yolo County. This is a new county record for Yolo County and is the northernmost record in California. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - Overwintering, fertilized females composed 52 percent of population on sugar beets at Winchester, Grant County. Mites on 100 sugar beet leaves examined were as follows: 144 summer forms, 155 in overwintering stage and 182 dead; 212 Typhlodromus sp. (a predaceous species) were counted. Mite populations declined 96 percent during period October 1-27. (Powell).

A SPIDER MITE (Tetranychus sp.) - MARYLAND - Light on old strawberry leaves in planting at Salisbury, Wicomico County. (U. Md., Ent. Dept.).

#### COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - New infestations found in cotton fields in Pinal, Maricopa and Cochise Counties. (Ariz. Coop. Sur.).

NEW MEXICO - Reported light to heavy around Malaga in southern Eddy County; 335 larvae reported in trash from 79 bales of cotton at Atoka and 220 in trash from 12 bales of cotton at Artesia in northern part of county. (N.M. Coop. Rpt.).

OKLAHOMA - Inspections showed less than 1 larva per bushel of gin trash in Hughes, Okfuskee, Pittsburg, Washita, Caddo, Garvin and Grady Counties; moderate infestations of 1-5 larvae per bushel of gin trash found in Comanche and Love Counties. (Okla. Coop. Sur.).

A WEEVIL (Anthonomus sp.) - ARIZONA - New infestations still being found in cotton fields in Yuma, Maricopa Pinal, Santa Cruz and Pima Counties. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

APHIDS - CALIFORNIA - Drepanaphis acerifoliae (painted maple aphid) adults heavy on maple trees in Fresno, Fresno County. Lachnus salignus extremely heavy on willow trees in Quincy, Plumas County; medium in Myers Flat, Humboldt County; and light on willow nursery stock in Santa Rosa, Sonoma County. Hyalopterus pruni (mealy plum aphid) adults heavy on bamboo plants in Port Hueneme, Ventura County; this is a new county record. Eriosoma americanum (woolly elm aphid) heavy locally on elms in Oroville, Butte County. (Cal. Coop. Rpt.). UTAH - Mindarus abietinus (balsam twig aphid) numerous and injuring fir foliage in Cedar Canyon, Iron County; Duck Creek, Kane County; and Logan Canyon and Monte Cristo on Cache National Forest. Kakimia essigi conspicuous on columbines in Duchesne, Duchesne County, and Provo, Utah County. Unspecified species extremely numerous on weeping willow and sycamore maple foliage at Logan, Cache County. Myzocallis tiliae continues numerous on linden foliage at Brigham City, Box Elder County, and Bountiful, Davis County. Periphyllus lyropictus (Norway maple aphid) became very numerous in Logan area, Cache County, and Salt Lake City, Salt Lake County, during past few weeks. Aphids on beech very light at Logan. (Knowlton). NEW MEXICO - An unspecified aphid infesting some species of roses north of Las Cruces, Dona Ana County. (N.M. Coop. Rpt.). OKLAHOMA - Several species moderate to heavy on flowers, ornamentals and oak trees in Bryan and Okfuskee Counties. (Okla. Coop. Sur.). DELAWARE - L. salignus heavy on willows in New Castle County; alates, apterae and nymphs present. (Burbutis).

Aphids in Utah - Chaitophorus stevensis numerous in poplar galls during August 1963 at Roosevelt, Duchesne County; this is a new State record. Thecabius populiconduplifolius folded leaves of poplars during August 1963 at Roosevelt. C. saliciniger collected on willows at Logan Canyon, Cache County, July 1963. C. populicola numerous in poplar leaves folded by T. populiconduplifolius at Provo, Utah County, August 1963. Amphorophora ribiella numerous on apical growth of currant leaves at Randlett, Uintah County, and at Roosevelt in August 1964. Bipersona ochrocentri very numerous on bull thistle in Cottonwood Canyon, Emery County, July 1964. Galls of Pemphigus populicaulis (a petiole gall aphid) common on poplars in Uintah Basin during past 2 seasons and at Fayette, Sanpete County, June to August 1963, and Grantsville, Tooele County, during June 1963. P. populiramulorum (poplar twig gall aphid) moderately numerous on poplar twigs in Ogden-Roy area, Weber County; Clearfield area, Davis County; and Provo-Geneva area, Utah County, during 1963 and 1964. All det. by D. H. R. Lambers. (Knowlton).

SPRUCE NEEDLE MINER (Taniva albolineana) - CALIFORNIA - New infestation of single blue spruce tree in Chester, Plumas County; infestation in Lassen County to be treated in eradication program. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MARYLAND - Heavy on several large white pines around property in College Park, Prince Georges County. (U. Md., Ent. Dept.).

FALL CANKERWORM (Alsophila pomataria) - MICHIGAN - Adult females numerous in some Ingham County locations recently; males continue in blacklight trap collections in Livingston County. (Hoffman, Newman). WISCONSIN - Total of 19 males taken in Mazomanie, Dane County, light trap during week. (Wis. Ins. Sur.).

A GERANIUM PLUME MOTH (Platyptilia pica) - CALIFORNIA - Very heavy on geranium nursery plants in Oxnard, Ventura County. (Cal. Coop. Rpt.).

PUSS CATERPILLAR (Megalopyge opercularis) - ARIZONA - Heavy on pomegranate near Tucson, Pinal County. (Ariz. Coop. Sur.).

NOTODONTID MOTHS - ARIZONA - Catabena sp. damaging lantana plants in and near Yuma, Yuma County. (Ariz. Coop. Sur.). TEXAS - Datana sp. scattered, heavy and damaging oaks in Brazos County. (Meisch).

BRUCE SPANWORM (Operophtera bruceata) - MICHIGAN - Six adults taken evening of November 4 in Livingston County blacklight trap. (Newman).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - Heavy on small pine trees in Pushmataha County. (Okla. Coop. Sur.).

MEALYBUGS (Pseudococcus spp.) - FLORIDA - P. adonidum (long-tailed mealybug) severe on leaves of dumbcane (Dieffenbachia sp.) and P. citri (citrus mealybug) severe and scattered on stem and leaves of African-violet in nursery at Vineland, Orange County. (Griffith, Oct. 27).

TARNISHED PLANT BUG (Lygus lineolaris) - NEBRASKA - Adults quite numerous on chrysanthemums and other late-flowering plants in Omaha, Douglas County, and Lincoln, Lancaster County. (Bergman).

CHRYSANTHEMUM LEAF MINER (Phytomyza atricornis) - CALIFORNIA - Adults heavy on Hebe sp. nursery stock in Millbrae, San Mateo County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Heavy on Azara microphylla nursery stock in Millbrae, San Mateo County. (Cal. Coop. Rpt.).

A SNAIL (Oxyloma effusa) - FLORIDA - Light and scattered on leaves of Ajuga sp. at nursery at Doctor Phillips, Orange County. (Griffith, Oct. 22).

#### INSECTS AFFECTING MAN AND ANIMALS

HOUSE FLY (Musca domestica) - OKLAHOMA - Increasing numbers appearing in homes in Payne, Mayes and Cleveland Counties. Reported heavy about cows in Pushmataha County. (Okla. Coop. Sur.). MARYLAND - Heavy breeding occurred in chicken manure on property at Glen Burnie, Anne Arundel County. Numerous and annoying inside buildings in several locations over State. (U. Md., Ent. Dept.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Moderate (400 per head) on cows in Pushmataha County and light in Cleveland County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - MARYLAND - Adults noted on barn walls and on cows in sunlight at College Park, Prince Georges County. (U. Md., Ent. Dept.).

MOSQUITOES - OKLAHOMA - Adults of Psorophora spp. still active in Stillwater area, Payne County; unspecified species active in homes in Bryan County. (Okla. Coop. Sur.). MARYLAND - Fourth instars and pupae of Aedes mitchellae-collected October 26 by J. Mallack at Dundalk Marine Terminal, Dundalk, Baltimore County. (U. Md., Ent. Dept.).

BED BUG (Cimex lectularius) - MARYLAND - Specimens collected from bed in Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

AN ASSASSIN BUG (Melanolestes picipes) - NORTH CAROLINA - Bit man on finger in Rockingham County; specimen under log. Det. by D. A. Mount. (Whitefield).

FLEAS (Ctenocephalides spp.) - CALIFORNIA - Heavy on dogs and cats in Idyllwild, Riverside County, and medium in home in Camarillo, Ventura County. (Cal. Coop. Rpt.).

TROPICAL RAT MITE (Ornithonyssus bacoti) - CALIFORNIA - Infesting humans in home in Sacramento, Sacramento County, and medium in home in Chico, Butte County. (Cal. Coop. Rpt.).

BROWN DOG TICK (Rhipicephalus sanguineus) - MARYLAND - Adults collected on dog in Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

HOUSEHOLD AND STRUCTURAL INSECTS

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Entering homes to hibernate in Cleveland County. (Okla. Coop. Sur.). MARYLAND - Adults becoming nuisance in home at Welcome, Charles County. (U. Md., Ent. Dept.).

BLACK CARPET BEETLE (Attagenus piceus) - DELAWARE - Infested carpets in home in New Castle County. (MacCreary).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Infestations in homes continue in several areas of State. (U. Md., Ent. Dept.).

LARGER YELLOW ANT (Acanthomyops interjectus) - MARYLAND - Winged individuals appeared on property in Cambridge, Dorchester County. (U. Md., Ent. Dept.).

STORED-PRODUCT INSECTS

RED FLOUR BEETLE (Tribolium castaneum) - WYOMING - High numbers infesting sorghum and rolled rye in warehouse at Laramie, Albany County. (Marks).

GRANARY WEEVIL (Sitophilus granarius) - DELAWARE - Infestation noted in feed warehouse in Kent County. (MacCreary).

BENEFICIAL INSECTS

DAMSEL BUGS (Nabis spp.) - ARKANSAS - Most numerous predator group in alfalfa and small grain. (Ark. Ins. Sur.).

FLOWER FLIES - ARKANSAS - Adults and larvae still active in alfalfa infested with aphids. (Ark. Ins. Sur.).

A FLOWER BUG (Orius insidiosus) - ARKANSAS - Continues active in alfalfa in northwest; nymphs present but outnumbered by adults. (Ark. Ins. Sur.).

PARASITIC HYMENOPTERONS - ARKANSAS - Unspecified species active on aphid infested alfalfa and small grains. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

A WEEVIL (Pachytychius haematocephalus) - NEW YORK - Reported as nuisance in home during late summer of 1964 in Altamont, Albany County; still present October 29. Lawn about home contained substantial amount of birdsfoot-trefoil. This is the first report of this species as well as this genus in the United States. Det. by R. E. Warner. This insect is quite common in middle Europe and in England. The species breeds in pods of birdsfoot-trefoil (Lotus corniculatus); larvae live in the pods and pupate in the soil. (Muka).

PUMPKIN CATERPILLAR (Diaphania indica) - FLORIDA - Taken in Steiner trap at Lake Placid, Highlands County, (Morris, Oct. 29), and on late orange at St. Petersburg, Pinellas County, (Wynn, Nov. 4).

A CASEBEARER MOTH (Coleophora sp.) - NORTH CAROLINA - Larvae found on eaves of home in Robeson County; det. by D. A. Mount. (Stanford).

NOCTUID MOTHS - MICHIGAN - A few adults of following species taken in Livingston County during unseasonably warm evenings of November 1-4: Plathypena scabra (green cloverworm), Pseudaletia unipuncta (armyworm), Peridroma saucia (variegated cutworm) and Anagrapha falcifera (celery looper). (Dowdy).



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

During the period November 1-7, TEXAS reported 23 screw-worm cases; 1 each from Val Verde, Cameron, Crockett, Hidalgo, La Salle, Dimmit, Kinney, Uvalde, Donley, Kerr, Burnet, Comal, Frio, McCulloch and Schleicher Counties; 2 cases reported in Zavala and Medina Counties and 3 cases in Zapata County. The twenty-third case was not traceable to point of origin. ARIZONA reported one case each in Pima and Maricopa Counties. The Republic of Mexico reported 144 cases from States of Sonora 73, Chihuahua 38, Tamaulipas 10, Durango 11, Coahuila 4, Nuevo Leon 4, Zacatecas 1, San Luis Potosi 1, and Veracruz 2. Total of 17,980,000 sterile flies released over Texas, 1,160,000 over New Mexico, 7,102,000 over Arizona and 55,438,400 over Mexico.

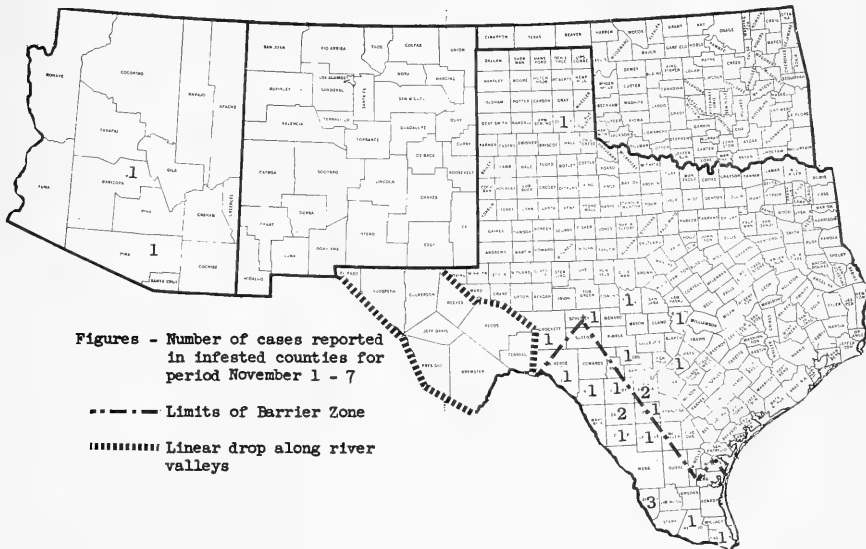
Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1. Comparison of specimens reported during corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.						
1962	932	48,419	82	2,859	1136.6	1693.6
1963	361	5,886	224	6,501	161.2	90.5
1964	23	188	293	5,561	7.8	3.4

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	305	5,390	31	1,279	983.9	421.4
1964	158	3,720	67	1,778	235.8	209.2

Table 2A. Mexican portion of Barrier Zone only.

1963	165	1,716	6	161	2,750.0	1,065.8
1964	144	3,506	10	772	1,440.0	454.1

\* 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.).



HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 706th meeting of the Hawaiian Entomological Society held on October 12, 1964.

A GRASSHOPPER (Schistocerca yaga (Scudder)) - During surveillance and treatment operations on Sand Island, a total of 4 adults and 24 nymphs were captured in September. Nymphs ranged from first to third instar and practically all were found on Waltheria americana (a common weed) upon which they appeared to be feeding. All infested areas were treated and no grasshoppers were found during the first half of October. Eggs, recovered from a gravid female on Sand Island on August 23, hatched on September 30. The total incubation period was 38 days. From 75 eggs, 61 nymphs emerged. (Mabel Chong for C. J. Davis).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum (Marchal)) was found on Ficus retusa in Kailua, Kona, September 14, 1964. It was first reported on Hawaii at Wailoa Park, Hilo, August 16, 1964. (Mabel Chong for C. J. Davis).

BARNACLE SCALE (Ceroplastes cirripediformis Comstock) - On September 16, 1964, N. Miyahira reported an infestation on a passion-fruit farm of a tobacco company at Kahului, Maui. On October 1, 1964, C. J. Davis and S. Au observed a heavy infestation on a commercial planting of passion-fruit at Lawai, Kauai. These apparently are first records for the islands of Maui and Kauai. Specimens were determined by R. F. Wilkey. (Mabel Chong).

An ARMORED SCALE (Chrysomphalus rossi (Maskell)) infested Araucaria excelsa (Norfolk Island pine) at Kapoho, July 18, 1964. This is a new host record for the State as well as a new record for the island of Hawaii. (B. Hu, E. S. Shiroma).

An APHID (Aphis oenotherae Oestlund) - B. Hu collected several specimens on leaves of Oenothera striata (evening primrose) from the volcano area of the island of Hawaii, December 30, 1963. Det. by L. M. Russell. This is a new State record. (E. S. Shiroma).



ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Maryland DURING 1963 (Year)

ATTACKING Corn (for grain)  
(Commodity or Crop)

A. Pest or pest complex: Cutworms, webworms, European corn borer, fall armyworm,

corn earworm

B. Number of acres<sup>a</sup> produced (From CRS) No. 600,000

C. Average yield per acre<sup>a</sup> (From CRS) Units/ 52 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 1.33

E. Acres<sup>a</sup> needing control No. 100,000

F. Acres<sup>a</sup> treated No. less than 1,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 10

I. Loss in yield, units per acre<sup>a</sup>, C x H Units/ 5.2 bu.

J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ 6.92

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

L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 520,000

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

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

O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 692,000

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

Q. Combined control cost and losses, N + O + P \$ 692,000

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

Comment: Yield loss only determined as total acreage treated was negligible.

- 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 W. C. Harding, Jr.  
Date June 25, 1964

ATTACKING Soybeans (for beans)  
(Commodity or Crop)

A. Pest or pest complex: Spider mites, Japanese beetle, bean leaf beetle

B. Number of acres<sup>a</sup> produced (From CRS) No. 246,000

C. Average yield per acre<sup>a</sup> (From CRS) Units/ 18.3 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 2.70

E. Acres<sup>a</sup> needing control No. 75,000

F. Acres<sup>a</sup> treated No. less than 1,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 7

I. Loss in yield, units per acre<sup>a</sup>, C x H Units/ 1.30 bu.

J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ 3.51

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

L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 97,500

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

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

O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 263,250

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

Q. Combined control cost and losses, N + O + P \$ 263,250

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

Comment: Yield loss only determined as total acreage treated was negligible.

- 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 W. C. Harding, Jr.  
Date June 25, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING  Alfalfa  (Commodity or Crop)

- A. Pest or pest complex:  Alfalfa weevil, pea aphid, meadow spittlebug, potato leafhopper
- B. Number of acres <sup>a</sup> produced (From CRS)  94,000
- C. Average yield per acre <sup>a</sup>  2.10 tons
- D. Price<sup>b</sup> per unit ( ton ) <sup>c</sup> (From CRS)  40.00 (estimated)
- E. Acres <sup>a</sup> needing control  94,000
- F. Acres <sup>a</sup> treated  87,000
- G. Reduction due to not treating where needed:
- H. Losses in yield, percent  30
- I. Loss in yield, units per acre <sup>a</sup>, C x H  0.63 ton
- J. Loss in yield, \$ per acre <sup>a</sup>, D x I  25.20
- K. Loss in quality, \$ per acre <sup>a</sup>  3.00
- L. Yield loss for all acres <sup>a</sup>, (E-F) x I  4,410 tons
- M. Control cost, \$ per acre <sup>a</sup>  5.50
- N. Control cost for all acres <sup>a</sup>, F x M  478,500
- O. Yield loss for all acres <sup>a</sup>, (E-F) x J  176,400
- P. Quality loss for all acres <sup>a</sup>, (E-F) x K  21,000
- Q. Combined control cost and losses, N + O + P  675,900
- R. Percent loss due to each insect in the complex:

Comment:  Most loss due to alfalfa weevil. Estimate does not include loss from reduction in quality.

- 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  W. C. Harding, Jr.   
 Date  June 25, 1964

ATTACKING  Clover-etching  (Commodity or Crop)

- A. Pest or pest complex:  Aphids, weevils (Hypera spp.), meadow spittlebug, plant bugs
- B. Number of acres <sup>a</sup> produced (From CRS)  210,000
- C. Average yield per acre <sup>a</sup> (From CRS)  1.25 tons
- D. Price<sup>b</sup> per unit ( ton ) <sup>c</sup> (From CRS)  30.00 (estimated)
- E. Acres <sup>a</sup> needing control  200,000
- F. Acres <sup>a</sup> treated  75,000
- G. Reduction due to not treating where needed:
- H. Losses in yield, percent  15
- I. Loss in yield, units per acre <sup>a</sup>, C x H  0.19 ton
- J. Loss in yield, \$ per acre <sup>a</sup>, D x I  5.70
- K. Loss in quality, \$ per acre <sup>a</sup>  -----
- L. Yield loss for all acres <sup>a</sup>, (E-F) x I  23,750
- M. Control cost, \$ per acre <sup>a</sup>  3.25
- N. Control cost for all acres <sup>a</sup>, F x M  243,750
- O. Yield loss for all acres <sup>a</sup>, (E-F) x J  712,500
- P. Quality loss for all acres <sup>a</sup>, (E-F) x K  -----
- Q. Combined control cost and losses, N + O + P  956,250
- R. Percent loss due to each insect in the complex:

Comment:  Does not include possible loss due from reduction of quality.

- 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  W. C. Harding, Jr.   
 Date  June 25, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

IN Maryland DURING 1963

(State or District) (Year)

ATTACKING Apples  
(Commodity or Crop)

A. Pest or pest complex: Codling moth, aphids, mites, plum curculio

B. Number of bushels<sup>a</sup> produced (From CRS) No. 1,250,000 bushels  
 C. Average yield per acre<sup>a</sup> (From CRS) Units/ ---  
 D. Price<sup>b</sup> per unit (bushel)<sup>c</sup> (From CRS) \$/ 2.30  
 E. all (commercial)  
 F. all (commercial)

G. Reduction due to not treating where needed:

H. Loss in yield, percent % ---  
 I. Loss in yield, units per acre<sup>a</sup>, C x H Units/ ---  
 J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ ---  
 K. Loss in quality, \$ per acre<sup>a</sup> \$/ ---  
 L. Yield loss for all bushels<sup>a</sup>, (E-F) x I Units ---  
 M. Control cost, \$ per bushels<sup>a</sup>, \$/ .20  
 N. Control cost for all bushels<sup>a</sup>, F x M \$ 250,000  
 O. Yield loss for all bushels<sup>a</sup>, (E-F) x J \$ ---  
 P. Quality loss for all bushels<sup>a</sup>, (E-F) x K \$ 250,000 (control cost only)\*  
 Q. Combined control cost and losses, N + O + P \$ ---  
 R. Percent loss due to each insect in the complex:

Comment: \*Not commercial orchards sprayed on a regular basis.

- 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 W. C. Hawking, Jr.  
 Date June 25, 1964

ATTACKING Tomatoes (for processing)  
(Commodity or Crop)

A. Pest or pest complex: Colorado potato beetle, flea beetle, cutworms, hornworms, aphids, Protophila spp.

B. Number of acres<sup>a</sup> produced (from CRS) No. 7,700  
 C. Average yield per acre<sup>a</sup> (From CRS) Units/ 10.30 tons  
 D. Price<sup>b</sup> per unit (ton)<sup>c</sup> (From CRS) \$/ 32.70  
 E. Acres a needing control  
 F. Acres a treated No. 7,700  
 G. Reduction due to not treating where needed: No. 4,500

H. Loss in yield, percent % 20  
 I. Loss in yield, units per acre<sup>a</sup>, C x H Units/ 2.06 tons  
 J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ 67.36  
 K. Loss in quality, \$ per acre<sup>a</sup> \$/ ---  
 L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 6,592 tons  
 M. Control cost, \$ per acre<sup>a</sup>, \$/ 12.00  
 N. Control cost for all acres<sup>a</sup>, F x M \$ 54,000  
 O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 215,592  
 P. Quality loss for all acres<sup>a</sup>, (E-F) x K \$ ---  
 Q. Combined control cost and losses, N + O + P \$ 269,592  
 R. Percent loss due to each insect in the complex:

Comment: ---

- 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 W. C. Hawking, Jr.  
 Date June 25, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Tobacco IN Maryland DURING 1963  
(Commodity) (State or District) (Year)

A. Pest or pest complex: Aphids, flea beetles, hornworms, budworms

B. Number of acres<sup>a</sup> produced (From CRS) No. 34,500

C. Average yield per acre<sup>a</sup> (From CRS) Units/ 800 pounds

D. Price<sup>b</sup> per unit ( pound )<sup>c</sup> (From CRS) \$/ .55 (1962 season average price)

E. Acres       <sup>a</sup> needing control No. 34,500

F. Acres       <sup>a</sup> treated No. 25,000

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 18

I. Loss in yield, units per acre<sup>a</sup>, C x H Units/ 144 pounds

J. Loss in yield, \$ per acre<sup>a</sup>, D x I \$/ 79.20

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

L. Yield loss for all acres<sup>a</sup>, (E-F) x I Units 1,368,000 pounds

M. Control cost, \$ per acre<sup>a</sup> \$/ 6.00

N. Control cost for all acres<sup>a</sup>, F x M \$ 150,000

O. Yield loss for all acres<sup>a</sup>, (E-F) x J \$ 752,400

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

Q. Combined control cost and losses, N + O + P \$ 902,400

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

Comment: \_\_\_\_\_

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 W. C. Harding, Jr.

Date June 25, 1964



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Hyattsville, Maryland 20781

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations  
Plant Pest Control Division  
Agricultural Research Service  
United States Department of Agriculture  
Federal Center Building  
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 north-west 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 100 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 pomataria) - ARIZONA - Damaging trees and ornamentals in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

WALKINGSTICK (Diaperomera 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 (Liquidambar 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 (Dermeestes 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 supellecillum) - 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 serricornis (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

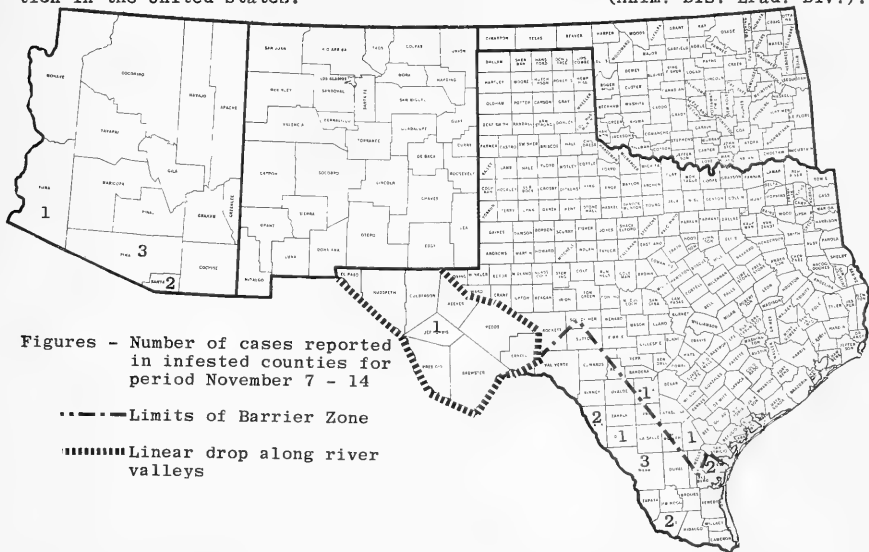
During the period November 7-14, TEXAS reported 13 screw-worm cases: 3 in Webb County, 2 each in Starr, Maverick and Nueces Counties, and 1 each in Dimmit, Jeff Davis, Medina and Live Oak Counties. ARIZONA reported 6 cases: 3 in Pima County, 2 in Santa Cruz County and 1 in Yuma County. The Republic of 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

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	197	5,587	34	1,313	579.4	425.5
1964	130	3,850	55	1,883	236.4	204.5

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 2A. Mexican portion of Barrier Zone only.						
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

- 1246 -

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, army-worm, fall armyworm, cutworms, grasshoppers, corn leaf aphid, mites, seed-corn beetle

B. Number of acres <sup>a</sup> produced (From CRS) No. 5,401,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 56.0 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 1.09

E. Acres <sup>a</sup> needing control No. 5,401,000

F. Acres <sup>a</sup> treated No. 2,987,000

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 \$ 17,055,170.00

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.

- 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

A. Pest or pest complex: Corn leaf aphid, cutworms, wireworms, seed-corn maggot, seed-corn beetle, grasshoppers, root aphids, corn earworm, corn rootworms

B. Number of acres <sup>a</sup> produced (From CRS) No. 2,106,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 54.5 bu.

D. Price<sup>b</sup> per unit ( bu. )<sup>c</sup> (From CRS) \$/ 0.89

E. Acres <sup>a</sup> needing control No. 526,500

F. Acres <sup>a</sup> treated No. 315,900

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/ 2.73 bu.

J. Loss in yield, \$ per acre <sup>a</sup>, D X I \$/ 2.43

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

L. Yield loss for all acres <sup>a</sup>, (E-F) X I Units 574,938 bu.

M. Control cost, \$ per acre <sup>a</sup>, \$/ 2.90

N. Control cost for all acres <sup>a</sup>, F X M \$ 916,110.00

O. Yield loss for all acres <sup>a</sup>, (E-F) X J \$ 511,750.00

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

Q. Combined control cost and losses, N + O + P \$ 1,427,860.00

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

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 W. Bergman  
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) ATTACKING Oats (Commodity or Crop)

A. Pest or pest complex: <u>Cutworms, Hessian fly, greenbug, grasshoppers, wireworms, brown wheat stink bug, white grubs, wheat stem maggot, English grain aphid, chinch bug, grain aphid, white grubs, chinch bug, leafhoppers</u>		A. Pest or pest complex: <u>Cutworms, grasshoppers, greenbug, wireworms, English grain aphid, white grubs, chinch bug, leafhoppers</u>	
B. Number of <u>acres</u> produced (From CRS)	No. <u>2,973.000</u>	B. Number of <u>acres</u> produced (From CRS)	No. <u>942,000</u>
C. Average yield per <u>acre</u> (From CRS)	Units/ <u>21.5 bu.</u>	C. Average yield per <u>acre</u> (From CRS)	Units/ <u>28.5 bu.</u>
D. Price <sup>b</sup> per unit ( <u>bu.</u> ) <sup>c</sup> (From CRS)	\$/ <u>1.85</u>	D. Price <sup>b</sup> per unit ( <u>bu.</u> ) <sup>c</sup> (From CRS)	\$/ <u>0.65</u>
E. <u>Acres</u> a seedling control	No. <u>511,540</u>	E. <u>Acres</u> a seedling control	No. <u>141,300</u>
F. <u>Acres</u> a treated	No. <u>147,650</u>	F. <u>Acres</u> a treated	No. <u>9,420</u>
G. Reduction due to not treating where needed:		G. Reduction due to not treating where needed:	
H. Loss in yield, percent	% <u>5.0</u>	H. Loss in yield, percent	% <u>5.0</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C X H	Units/ <u>1.1 bu.</u>	I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C X H	Units/ <u>1.43 bu.</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D X I	\$/ <u>2.04</u>	J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D X I	\$/ <u>0.93</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>-----</u>	K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) X I	Units <u>422,279 bu.</u>	L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) X I	Units <u>188,588 bu.</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>2.45</u>	M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/ <u>2.45</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F X M	\$ <u>361,742.50</u>	N. Control cost for all <u>acres</u> <sup>a</sup> , F X M	\$ <u>23,079.00</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) X J	\$ <u>763,135.60</u>	O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) X J	\$ <u>122,648.40</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) X K	\$ <u>-----</u>	P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) X K	\$ <u>-----</u>
Q. Combined control cost and losses, N + O + P	\$ <u>1,144,875.10</u>	Q. Combined control cost and losses, N + O + P	\$ <u>145,727.40</u>
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 \$1,777,440.00 for 1961 and \$1,134,360.00 for 1962. Comment: Figures were also submitted for 1961 and 1962. Losses were \$228,764.80 for 1961 and \$231,674.80 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 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 (State or District) DURING 1963 (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: 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> ---- \$/

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 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 \$

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 106,335.00 \$  
 P. Quality loss for all acres <sup>a</sup>, (E-F) x K ---- \$

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 243,485.00 \$  
 R. Percent loss due to each insect in the complex:

Q. Combined control cost and losses, N + O + P 708,215.00 \$  
 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 \$413,154.70 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

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

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ANTHROPODS

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

ATTACKING Soybeans (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 5,174.6 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: \_\_\_\_\_

Comment: Figures were also submitted for 1961 and 1962. Losses were \$18,512.80 for 1961 and \$20,760.00 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. 27, 1964

ATTACKING Field beans (Commodity or Crop)

- 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 \$332,038.00 for 1961 and \$20,355.00 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 ( ) .

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

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Potatoes  
 (Commodity or Crop)

ATTACKING Sugar beets  
 (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 cwt.
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 cwt.
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>b</sup> , (E-F) x I	Units	10,972.8 cwt.
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	\$	15,482.90
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

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 \$743,899.00 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





UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

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OFFICIAL BUSINESS



VOL. 14 No. 48

November 27, 1964

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG survey in 24 panhandle counties of Texas showed low populations of not over 5 per foot in 14 counties; found mostly in large volunteer wheat. (p. 1253).

CITRUS RUST MITE and GLOVER SCALE above normal and in high range on Florida citrus; BROWN SOFT SCALE has been less abundant since June than in any comparable month during last 14 years of record. (pp. 1255-1256).

Two adult MEXICAN FRUIT FLY males trapped at Nogales, Arizona; first for this year. (p. 1255).

DETECTION

SPOTTED ALFALFA APHID (Therioaphis maculata) recorded for first time in Wyoming. (p. 1253). New parish and new county records included IMPORTED FIRE ANT (Solenopsis saevissima richteri) in Sabine Parish, Louisiana, (p. 1259), and WHITE-FRINGED BEETLES (Graphognathus spp.) in Marshall County, Tennessee, and in Gaston County, North Carolina, (p. 1259).

CORRECTIONS

See page 1260.

SPECIAL REPORTS

A Change in the Scientific Name of the Fall Armyworm (Spodoptera frugiperda). (p. 1254).

Status of the Screw-worm in the Southwest. (p. 1262).

Interceptions of Special Interest at U.S. Ports of Entry. (p. 1263).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Grain Sorghum, Wheat and Cotton (Lint) in Texas in 1963. (pp. 1265-1266).

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Reports in this issue are for week ending November 20, unless otherwise indicated.

WEATHER OF THE WEEK ENDING NOVEMBER 23

The season's coldest weather spread across the Nation during the past week. Heavy rains fell over the southern Great Plains and deep snow accumulated at some Rocky Mountain localities and in the lee of the Great Lakes.

**TEMPERATURE:** Polar, continental air spread southward across the country. The temperatures over the northern Great Plains dropped to far below zero. Minot, North Dakota, registered 8° below zero Friday morning and 6° above zero in the afternoon. Subzero temperatures occurred over parts of Nevada and Utah and in northern Maine. Freezing temperatures occurred over much of the Deep South. Atlanta, Georgia, registered 22° and Mobile, Alabama, 29° on Sunday morning. The cold wave ended the Indian summer in Pennsylvania and nearby States. Temperatures over Pennsylvania which had been 15° to 20° above normal at the beginning of the week dropped to 10° to 12° below normal at the end of the period. In spite of the cold trend during the week, weekly temperatures averaged above normal southeast of a line from Del Rio, Texas, to Philadelphia, Pennsylvania. This was because of the warm weather during the first several days of the week. Temperatures over parts of the northern Great Plains and the intermountain region averaged more than 10° below normal.

**PRECIPITATION:** Heavy rains accompanied the cold front as it crossed the southern Great Plains. Parts of southwestern Oklahoma and northeastern Texas received 3 to 5 inches with 1 to 2 inches in nearby areas. Heavy snow fell at some mountain locations. Lead, South Dakota, received 10 inches of fresh snow. Snow accumulated to 25 inches at Burgess, Wyoming. Snow fell over the Sierras and at higher elevations of the southern Rocky Mountains. Deep snow fell in the lee of the Great Lakes. Buffalo, New York, and Erie, Pennsylvania, received 20 and 18 inches respectively. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - WYOMING - Detected in alfalfa at Torrington, Goshen County, on October 14, 1964, by G. R. Manglitz. Total of 11 oviparous females and 6 apterous and 1 alate viviparous females collected in sweepings. This is the westernmost spread of the holocyclic strain. This is also a new State record. (Marks). SOUTH DAKOTA - Approximately 70-75 per 100 sweeps collected in field of alfalfa in Hutchinson County on November 13, 1964; approximately 15-30 percent of population sexual forms and 1-2 percent alates. (Hintz). NEBRASKA - Averaged 17 per 10 sweeps in Colfax, Lancaster and Sarpy Counties, and 6 per 10 sweeps in Thurston County. (Bergman). OKLAHOMA - Light in alfalfa in Choctaw County; averaged 18 per 10 sweeps. (Okla. Coop. Sur.). NEW MEXICO - Very light in alfalfa near Portales, Roosevelt County; ranged 5-10 per 25 sweeps. (N.M. Coop. Rpt.). ARIZONA - Very light in Yuma County alfalfa. (Ariz. Coop. Sur.). FLORIDA - Several hundred collected in 100 sweeps of alfalfa 13-15 inches high at Gainesville, Alachua County; some plants blooming. (Mead, Nov. 19).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Continued light in alfalfa checked in Dona Ana and Roosevelt Counties; ranged 20-30 per 25 sweeps in fields checked near Portales, Roosevelt County. (N.M. Coop. Rpt.). OKLAHOMA - Light (10 per 10 sweeps) in alfalfa in Choctaw County. (Okla. Coop. Sur.). NEBRASKA - Populations averaged 175 per 10 sweeps in Lancaster County alfalfa. (Bergman).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Populations decreasing rapidly in alfalfa throughout State. (Ariz. Coop. Sur.). ARKANSAS - Has been very active in alfalfa, but activity expected to end with advent of needed rain and marked drop in temperature on November 19. (Ark. Ins. Sur.). FLORIDA - Eight adults collected in 100 sweeps of alfalfa 13-15 inches high at Gainesville, Alachua County; some plants in bloom. (Mead, Nov. 19).

A PLANT BUG (Taylorilygus pallidulus) - FLORIDA - Total of 142 adults collected in 100 sweeps of alfalfa 13-15 inches high at Gainesville, Alachua County; some plants blooming. (Mead, Nov. 19).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Averaged 2-4 adults per 25 sweeps in Roosevelt County alfalfa. (N.M. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - OHIO - Larvae in various stages ranged 0.1-0.3 per sweep in Mahoning and Columbiana Counties during past 2 weeks; adults averaged 0.3 per sweep. (Niemczyk, Nov. 17).

GREEN CLOVERWORM (Plathypena scabra) - ARKANSAS - Activity ended with marked drop in temperature on November 19. (Ark. Ins. Sur.). MICHIGAN - Single adult taken in Livingston County blacklight trap on evening of November 17. (Newman).

CLOUDED SULPHUR (Colias philodice) - MICHIGAN - Few adults still flying in Oakland County November 17. Autumn weather exceptionally mild until November 19. (Newman).

GREENBUG (Schizaphis graminum) - TEXAS - Survey conducted in 24 panhandle counties during period October 28 to November 11. S. graminum found in Deaf Smith, Castro, Parmer, Oldham, Randall, Potter, Swisher, Hale, Carson, Sherman, Hansford, Hutchinson, Armstrong and Donley Counties. None found in Briscoe, Floyd, Gray, Roberts, Ochiltree, Lipscomb, Hemphill, Hartley, Moore and Collingsworth Counties. Populations low, not over 5 per foot; found mostly in large volunteer wheat. Found only in 3 fields in drilled wheat. Predators, lady beetles and damsel bugs quite numerous due to late, warm fall. (Daniels). OKLAHOMA - Counts of 2 per linear foot noted in wheat in Cotton County, southwest. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light in wheat and barley in Cotton County; averaged 2-3 per linear foot. (Okla. Coop. Sur.). TEXAS - Found in most all fields surveyed for Schizaphis graminum (greenbug) in 24 panhandle counties. (Daniels).

TARNISHED PLANT BUG (Lygus lineolaris) - NEBRASKA - Adults averaged 23 per 10 sweeps in green oats headed out in unpicked field of corn in Colfax County. (Bergman). FLORIDA - In alfalfa 13-15 inches high at Gainesville, Alachua County, 15 adults collected in 100 sweeps; some plants in bloom. (Mead, Nov. 19).

FALL ARMYWORM (Spodoptera frugiperda) - NEBRASKA - Larvae ranged 4-6 per 10 ears and caused light damage in field of corn in Colfax County. (Bergman). See note below by E. L. Todd on change of scientific name.

FLEA BEETLES - TEXAS - Generally quite numerous in small grains surveyed in 24 panhandle counties; apparently causing no damage. (Daniels).

ERIOPHYID MITES - TEXAS - Found in small grains in Deaf Smith, Potter, Swisher, Carson, Lipscomb and Sherman Counties during survey conducted October 28 to November 11 for Schizaphis graminum (greenbug) in 24 panhandle counties. Populations much heavier in Lipscomb County than other 5 counties. (Daniels).

GRASSHOPPERS - SOUTH DAKOTA - Egg development ranged clear to segmented, with majority in coagulated stage. Approximately 5 percent of eggs diseased and parasitized. Melanoplus bivittatus (two-striped grasshopper), M. differentialis (differential grasshopper), M. femurrubrum (red-legged grasshopper) and M. sanguinipes (migratory grasshopper) dominant species. (Burge).

COWPEA APHID (Aphis craccivora) - CALIFORNIA - Nymphs and adults medium on Russian-thistle in Oildale area, Kern County. (Cal. Coop. Rpt.).

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#### A CHANGE IN THE SCIENTIFIC NAME OF THE FALL ARMYWORM

The fall armyworm, previously known as Laphygma frugiperda (J. E. Smith), must now be called Spodoptera frugiperda (J. E. Smith). The genus Laphygma Guenée has been synonymized with Spodoptera Guenée by Zimmerman (Insects of Hawaii, vol. 7, p. 331, 1958). He included only the species occurring in Hawaii - mauritica (Bdv.) (the type of Spodoptera), exempta (Wlk.), and exigua (Hbn.) (the type of Laphygma). He did not specifically include or exclude other species formerly placed in Laphygma. The new combination, Spodoptera frugiperda (J. E. Smith), has not appeared in the literature subsequent to 1958. Therefore, notification of the combination is made so that the name will be available for identification purposes and for use in future biological and ecological reports. (E. L. Todd, Ent. Res. Div., ARS, USDA).

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#### FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - Caused considerable loss in untreated and improperly treated orchards in San Juan County. (N.M. Coop. Rpt.).

PEACH TREE BORER (Sanninoidea exitiosa) - GEORGIA - Two males taken in peach orchard at Fort Valley, Peach County. (Hollon, Snapp, Nov. 16).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Moderately heavy in some apple orchards in northern San Juan County. (N.M. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - TEXAS - Heavy locally on pear trees in Harris County. (Rainwater, Nov. 13).



SAN JOSE SCALE (Aspidiotus perniciosus) - NEW MEXICO - Light to heavy on apple, apricot, rose, and pyracantha in Farmington-Aztec area, San Juan County. (N.M. Coop. Rpt.).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - CALIFORNIA - Heavy on black walnut nursery stock in McArthur, Shasta County. (Cal. Coop. Rpt.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - This species and Monellia spp. contributed to heavy pecan losses. (McQueen).

PECAN WEEVIL (Curculio caryae) - TEXAS - Grubs heavy in pecan orchards in Hood County. (Drake, Nov. 13).

MEXICAN FRUIT FLY (Anastrepha ludens) - ARIZONA - Two adult males trapped at Nogales, Santa Cruz County; one October 20 and one November 3. These are the first this year. (Ariz. Coop. Sur.). CALIFORNIA - One marked, sterile fly recovered in San Diego County during the period October 25-31. (Cal. Coop. Rpt.). MEXICO - In Tijuana, 13,679 sterile, marked specimens, 2 native males and 2 native females taken from 1,000 traps on 700 properties. In Tecate, 120 traps on 60 properties yielded 1,726 sterile, marked specimens. In Ensenada, 220 traps on 100 properties yielded 3,205 sterile, marked specimens and one native male. Liberation of sterile specimens in Baja California as follows: Tijuana, 4 releases, 418,110 males; Tecate, 2 releases, 34,650 males; and Ensenada 3 releases, 11,500 males and females. (PPC Mex. Reg., Oct. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Double-wick, multilure Steiner traps installed in States of Colima, Guerrero, Baja California, Sonora, Sinaloa, Oaxaca, Tamaulipas, Veracruz and at Mexico City Airport. Inspection of 3,040 traps in these States and in States of Chiapas, Yucatan, Campeche, Mexico, Hidalgo, Puebla and Jalisco negative. (PPC Mex. Reg., Oct. Rpt.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - All stages moderate and scattered on leaves of sweet orange in nursery at Winter Haven, Polk County. (Youtsey, Nov. 16).

TEA SCALE (Fiorinia theae) - FLORIDA - Infestation 100 percent upon grapefruit seedlings inspected in nursery at Melrose, Putnam County. (Graham, Nov. 9).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone - Two light infestations involving 3 trees with 7 infested leaves found in Municipio Hualahuis, Nuevo Leon, October 20. In States of Nuevo Leon, Sonora and Baja California, 59,889 citrus trees inspected on 1,708 properties including 23,162 nursery trees in Nuevo Leon. Biological Control Zone - In State of Tamaulipas, 31,063 citrus trees inspected on 15 properties; 2,792 trees on 11 properties infested. Total of 77,500 parasites captured in grove in Municipio Guemez in Victoria-Tamaulipas area. Although most properties in State of Nayarit and Territory of Baja California under control by Amitus hesperidum (a parasitic platygasterid), liberation of Prospaltella opulenta (a parasitic eulophid) recommended. (PPC Mex. Reg., Oct. Rpt.).

Citrus Insect Situation in Florida - Mid-November - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 62 percent of groves (norm 71 percent); 51 percent economic (norm 46 percent). Above average and in high range. Decreasing trend underway; however, some heavy infestations may be expected in all districts. Highest districts south, west and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 28 percent of groves (norm 29 percent); 12 percent economic (norm 9 percent). Near normal moderate level for time of year. Further increase expected; scattered groves will have important infestations. Highest districts north and west. CITRUS RED MITE (Panonychus citri) infested 28 percent of groves (norm 52 percent); 7 percent economic (norm 25 percent). At lowest record for November. Although gradual increase expected, all districts will remain in low

range and few infestations will be important. GLOVER SCALE (Lepidosaphes gloverii) infested 73 percent of groves (norm 28 percent); 26 percent economic (norm 1 percent). Above normal and in high range; slight increase expected. Highest districts south, central and east. PURPLE SCALE (L. beckii) infested 75 percent of groves (norm 67 percent); 5 percent economic (norm 4 percent). Near normal and in moderate range; little change expected. CHAFF SCALE (Parlatoria pergandii) infested 62 percent of groves (norm 42 percent); 9 percent economic (norm 1 percent). Above normal and in moderate range; little change expected. Highest districts south, central and east. YELLOW SCALE (Aonidiella citrina) infested 52 percent of groves (norm 11 percent); 9 percent economic (norm 1 percent). Above normal; decrease to low range expected. Highest district south. BLACK SCALE (Saissetia oleae) infested 29 percent of groves (norm 33 percent); 9 percent economic (norm 8 percent). In normal low range. Highest districts east and central. FLORIDA RED SCALE (Chrysomphalus aonidium) infested 14 percent of groves (norm 59 percent); none economic (norm 12 percent). At record low level since August. BROWN SOFT SCALE (Coccus hesperidum) infested 14 percent of groves (norm 42 percent); none economic (norm 1 percent). Less abundant since June than in any comparable month during the past 14 years of record. Populations of WHITEFLIES dropped to normal level for November. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

#### TRUCK CROP INSECTS

BET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Spraying of isolated thistle and brush areas in southwestern San Joaquin Valley nearing completion; 3,800 acres treated. Populations on perennial brush in White Water Pass, Riverside County, ranged 1-10 per 10 sweeps; this represents movement of overwintering form from thistle areas in northwestern Riverside County to southeastern desert areas. (Cal. Coop. Rpt.).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy increase on home planted cucurbits noted in Yuma, Yuma County. (Ariz. Coop. Sur.).

LEAF MINER FLIES (Liriomyza spp.) - FLORIDA - Infestation ranged 89 and 100 percent with light damage to celery in commercial planting at Sanford, Seminole County. (Desin, Nov. 12 and 19).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Counts up to 21 per head on cabbage in the lower Rio Grande Valley. (Wolfenbarger, Nov. 16). ARIZONA - Continues a problem in lettuce fields in Maricopa and Yuma Counties. Some reduction in numbers in Yuma County. (Ariz. Coop. Sur.).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Scattered but continues to require control in lettuce fields in Maricopa County. (Ariz. Coop. Sur.).

A SAP BEETLE (Conotelus mexicanus) - NEW MEXICO - Damage to developing lettuce heads probably caused by this species in Mesilla Valley, Dona Ana County. (N.M. Coop. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Inspections made of field plantings and retail outlets in LOUISIANA; newly infested properties found in Avoyelles, East Baton Rouge, Livingston, Tangipahoa, Vernon and Washington Parishes. Total of 19 previously infested properties released from regulation in ALABAMA. Postharvest field inspections made in Appling, Ben Hill, Colquitt, Decatur and Grady Counties, GEORGIA; all negative except for one survival infestation in Appling County. (PPC South. Reg., Oct. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

APHIDS - CALIFORNIA - Pemphigus populitransversus (poplar petiole gall aphid) medium on poplar leaves in Carmichael, Sacramento County; heavy locally in El Cajon, San Diego County; and light in Fresno, Fresno County. (Cal. Coop. Rpt.). ARIZONA - Macrosiphoniella sanborni (chrysanthemum aphid) very heavy on chrysanthemums in Yuma and Maricopa Counties. (Ariz. Coop. Sur.). NEW MEXICO - Cinara thujaefilina present on most arborvitae in northern San Juan County; honeydew problem on walks. A dark, black aphid, probably Cinara sp., very noticeable and feeding on globe willow at Farmington and Aztec, San Juan County. (N.M. Coop. Rpt.). MICHIGAN - Winged and wingless forms of Pterocomma smithiae continue present on some Ingham County willow trees November 17. (Dowdy). NORTH CAROLINA - Cinara strobi (white-pine aphid) eggs present on white pine in Orange County. (Barnes).

CITROPHILUS MEALYBUG (Pseudococcus fragilis) - CALIFORNIA - Nymphs and adults heavy on buglevine (Ajuga sp.) in Hollister, San Benito County. (Cal. Coop. Rpt.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TENNESSEE - Serious outbreak on Oak Ridge area; 2,200-acre tract owned by University of Tennessee inspected by University and State forestry entomologists. Numerous infestations located in 9-10 separate areas widely scattered over tract. Marking for sanitation and salvage cut now underway. Similar infestations reported on large forest holding of Atomic Energy Commission in same area. Sanitation cut underway on that property. (Buckner). ALABAMA - Caused extensive damage to 6-acre stand of young pines in Covington County; approximately 90 percent of pines affected. (Johnson, Stephenson). TEXAS - Activity at low level. Biweekly aerial detection revealed 18 infestations. Most recent activity in Hardin, Jasper and Tyler Counties. (Tex. Forest Pest Comm., Oct. Rpt.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ALABAMA - Numerous, small infestations in southeast area. Reported in Henry, Barbour and Houston Counties on loblolly and longleaf pines. Most damage observed along highways where trees pruned during summer by construction crews. (Kimbrough, Barfield et al.). TEXAS - Infestations on loblolly and shortleaf pines on National forests reported from Angelina, Houston and Trinity Counties. Longleaf pine also attacked in Angelina County. Although damage constant, attempts to reduce populations underway. (Tex. Forest Pest Comm., Oct. Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - High populations of I. avulsus, I. grandicollis and I. calligraphus noted in association with other bark beetles. In San Jacinto County, 60 trees killed by Ips spp. and Dendroctonus terebrans (black turpentine beetle) in 5 separate spots. (Tex. Forest Pest Comm., Oct. Rpt.).

A LEAF BEETLE (Galerucella sp.) - NEW MEXICO - Light on Chinese elm in Farmington area, San Juan County; adults seeking shelter. (N.M. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Egg masses appearing in wild cherry trees in southern part of State, especially in Henry and Barbour Counties; much less numerous in northern counties where only 1 tree in 10 with 1-3 egg masses observed. (McQueen).

A LYONETIID MOTH (Bucculatrix albertiella) - CALIFORNIA - Larvae medium on valley oak in Visalia, Tulare County. (Cal. Coop. Rpt.).

A NOCTUID MOTH (Catabena esula) - CALIFORNIA - Larvae medium on lantana leaves locally in Ontario, San Bernardino County. (Cal. Coop. Rpt.).

TOBACCO BUDWORM (Heliothis virescens) - TEXAS - Heavy locally on petunias in Lubbock County. (Rummel, Nov. 13).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Larvae heavy on holly plants in Hollister, San Benito County. (Cal. Coop. Rpt.).

A GALL WASP (Plagiotrochus suberi) - CALIFORNIA - Heavy and causing characteristic galls on cork oak (Quercus suber) trees in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

SPIDER MITES (Oligonychus spp.) - CALIFORNIA - O. platani heavy on pyracantha plants in Coronado, San Diego County. O. ununguis (spruce spider mite) medium on Rosedale juniper nursery stock locally in Fresno, Fresno County. (Cal. Coop. Rpt.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Nymphs and adults abundant around and on buildings in Baltimore. (U. Md., Ent. Dept., Nov. 20). NORTH CAROLINA - Noted in Transylvania County. (Davis). MINNESOTA - Continues to annoy homeowners in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

CLOVER MITE (Bryobia praetiosa) - DELAWARE - Invading homes in New Castle County. (Burbutis).

LARGER YELLOW ANT (Acanthomyops interjectus) - MARYLAND - Winged forms noted around property in Frederick County. (U. Md., Ent. Dept.).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Noted in stored products in several homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

OLD-HOUSE BORER (Hylotrupes bajulus) - NORTH CAROLINA - Adults and larvae light in baseboards in Wake County home. (Wright)

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - Aedes sollicitans (salt-marsh mosquito) adults remain fairly common and annoying in scattered areas of eastern Kent and Sussex Counties. (Wheatley). NORTH CAROLINA - A. sollicitans lighting at rate of 100 per minute in upper marsh area of Pamlico County during week of November 10. Culex pipiens quinquefasciatus (southern house mosquito) larvae ranged 5-6 per dip in creeks around Greensboro, Guilford County; emergence beginning. (Ashton). FLORIDA - Culex salinarius biting man working in garage at night in residential area of Gainesville, Alachua County. (Mead).

HOUSE FLY (Musca domestica) - OKLAHOMA - Light to moderate in homes and around cattle in Pushmataha, Cleveland and Bryan Counties. (Okla. Coop. Sur.).

ARKANSAS - Continued breeding in poultry buildings until November 19; activity should be ended. (Ark. Ins. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Moderate (200 per head) in Bryan County; light (150 per head) in Cleveland and Pushmataha Counties. (Okla. Coop. Sur.).

FLEAS - CALIFORNIA - Pulex irritans (human flea) light in Santa Barbara home, Santa Barbara County. (Cal. Coop. Rpt.). OKLAHOMA - Ctencephalides spp. infesting several homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Moderate on hogs in Stephens County; first fall report of species in State. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Several species light to moderate on cattle in Pushmataha and Stephens Counties. (Okla. Coop. Sur.).

BLACK WIDOW SPIDER (Latrodectus mactans) - OKLAHOMA - Found in house in Lawton, Comanche County. (Okla. Coop. Sur.).

A BROWN SPIDER (Loxoceles reclusa) - OKLAHOMA - Reported in Stephens County homes. (Okla. Coop. Sur.).

#### STORED-PRODUCT INSECTS

CIGARETTE BEETLE (Lasioderma serricorne) - TEXAS - Locally heavy and damaging household products in Denton County. (Turney, Nov. 16). ALABAMA - Adults heavy in kitchen in Auburn, Lee County; source was cereal from local grocery. (McQueen).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - FLORIDA - Larvae light in millet birdseed at Fort Myers, Lee County. (Adkins, Nov. 9).

YELLOW MEALWORM (Tenebrio molitor) - NEW MEXICO - Larvae found in feed and seed bags in Roosevelt County. (N.M. Coop. Rpt.).

VINEGAR FLIES (Drosophila spp.) - NORTH CAROLINA - Numerous in some sweet-potato storage areas. (Covington).

#### MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Aerial treatment applied to 11,700 acres in Harris County, TEXAS; 5 acres in Dallas County treated. Aerial treatments completed in northern part of LOUISIANA and more than 3,000 acres treated with ground equipment in several parishes. Extensions of infested area or new spot infestations found in Bossier, Grant, Rapides, Richland, Vernon, Webster and La Salle Parishes. Infestation found for the first time in Sabine Parish in Toro community. Aerial treatments completed in Humphreys, Sharkey, Hinds and Yazoo Counties, MISSISSIPPI; mound treatment applied to areas of Choctaw, Jefferson Davis and Webster Counties. Aerial treatments in Limestone and Morgan Counties, ALABAMA, completed; 68,490 acres treated. Treatments of 29,400 acres in Bulloch and Bibb Counties, GEORGIA, completed; survey of treated blocks in De Kalb and Henry Counties negative. Extension in Douglas, Coffee County, mostly along highway rights-of-way. In SOUTH CAROLINA, aerial treatment completed on all known infested areas in Berkeley, Charleston and Dorchester Counties; retreatment necessary in Orangeburg County. Infestations found along dikes in wildlife refuge in Jasper County treated. Survey of treated areas in Carteret and Craven Counties, NORTH CAROLINA, encouraging; 10 mounds found in treated area, all at one location. (PPC South. Reg., Oct. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Negative surveys made in 13 TENNESSEE counties; small extensions in several known infested counties; found for the first time in Marshall County. Survey in NORTH CAROLINA revealed extensions of infested areas in Mecklenburg, Cabarrus, Stanly, Sampson, Scotland and Robeson Counties; small areas treated in several counties. Reported for the first time in Gaston County. Small extension in Florence County and new area of 50 acres found in McCormick County, SOUTH CAROLINA. Small areas of infestation found in Choctaw, Chilton and Clarke Counties, ALABAMA. Surveys made in 7 LOUISIANA parishes; small extensions found in Acadia and St. Charles Parishes; treatment applied to road shoulders in Lafayette Parish. (PPC South. Reg., Oct. Rpt.).

DRIED-FRUIT MOTH (Vitula edmandsae serratilineella) - CALIFORNIA - Larvae heavy in bee hive in Salinas, Monterey County. (Cal. Coop. Rpt.).

A CONOPID FLY (Stylogaster biannulata) - FLORIDA - Taken in vehicle at Longwood, Seminole County; species rarely collected in State. (Desin).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Over 1,000 city blocks inspected in Sacramento area. Infestation persists in over 100 blocks. Spraying scheduled to begin November 17, weather permitting. Less than half of area sprayed in 1963 will be retreated. (Cal. Coop. Rpt.).

A LAND SNAIL (Succinea ovalis) - CALIFORNIA - Adults heavy on outside of clay pots in nursery in Mountain View, Santa Clara County. (Cal. Coop. Rpt.). This species feeds on decaying vegetation and fungi. (ARS).

CORRECTIONS

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

CEIR 14(47):1245 - STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST - Table 1, 1963 Ration of Positive Cases to 100 Cases Negative. Change figure for "current cases" from 3.6 to 80.2.

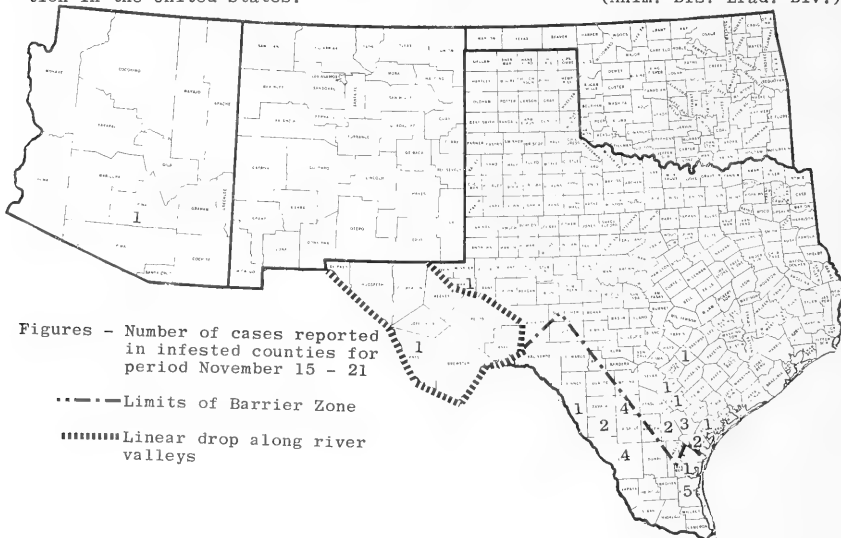


STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period November 15 - 21, TEXAS reported 30 screw-worm cases in 15 counties: 5 in Kenedy County, 4 in Webb and Frio Counties, 3 in Bee County, 2 in Dimmit, San Patricio and Live Oak Counties, and 1 each in Presidio, Maverick, Ward, Kleberg, Karnes, Wilson, Caldwell and Refugio Counties. No cases reported from NEW MEXICO. In ARIZONA, 1 case was reported from Pinal County. The Republic of Mexico reported 290 cases: Sonora 159, Nuevo Leon 12, Tamaulipas 24, Durango 13, Zacatecas 2, Chihuahua 55, Coahuila 14, San Luis Potosi 4, Veracruz 5 and Puebla 2. Sterile screw-worm flies released: Texas 21,140,250, Arizona 4,740,000, New Mexico 1,500,000 and Mexico 56,648,000.

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	427	49,536	35	2,951	1,220	1,678.6
1963	108	6,213	194	6,968	55.7	89.2
1964	30	231	211	5,991	14.2	3.8
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	114	5,701	8	1,321	1,425	431.6
1964	278	4,128	100	1,933	278	213.6
Table 2A. Mexican portion of Barrier Zone only.						
1963	61	1,905	8	201	762.5	947.8
1964	264	3,886	54	841	488.9	459.3

\* 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.).





INTERCEPTIONS OF SPECIAL INTEREST AT U.S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on September 30, 1964, follow. These reports are based on identifications received from Federal taxonomists at the U.S. National Museum during the month, and include any of special interest from recent months that were not previously reported.

LEEK MOTH (Acrolepia assectella (Zell.)) in stores at Philadelphia, Pennsylvania.

MEXICAN FRUIT FLY (Anastrepha ludens (Loew)) 93 times in baggage, cargo, stores and quarters; at Brownsville (28), Eagle Pass (5), Progreso (1), San Antonio (1), Corpus Christi (1), Laredo (18), Houston (1), Galveston (1), Roma (7), and El Paso (12), Texas; Tampa (2) and Pensacola (1), Florida; John F. Kennedy International Airport (5), New York; Nogales (3), Arizona; San Ysidro (4) and Calexico (3), California.

CHILEAN GRAPE MITE (Brevipalpus chilensis Baker) 3 times on lemon in stores at Miami, Florida.

A BRUCHID (Bruchus tristiculus Fahr.) once in mail at Hoboken, New Jersey.

A BRUCHID (Callosobruchus analis (F.), or probably that species) (a pest of legumes in southern Asia) in stores once each at Honolulu, Hawaii, and Wilmington, North Carolina.

PEACH FRUIT MOTH (Carposina niponensis Wlsm.) in stores once each at Wilmington, North Carolina, and Baton Rouge, Louisiana.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 54 times in baggage, stores and cargo; at Tampa (1) and Miami (1), Florida; Savannah (1), Georgia; Baltimore (1), Maryland; Chicago (2), Illinois; New York (3) and John F. Kennedy International Airport (7), New York; New Orleans (2), Louisiana; and 36 times in Hawaii.

ASIATIC RICE BORER (Chilo suppressalis (Wlk.)) 19 times in baggage, quarters, stores and cargo; at Corpus Christi (1), Texas; Travis AFB (1), San Diego (5) and San Francisco (1), California; and 11 times in Hawaii.

AN ELATERID (Conoderus rufangulus (Gyll.)) in air cargo of 2 tents at Wilmington, North Carolina.

A WEEVIL (Conotrachelus sp.) (of unknown importance and distribution) in avocado in baggage at Brownsville, Texas.

A WIREWORM (Ctenicera sp.) with rhododendron plants in cargo at Hoboken, New Jersey.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) 21 times in baggage, quarters and cargo; at Seattle (1), Washington; Hawaii (16); and San Francisco (4), California.

YELLOW PEACH MOTH (Dichocrocis punctiferalis (Guen.)) (fruit pest in Asia and Australia) 2 times in cargo and baggage at Seattle, Washington.

A POTATO WEEVIL (Epicaerus sp.) 3 times in stores and baggage; at Brownsville (2) and Roma (1), Texas.

EGGPLANT FRUIT BORER (Leucinodes orbonalis Guen.) in stores at New York, New York.

EUROPEAN CARROT BORER (Phalonia zephyrana (Treit.)) twice in stores of carrots at Philadelphia, Pennsylvania.

A WEEVIL (Premnotrypes sp.) twice in baggage and 6 times in stores in potatoes; at Mobile (1), Alabama; Pensacola (1), Florida; and Galveston (4), Texas.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) 66 times in air stores, air baggage and air quarters; at John F. Kennedy International Airport (54) and New York (1), New York; San Pedro (2), California; Philadelphia (1), Pennsylvania; Boston (1), Massachusetts; Dover (1), Delaware; Norfolk (1), Virginia; and Chicago (5), Illinois.

A NOCTUID MOTH (Sesamia nonagrioides (Lef.)) (larvae a grain pest) in baggage at Boston, Massachusetts.

A STENOMID MOTH (Stenoma catenifer Wlsm.) (a pest of avocado) 9 times in baggage and cargo; at Miami (4), Florida; New Orleans (1), Louisiana; San Diego (1) and San Pedro (1), California; Brownsville (1) and Eagle Pass (1), Texas.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 32 times in cargo, baggage and stores; at Wilmington (4), North Carolina; Charleston (1), South Carolina; John F. Kennedy International Airport (5) and New York (8), New York; Dover (2), Delaware; New Orleans (5), Louisiana; Norfolk (5), Virginia; Philadelphia (1), Pennsylvania; and San Juan (1), Puerto Rico.

A TORTRICID MOTH (Tortrix excessana (Wlk.)) (needle tying species of pines) 5 times in apple cargo; at Honolulu (1), Hawaii; and Charleston (4), South Carolina.

KHAPRA BEETLE (Trogoderma granarium Everts) 91 times in stores, ships holds and infesting or contaminating cargoes of gum Karaya, gum hashab, gum talha, gum arabic, cotton piece goods, tamarind seed powder, rubber, kapok, plywood, chili peppers, rice, beans, peas, burlap bags and wrappings, and wrappings for steel products; at Detroit (7), Michigan; New York (26), New York; Charleston (7), South Carolina; Wilmington (1), North Carolina; New Orleans (4), Louisiana; Seattle (1), Washington; Savannah (2), Georgia; Philadelphia (3), Pennsylvania; Duluth (1), Minnesota; Baltimore (17), Maryland; Houston (2), Texas; Tampa (1) and Jacksonville (2), Florida; Dulles International Airport (1), Virginia; San Francisco (1) and San Pedro (3), California; San Juan (2), Puerto Rico; and Cleveland (6) and Toledo (4), Ohio.

OAT CYST NEMATODE (Heterodera avenae) 3 times; twice at New York, New York, once in ship's baggage and once in ship's cargo; once at Houston, Texas, from soil contaminated automobiles.

GOLDEN NEMATODE (Heterodera rostochiensis) 14 times; 7 times at San Francisco, California, 6 times from soil contaminated automobiles and once in ship's cargo; 4 times at Miami, Florida, one time each with soil from automobiles, in ship's cargo, in plane's baggage, and in ship's stores; once at Baltimore, Maryland, on used tractors; once at Travis AFB, California, with plane's cargo; once at Houston, Texas, with soil from automobiles.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Grain sorghum  
(Commodity or Crop)

A. Pest or pest complex: Sorghum midge, corn earworm, chinch bug, sorghum webworm

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No. <u>5,776,000</u>	No.	<u>2,321,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	<u>42.5 bu.</u>	Units/	<u>17.5 bu.</u>
D. Price <sup>b</sup> per unit ( <u>bu.</u> ) <sup>c</sup> (From CRS)	<u>0.85</u>	\$/	<u>(estimate) 1.50</u>
E. <u>Acres</u> <sup>a</sup> needing control	No. <u>3,500,000</u>	No.	<u>300,000</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>1,500,000</u>	No.	<u>150,000</u>
G. Reduction due to not treating where needed:			
H. Loss in yield, percent	<u>35</u>	%	<u>10</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	<u>14.8 bu.</u>	Units/	<u>1.75 bu.</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	<u>12.58</u>	\$/	<u>2.62</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	<u>-----</u>	\$/	<u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>29,600,000 bu.</u>	Units	<u>262,500 bu.</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	<u>2.00</u>	\$/	<u>1.00</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>3,000,000</u>	\$	<u>150,000</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>25,160,000</u>	\$	<u>393,000</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>-----</u>	\$	<u>-----</u>
Q. Combined control cost and losses, N + O + P	\$ <u>28,160,000</u>	\$	<u>543,000</u>
R. Percent loss due to each insect in the complex:			

Comment: Figures do not include seed treatments. This estimate is based only on sorghum grain and does not include forage or silage.

- 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 M. V. Weisich  
Date May 6, 1964

ATTACKING Wheat  
(Commodity or Crop)

A. Pest or pest complex: Greenbug, winter grain mite, fall armyworm, armyworm

B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No. <u>2,321,000</u>	No.	<u>2,321,000</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	<u>17.5 bu.</u>	Units/	<u>17.5 bu.</u>
D. Price <sup>b</sup> per unit ( <u>bu.</u> ) <sup>c</sup> (From CRS)	<u>(estimate) 1.50</u>	\$/	<u>(estimate) 1.50</u>
E. <u>Acres</u> <sup>a</sup> needing control	No. <u>300,000</u>	No.	<u>300,000</u>
F. <u>Acres</u> <sup>a</sup> treated	No. <u>150,000</u>	No.	<u>150,000</u>
G. Reduction due to not treating where needed:			
H. Loss in yield, percent	<u>10</u>	%	<u>10</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	<u>1.75 bu.</u>	Units/	<u>1.75 bu.</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	<u>2.62</u>	\$/	<u>2.62</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	<u>-----</u>	\$/	<u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units <u>262,500 bu.</u>	Units	<u>262,500 bu.</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	<u>1.00</u>	\$/	<u>1.00</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$ <u>150,000</u>	\$	<u>150,000</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$ <u>393,000</u>	\$	<u>393,000</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$ <u>-----</u>	\$	<u>-----</u>
Q. Combined control cost and losses, N + O + P	\$ <u>543,000</u>	\$	<u>543,000</u>
R. Percent loss due to each insect in the complex:			

Comment: Yields were below average due to winter kill and spring drought.

- 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 M. V. Weisich  
Date May 6, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Cotton (lint) IN Texas DURING 1963  
 (Commodity) (State or District) (Year)

A. Pest or pest complex: <u>Spider mites, aphids, thrips, fleahoppers, boll weevil, tobacco budworm, bollworm, cotton leafworm, pink bollworm, beet armyworm, cabbage looper</u>			
B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No.	<u>5,875,000 (harvested)</u>	
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/	<u>379 lbs.</u>	
D. Price <sup>b</sup> per unit ( <u>pound</u> ) <sup>c</sup> (From CRS)	\$/	<u>0.30 (estimated)</u>	
E. <u>Acres</u> <sup>a</sup> needing control	No.	<u>4,700,000</u>	
F. <u>Acres</u> <sup>a</sup> treated	No.	<u>3,700,000</u>	
G. Reduction due to not treating where needed:			
H. Loss in yield, percent	%	<u>25</u>	
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/	<u>94.75 lbs.</u>	
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/	<u>28.43</u>	
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>1.00</u>	
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units	<u>94,750,000 lbs.</u>	
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>10.00</u>	
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$	<u>37,000,000</u>	
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$	<u>28,430,000</u>	
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$	<u>1,000,000</u>	
Q. Combined control cost and losses, N + O + P	\$	<u>66,430,000</u>	
R. Percent loss due to each insect in the complex: _____			

Comment: These figures apply only to insect loss. Loss from disease is not calculated as losses due to insects and diseases are extremely difficult to calculate.

- 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 M. V. Meisch

Date May 6, 1964



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS



VOL. 14 No. 49

December 4, 1964

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*Ent*  
*Cooperative*

**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

LYGUS BUGS increased slightly on alfalfa in Yuma and Maricopa Counties, and WESTERN BROWN STINK BUG ranged 40-50 per 100 sweeps on same crop in Yuma Valley, Arizona. MEXICAN BEAN BEETLE adults entering hibernation in rather high numbers in Morgan and Henry Counties, Alabama. (p. 1269). Single male adult of a SUGARCANE ROOTSTALK BORER (Diaprepes abbreviatus) collected feeding on citrus foliage at a nursery in Apopka, Florida. (p. 1270).

DETECTION

New county records reported were a BARK BEETLE (Pityophthorus juglandis) from Orange County, California, (p. 1271), and SHALLOT APHID (Myzus ascalonicus) from Walla Walla County, Washington, (p. 1273). Report of shallot aphid in Walla Walla County is also first record of this aphid in eastern Washington.

CORRECTIONS

See page 1273.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1275).

Stored-Grain Insect Survey in Kansas - 1964. (pp. 1276-1278).

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

WEATHER BUREAU'S 30-DAY OUTLOOK

DECEMBER 1964

The Weather Bureau's 30-day outlook for December calls for temperatures to average below seasonal normals east of the Rockies except for near to above normal in the Northeast. Greatest negative departures are expected in the middle Mississippi Valley. Above normal temperatures are predicted for the region west of the Rockies, while near normal temperatures are anticipated in unspecified areas. Precipitation is expected to exceed normal over the Middle and North Atlantic States, the Great Lakes region and the northern Plains, as well as Florida. Sub-normal totals are predicted for the southwestern quadrant of the Nation, southern Plains, and the lower Mississippi Valley. Elsewhere near normal amounts are anticipated.

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 30

Arctic air continued its grip over the northern Great Plains, spreading eastward near the end of the week. Storms buffeted the coast in the Far Northwest and portions of the Deep South received generous rains from thunderstorms.

**TEMPERATURE:** Milder temperatures returned to the South and East during the first part of the week. Thursday was especially mild when afternoon temperatures ranged from the 80's over portions of Texas to the 60's in eastern New York. Burlington, Vermont, registered 60° on Thursday afternoon when Corpus Christi and Laredo, Texas, recorded 87°. Cold, dry air continued to pour into the northern Great Plains. Fargo, North Dakota, became progressively colder with minimums dropping from 10° above zero on Monday, November 23, to 22° below zero by Monday, November 30. The temperatures fell to zero as far south as southern Nebraska and below 20° as far south as southern Missouri. Temperatures averaged below normal north of a line from Tucson, Arizona, to Sault Ste. Marie, Michigan, and above normal over most of the area south of that line. Weekly temperature departures ranged from +8° at Roswell, New Mexico, to -21° at Glasgow, Montana. Central and eastern Montana and most of the Dakotas averaged more than 10° below normal.

**PRECIPITATION:** Heavy rains and strong gusty winds moved inland in the Far Northwest. Rains occurred daily west of the Cascades and were frequent east of the mountains. Areas along the coast received from 3 to 6 inches of rain during the week. Thunderstorms produced generous rains over Mississippi, Alabama, and portions of nearby States on Tuesday, Friday, and Saturday. Rains fell along the Atlantic coast on Wednesday and Saturday. The Great Lakes region and Ohio River Valley received precipitation during the last half of the week. Most of Arizona, New Mexico, Texas (except the extreme southeast), Oklahoma, and Kansas received no rain. Snow accumulated to 30 to 45 inches above 3,000 feet in the Cascade Mountains in Washington. Snow also fell over the northern and central Rocky Mountains and the northern and central Great Plains. Snow depths reached 3 to 5 inches in northeastern Missouri and west-central Illinois. Portions of Michigan near Lake Superior and Lake Michigan lay under more than 20 inches of snow at the end of the week. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Averaged 2 per sweep in uncut alfalfa in Brodhead area, Green County; examination of new growth near ground revealed 6-12 per stem consisting of nymphs, oviparae and alate viviparae. Eggs averaged 13 per stem on same shoots. Egg counts on dried, woody stems averaged 14.9 per stem in same field; 11 percent recently laid, indicating some deposition on warmer days. Egg laying completed for practical purposes. Egg counts in field near Evansville, Rock County, where populations reached 30 per sweep October 28, averaged 0.65 per stem. (Wis. Ins. Sur.). OKLAHOMA - Averaged 15 per 10 sweeps in alfalfa in Jackson County; very light to absent in other fields checked. (Okla. Coop. Sur.). ARKANSAS - Low in alfalfa in northwest area; ranged 0-5 per square foot. (Ark. Ins. Sur.). NEW MEXICO - Very light in alfalfa in Hidalgo, Lunas and Dona Ana Counties. (N.M. Coop. Rpt.). FLORIDA - Common in alfalfa in Gainesville, Alachua County. (Mead, Nov. 19).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Oviparae continue present and ovipositing in alfalfa fields examined. (Wis. Ins. Sur.). ARKANSAS - Low in alfalfa and vetch; 5-10 per square foot in northwest area. (Ark. Ins. Sur.). NEW MEXICO - Continues light in alfalfa checked in Hidalgo, Luna and Dona Ana Counties. (N.M. Coop. Rpt.).

LEAFHOPPERS - FLORIDA - Following species taken in 100 sweeps in clean-cultivated alfalfa at Gainesville, Alachua County: Cuerna costalis 3, Macrosteles fascifrons (six-spotted leafhopper) 1, Aceratagallia sanguinolenta (clover leafhopper) 2, Balclutha sp. 2, Xerophloea viridis 1 and Empoasca sp. 4. (Mead, Nov. 19).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increased slightly; averaged 50 per 100 sweeps in alfalfa in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

WESTERN BROWN STINK BUG (Euschistus impictiventris) - ARIZONA - Ranged 40-50 per 100 sweeps in Yuma Valley alfalfa, Yuma County. (Ariz. Coop. Sur.).

PLANT BUGS - FLORIDA - Total of 17 Taylorilygus pallidulus and 2 Spanogonicus albofasciatus taken in 100 sweeps in clean-cultivated alfalfa in Gainesville, Alachua County. (Mead, Nov. 19).

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Continues active in alfalfa in Jackson and Tillman Counties; averaged 2 per 10 sweeps. (Okla. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Noted on alfalfa in Martin County. (Hanson, Nov. 20).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Total of 154 adults taken in 10 sweeps in alfalfa at Gambrills, Anne Arundel County. Eggs and larvae observed in alfalfa in 2 other locations in county. (U. Md., Ent. Dept., Nov. 10).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - One to two adults per 18 square-foot sample taken near gardens and soybeans in Morgan County; occasional adult taken in Henry County. (McQueen).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Rather high number of adults noted entering hibernation in Morgan and Henry Counties. (McQueen).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Light (1-4 per linear foot) present in wheat in Tillman, Jackson, Greer, Garfield, Kingfisher, Blaine and Major Counties. (Okla. Coop. Sur.). ARKANSAS - Surveys negative in northwest area. (Ark. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light (1-5 per linear foot) in wheat in most of western third of State; field in Caddo County (west central) with 25 per linear foot. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Active in wheat in north-west area; counts light. (Okla. Coop. Sur.).

A SUGARCANE ROOTSTALK BORER (Diaprepes abbreviatus) - FLORIDA - Single male adult of this weevil collected feeding on citrus foliage at a nursery in Apopka, Orange County, on September 25, 1964, by C. J. Musgrove. Tentatively determined as this species at time of collection by R. E. Woodruff. Determination confirmed by Patricia Vaurie, The American Museum of Natural History, New York, under date of November 16, 1964. This is apparently the first collection of this Caribbean species in the continental United States. Further survey revealed no additional specimens. (Fla. Coop. Sur.). This is a large, black, leaf-feeding weevil scaled with white, cream, yellow, pink or chestnut; larvae bore in the rootstalk of sugarcane or the roots or tubers of many other hosts. Definite records are available of larvae collected in the field attacking roots of sugarcane, grapefruit, pepper and lima beans. Attack by larger larvae on rootstalks of sugarcane, into which they burrow, has long been known in Puerto Rico. This has been considered the principal injury to crops caused by this pest. Larvae have also been found in seed corn just beginning to sprout, taproots of papaya, and mahogany. Adults feed on leaves of sugarcane, cotton, citrus, coffee and all kinds of native and imported vegetables, as well as practically every endemic and foreign tree in the West Indies. Eggs are normally laid in clusters between leaves, or between split tips of a single cane leaf stuck together with an adhesive. Female rarely chooses tender leaves on which adults may feed, but selects old, tough leaves, usually at some distance from where other beetles are congregated.

A DARKLING BEETLE (Opatrinus sp.) - TEXAS - Locally heavy on lawn grasses and causing concern to homeowners in Nueces County. (Texas Coop. Rpt., Sublett, Nov. 20).

AN ARMORED SCALE (Odonaspis ruthae) - TEXAS - Locally heavy and damaging to Bermuda grass pastures in Rusk County. (Meisch, Burton, Nov. 11).

#### FRUIT INSECTS

DRIED-FRUIT BEETLE (Carpophilus hemipterus) - ARIZONA - Infesting ripe lemons in some areas of Yuma County. (Ariz. Coop. Sur.).

A SPIDER MITE (Eotetranychus lewisi) - CALIFORNIA - Locally heavy on sapote trees in Bonsall, San Diego County. (Cal. Coop. Rpt.).

#### TRUCK CROP INSECTS

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Increasing in lettuce fields in Yuma and Maricopa Counties; noted in sugar beet fields in Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Continues troublesome on lettuce in Maricopa and Yuma Counties; controls necessary. (Ariz. Coop. Sur.).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Overwintering larvae building up in some Fresno County strawberry fields. (Cal. Coop. Rpt.).

A WEEVIL (Nemocestes incomptus) - WASHINGTON - Larvae, pupae and adults severe on strawberries at Payallup, Pierce County; definite brood emerging and apparently quite general in area. (Breakey, Nov. 1).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Medium to heavy in southern Dona Ana and Luna Counties. Light infestations and damage noted in Dona Ana and Hidalgo Counties. (N.M. Coop. Rpt.). ARIZONA - Infestations continue in Maricopa and Pinal Counties; 3 infestations found in Marana area, Pima County. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Light to heavy above Cap Rock in eastern portions of Floyd and Crosby Counties and below Cap Rock in Dickens, Motley and Kent Counties. Ranged 100 to as high as 5,000 adults per acre. (Rummel, Nov. 20).

PALE-STRIPED FLEA BEETLE (Systema blanda) - ALABAMA - Adults quite noticeable; hibernating in woods trash near cotton fields. (McQueen).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WILLOW BEAKED-GALL MIDGE (Phytophaga rigidae) - MARYLAND - Galls numerous on pussy willow in District Heights, Prince Georges County. (U. Md., Ent. Dept.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MARYLAND - Heavy on maple at Ridgely, Caroline County. (U. Md., Ent. Dept.).

A BUPRESTID BEETLE (Agrilus sp.) - UTAH - Damaged honeylocust trees at Smithfield, Cache County. (Knowlton).

A BARK BEETLE (Pityophthorus juglandis) - CALIFORNIA - Adults light on bark of native black walnut in Olinda, Orange County. This is a new county record and 30 miles southwest of nearest previously reported find at Colton, San Bernardino County. (Cal. Coop. Rpt., Sept. 17).

A SPIDER MITE (Oligonychus coniferarum) - FLORIDA - Adults moderate on stem and foliage of Italian cypress at nursery at Fort Lauderdale, Broward County. (Clinton, Nov. 12).

APHIDS - MARYLAND - Lachnus salignus persistent on pussy willow in Baltimore area. (U. Md., Ent. Dept.). DELAWARE - Myzus persicae (green peach aphid) present on chrysanthemums locally in New Castle County. (Kelsey). NEBRASKA - Longistigma caryae (giant bark aphid) present on willows in Perkins County. (Bergman).

BLACK CITRUS APHID (Toxoptera aurantii) - FLORIDA - Adults and nymphs taken on coffee in greenhouse at Gainesville, Alachua County. (Stokes, Nov. 18). This is new host record for Florida Division of Plant Industry. (Fla. Coop. Sur.).

MEALYBUGS - CALIFORNIA - Phenacoccus solani medium on hibiscus plants in El Centro, Imperial County. Heavy populations of Pseudococcus citri (citrus mealybug) noted on cactus nursery stock along with Eriococcus coccineus (a dactylopiid scale) in Nevada City, Nevada County. Pseudococcus obscurus medium on pomegranate fruit in Vista, San Diego County. (Cal. Coop. Rpt.).

Coccids in Florida - All stages of Fiorinia theae (tea scale) on leaves of Camellia sp. and Ceroplastes floridensis (Florida wax scale) on stem and leaves of holly general and severe in nursery in Okahumpka, Lake County. (Fatic, Nov. 19). Adults of Aonidiella taxus localized on leaves of podocarpus at Gainesville, Alachua County. (Graham, Nov. 20).

CACTUS SCALE (Diaspis echinocacti) - ARIZONA - Infested cactus gardens in yards of homes in Yuma County. (Ariz. Coop. Sur.).

A WEEVIL (Nemocestes incomptus) - WASHINGTON - Larvae, pupae and adults severe on azalea at Long Beach, Pacific County; definite brood emerging and apparently quite general in area. (Breakey, Nov. 1).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - FLORIDA - Culiseta inornata taken at twilight biting man at City Park at Gainesville, Alachua County. (Mead). TEXAS - Culex salinarius occurring in considerable numbers in Port Arthur area, and in comparatively large numbers in south part of Beaumont, Jefferson County. Aedes taeniorhynchus and A. vexans occurred in significant numbers in southern Beaumont; same locality disclosed first Culiseta inornata females to leave aestivation. (Jefferson Co. Mosq. Contr. Comm., Oct. Rpt.).

BROWN DOG TICK (Rhipicephalus sanguineus) - OKLAHOMA - Causing problems in homes in Payne County. (Okla. Coop. Sur.). MARYLAND - Persistent on dog in La Plata, Charles County. (U. Md., Ent. Dept.).

WASPS - OKLAHOMA - Annoying in homes in Mayes and Cleveland Counties. (Okla. Coop. Sur.).

#### HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - DELAWARE - Abundant in and around homes in parts of New Castle County. (Burbutis). MARYLAND - Annoying about property in Easton, Talbot County. (U. Md., Ent. Dept., Nov. 19). UTAH - Invading home at Holladay, Salt Lake County. (Knowlton).

BROWN-BANDED COCKROACH (Supella supellectilium) - UTAH - Infesting two apartments at Logan, Cache County, and one at Salt Lake City, Salt Lake County. (Knowlton).

LARGER YELLOW ANT (Acanthomyops interjectus) - MARYLAND - Winged forms observed around homes in Baltimore and Howard Counties. (U. Md., Ent. Dept.).

CLOVER MITE (Bryobia praetiosa) - DELAWARE - Remains nuisance pest in New Castle County. (Burbutis).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - ALABAMA - Present in two homes in Auburn, Lee County. (McQueen).

YELLOW MEALWORM (Tenebrio molitor) - MARYLAND - Larvae found associated with termite infested wood in attic of home at Annapolis, Anne Arundel County. (U. Md., Ent. Dept., Nov. 19).

CIGARETTE BEETLE (Lasioderma serricorne) - MARYLAND - Adults numerous in kitchen of home in Baltimore. (U. Md., Ent. Dept.).

DRUGSTORE BEETLE (Stegobium paniceum) - OKLAHOMA - Infesting stored products in homes in Tulsa and Payne Counties. (Okla. Coop. Sur.).

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - CALIFORNIA - Heavy flights occurred throughout State during past 2 weeks. (Cal. Coop. Rpt.).

#### STORED-PRODUCT INSECTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - TEXAS - Heavy at commercial food-shipping concern in Cameron County. (Texas Coop. Rpt., Stephens, Nov. 20). ARIZONA - Found in stored grain in Yuma County. (Ariz. Coop. Sur.).

RED FLOUR BEETLE (Tribolium castaneum) - TEXAS - Heavy at commercial food-shipping concern in Cameron County. (Texas. Coop. Rpt., Stephens, Nov. 20). FLORIDA - Found in feedstore at Ocala, Marion County. (Robertson, Nov. 19).

CADELLE (Tenebroides mauritanicus) - TEXAS - Heavy locally in farm-stored grain in Williamson County. (Texas Coop. Rpt., Williams, Nov. 20).

A BOSTRICHID BEETLE (Prostephanus truncatus) - TEXAS - Locally heavy in farm-stored grain in Williamson County. (Texas Coop. Rpt., Williams, Nov. 20).

CIGARETTE BEETLE (Lasioderma serricorne) - FLORIDA - Noted in feedstore at Ocala, Marion County. (Robertson, Nov. 19).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - FLORIDA - Found in feedstore at Ocala, Marion County. (Robertson, Nov. 19). TEXAS - Heavy in commercial food-shipping concern in Cameron County. (Texas Coop. Rpt., Stephens, Nov. 20). NEW MEXICO - A grain beetle, probably this species, heavy in chicken feed in store in Lea County. (N.M. Coop. Rpt.).

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Light to medium in feedstores in Lea County. (N.M. Coop. Rpt.).

#### MISCELLANEOUS INSECTS

SHALLOT APHID (Myzus ascalonicus) - WASHINGTON - Apteræ and alatae collected on violet (Viola sp.) near home at Walla Walla, Walla Walla County, April 14; caused rolling of leaves. This is first record from Walla Walla County and in eastern part of State. (Landis).

A LEAFHOPPER (Oncometopsis undata) - FLORIDA - Adult stage taken in Steiner trap at St. Petersburg, Pinellas County. (Fuller, Nov. 19).

AN ASSASSIN BUG (Empicoris reticulatus) - CALIFORNIA - Collected June 1, 1964, by R. Duke at Tecate, San Diego County. Det. by R. C. Froeschner. This is first collection of this species on the west coast. (Cal. Coop. Rpt.).

PUMPKIN CATERPILLAR (Diaphania indica) - FLORIDA - Adults taken November 20 in Steiner trap at St. Petersburg (Baker) and in Steiner trap at Pinellas Park, Pinellas County (Kelly).

#### CORRECTIONS

CEIR 14(27): 713 - CEREAL LEAF BEETLE (Oulema melanopa) - INDIANA - Delete Adams County; specimens determined as Lema sp.

CEIR 14(48):1257 - APHIDS - NEW MEXICO - Change Cinara thujafilina to read Cinara tujafilina.



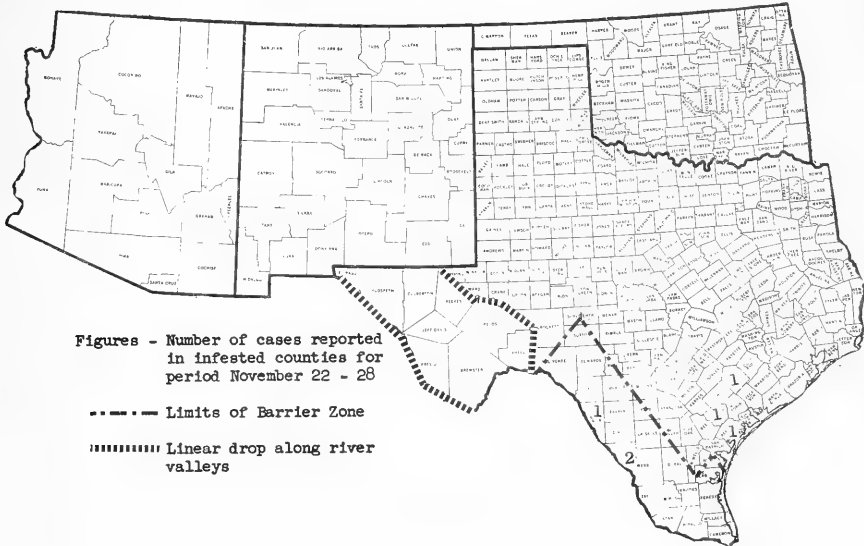


STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period November 22 - 28, TEXAS reported 6 screw-worm cases in 5 counties: 2 cases in Webb County, and one case each in Maverick, Refugio, Lavaca and Goliad Counties. No cases were reported from NEW MEXICO or ARIZONA, nor were any reported from the Republic of Mexico. Sterile screw-worm flies released: Texas 23,784,650, New Mexico 1,920,000, Arizona 1,920,000 and Mexico 55,692,000.

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	432	49,968	63	3,014	685.71	1,657.86
1963	92	6,305	150	7,118	61.33	88.57
1964	6	237	73	6,064	8.21	3.90
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	66	5,767	29	1,350	227.58	427.18
1964	3	4,131	14	1,947	21.42	212.17
Table 2A. Mexican portion of Barrier Zone only.						
1963	12	1,917	13	214	92.30	895.79
1964	0	3,886	0	841	0.0	462.06

\* 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.).



Figures - Number of cases reported in infested counties for period November 22 - 28

--- Limits of Barrier Zone

..... Linear drop along river valleys

STORED-GRAIN INSECT SURVEY IN KANSAS - 1964

Surveys were made during September to determine the insect problems in stored grain in Kansas for 1964. Stops were made in 35 counties. Cooperators were: W. Brandt, D. LaHue and J. Schesser, U.S. Department of Agriculture; R. Mills, Kansas State University; and E. Martinez and L. Peters, Kansas State Board of Agriculture.

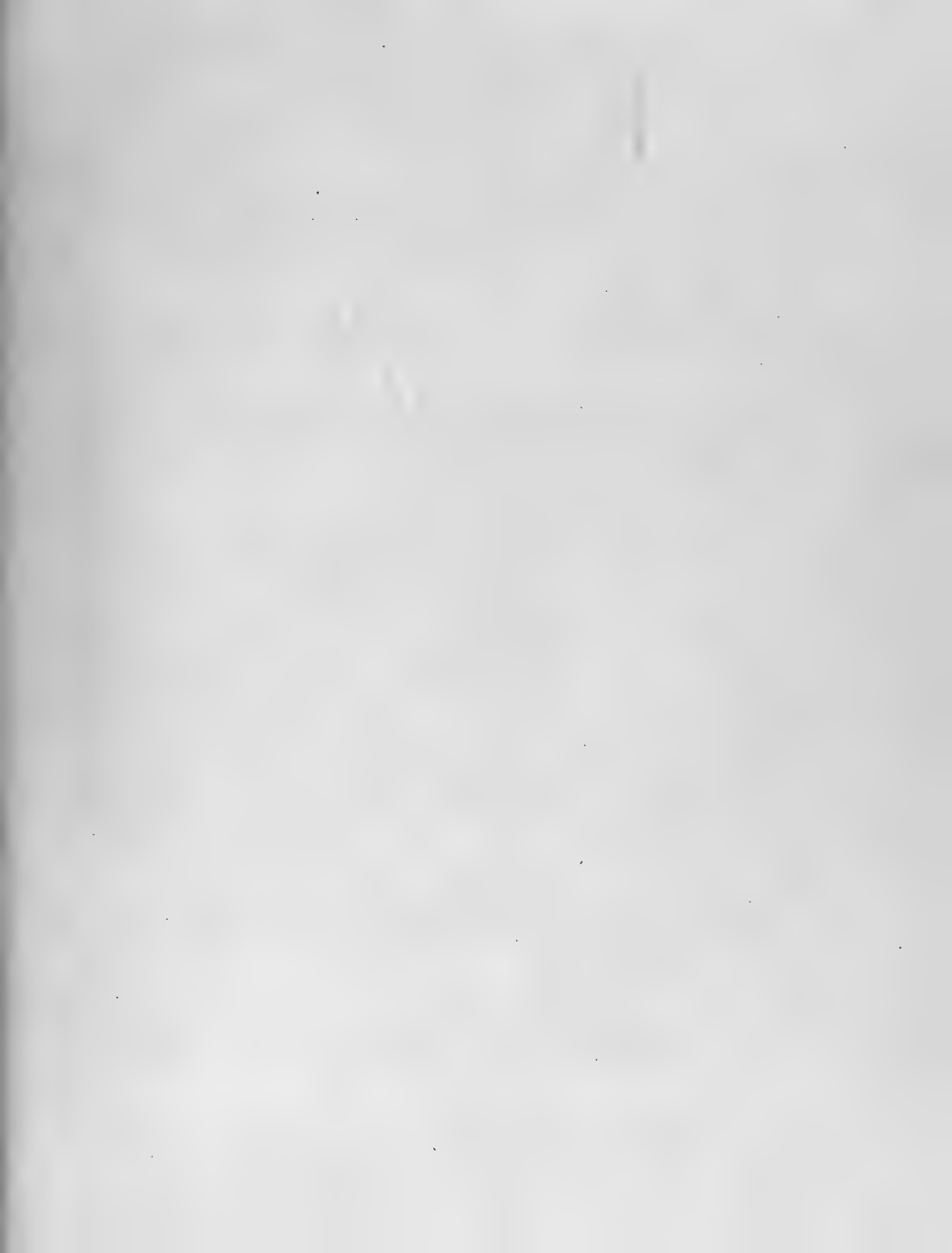
Host	Insect	No. Samples		Insects per inf. 1,000 gram sample		Districts infested				
		infested	non- infested	range	average	NE	EC	C	SC	SW
Wheat	STGB	31	32	0.3-32.0	3.5	+	+	+	+	-
	RGB	18	45	0.3-18.0	4.0	+	-	+	+	-
	RW	15	48	0.7- 3.5	1.8	-	+	-	+	-
	RFB	11	52	0.3- 8.0	2.0	+	+	+	+	-
	FGB	10	53	0.3- 3.0	1.2	-	+	-	+	-
	LGB	10	53	0.3-20.0	3.1	+	+	-	+	-
	Imm	9	54	0.3- 4.0	1.6	+	+	+	-	+
	Cad	8	55	0.4- 2.0	0.8	+	+	+	-	+
	Ang	4	59	trace		+	-	-	-	-
	GW	3	60	0.3- 2.4	1.2	+	+	-	+	-
	DermeStids	3	60	0.3-50.0	16.9	+	-	+	-	-
	Psocids	2	61	numerous		+	-	-	-	-
	Mites	2	61	variable		-	-	-	+	-
	For GB	2	61	0.3- 0.4	0.4	-	+	-	-	-
	HFB	1	62		3.0	-	-	+	-	-
	TBFB	1	62		1.0	-	-	-	+	-
	DM	1	62		6.0	-	-	-	+	-
CSB	1	62		1.6	-	+	-	-	-	
Chalcids	1	62	light		-	-	-	+	-	
15 samples not infested (total 63 samples)										
Sorghum	STGB	20	5	0.3-35.0	4.7	+	+	+	+	+
	RGB	13	12	0.3-120.0	15.2	+	+	+	+	+
	RW	10	15	0.7- 3.3	1.7	-	+	-	+	-
	GW	9	16	0.3- 3.0	1.7	-	+	+	-	-
	RFB	7	18	0.7- 4.0	1.9	-	+	+	-	+
	Cad	6	19	trace-12.0	0.8	+	+	+	-	-
	Imm	6	19	0.7-20.0	1.9	+	-	+	-	+
	LGB	6	19	0.3-20.0	4.4	-	+	+	+	-
	Ang	6	19	numerous		-	+	-	-	-
	For GB	4	21	0.3- 1.0	0.6	-	+	-	-	-
	FGB	3	22	0.3- 1.0	0.5	-	-	-	+	-
	Psocids	3	22	trace-0.4		-	+	+	-	-
	DermeStids	3	22	1.0-50.0	26.5	+	-	+	-	-
	HFB	2	23	0.8- 3.0	1.9	-	+	+	-	-
	CFB	2	23	0.3- 0.8	0.6	-	+	-	-	-
Chalcids	2	23	trace-0.5		-	-	+	-	-	
Mites	1	24		1.0	-	-	+	-	-	
2 samples not infested (total 25 samples)										
Oats	STGB	10	4	0.4-35.0	7.2	+	+	+	-	-
	RGB	6	8	0.3-120.0	20.7	+	+	+	+	-
	RFB	6	8	0.7- 2.7	1.8	+	+	+	-	-
	Ang	6	8	numerous		+	+	+	-	-
	LGB	5	9	0.2-20.0	4.4	+	+	+	-	-
	RW	4	10	0.7- 3.3	1.7	+	+	-	-	-
	For GB	3	11	0.2- 4.0	1.7	+	+	-	-	-
	SEFB	2	12	0.3- 1.2	0.8	+	+	-	-	-
	CFB	2	12	0.4- 1.3	0.9	-	+	-	-	-
	Imm	2	12	trace		+	-	-	-	-

Host	Insect	No. Samples		Insects per inf.		Districts infested				
		infested	non-infested	range	average	NE	EC	C	SC	SW
Oats (Continued)										
	Cad	2	12	trace-0.4		+	+	-	-	-
	HFB	1	13		1.0	+	-	-	-	-
	Psocids	1	13	trace		-	-	+	-	-
	Chalcids	1	13	trace		-	-	+	-	-
	Mites	1	13		1.0	-	-	+	-	-
	GW	1	13		1.2	-	+	-	-	-
	FGB	1	13		0.7	+	-	-	-	-
	(total 14 samples)									
Corn										
	Ang	4	1	numerous		+	+	-	-	-
	RW	3	2	0.7- 3.3	1.6	-	+	-	-	-
	STGB	2	3	0.3-10.0	5.2	+	+	-	-	-
	RFB	2	3	1.6- 2.3	2.0	-	-	+	-	-
	LGB	2	3	0.3- 0.7	0.5	-	+	-	-	-
	HFB	1	4		8.0	+	-	-	-	-
	GW	1	4		3.0	-	+	-	-	-
	FGB	1	4		0.3	-	+	-	-	-
	RGB	1	4		0.3	-	+	-	-	-
	Cad	1	4	trace		-	+	-	-	-
	(total 5 samples)									
Barley										
	STGB	4	1	1.2-35.0	13.1	-	+	+	-	-
	LGB	3	2	4.0-20.0	11.5	-	-	+	-	-
	RGB	3	2	1.5-120.0	31.3	-	-	+	-	-
	Psocids	2	3	trace		-	-	+	-	-
	SEFB	1	4		2.5	-	-	+	-	-
	GW	1	4		20.5	-	-	+	-	-
	Chalcids	1	4		10.0	-	-	+	-	-
	RFB	1	4		0.7	-	-	+	-	-
	Mites	1	4		1.0	-	-	+	-	-
	Dermestids	1	4		0.5	-	-	+	-	-
	For GB	1	4		0.4	-	+	-	-	-
	Ang	1	4	numerous		-	+	-	-	-
	1 sample not infested (total 5 samples)									
Around storage, dust and debris										
	Imm	4	3	numerous		-	-	+	+	-
	HFB	3	4	8.0-192.0	66.0	-	-	+	-	-
	For GB	2	5	numerous		-	-	+	-	-
	GW	1	6	numerous		-	-	+	-	-
	RFB	1	6		1.0	-	-	-	+	-
	SEFB	1	6	numerous		-	-	+	-	-
	RGB	1	6	numerous		-	-	+	-	-
	TBFB	1	6	numerous		-	-	+	-	-
	Dermestids	1	6	numerous		-	-	+	-	-
	CSB	1	6		20.0	-	-	+	-	-
	ALB	1	6		12.0	-	-	+	-	-

Key to abbreviations on following page.

Key to Abbreviations for Stored-Grain Insects

ALB	An ant-like beetle	<u>Anthicus floralis</u>
Ang	Angoumois grain moth	<u>Sitotroga cerealella</u>
Cad	Cadelle	<u>Tenebroides mauritanicus</u>
CFB	Confused flour beetle	<u>Tribolium confusum</u>
CSB	Corn sap beetle	<u>Carpophilus dimidiatus</u>
DM	Dark mealworm	<u>Tenebrio obscurus</u>
FGB	Flat grain beetle	<u>Cryptolestes pusillus</u>
For GB	Foreign grain beetle	<u>Ahasverus advena</u>
GW	Granary weevil	<u>Sitophilus granarius</u>
HFB	A hairy fungus beetle	<u>Typhaea stercorea</u>
Imm	Indian-meal moth	<u>Plodia interpunctella</u>
LGB	Lesser grain borer	<u>Rhyzopertha dominica</u>
RFB	Red flour beetle	<u>Tribolium castaneum</u>
RGB	Rusty grain beetle	<u>Cryptolestes ferrugineus</u>
RW	Rice weevil	<u>Sitophilus oryzae</u> (may be species complex)
SEFB	A small-eyed flour beetle	<u>Palorus ratzeburgi</u>
STGB	Saw-toothed grain beetle	<u>Oryzaephilus surinamensis</u>
TBFB	A two-banded fungus beetle	<u>Alphitophagus bifasciatus</u>



UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

POSTAGE AND FEES PAID  
U.S. DEPARTMENT OF AGRICULTURE

OFFICIAL BUSINESS



VOL. 14 No. 50

December 11, 1964

SB  
823  
C77

*Ent*

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SOUTHWESTERN CORN BORER survey for 1964 in Missouri completed; found for first time in Cape Girardeau County. Pattern of infestation generally same as in 1962 and 1963; high populations generally present in southern portion of infested area, with populations lower in northern area. (p. 1282).

Upward trend of CITRUS RUST MITE will keep population on Florida citrus in high range during December, and strong upward trend of TEXAS CITRUS MITE now underway in same area will keep population of this mite above average during same period. (p. 1282).

Medium to heavy populations of CABBAGE LOOPER damaging truck crops in scattered areas of Maricopa and Yuma Counties, Arizona. (p. 1283).

DETECTION

New county records were SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) in Cape Girardeau County, Missouri, (p. 1281), and SPRUCE NEEDLE MINER (*Taniva albolineana*) in Plumas County, California, (p. 1283).

CORRECTIONS

See page 1285.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1286). Screw-worm cases in Southwestern Eradication Area plummeted from yearly high of 30 cases 2 weeks ago to zero during period November 29-December 5.

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Corn for Grain, All Hay, Wheat, Oats, Soybeans (for beans), Tobacco and Sugar Beets in Ohio in 1963. (pp. 1287-1290).

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

WEATHER OF THE WEEK ENDING DECEMBER 7

Winter continued its grip over most of the Nation. Snow fell from Washington State to Maine and as far south as Oklahoma. Heavy rains fell over parts of some Southern States.

TEMPERATURE: Arctic air covered the eastern half of the Nation at the beginning of the week. Valley City, North Dakota, registered 31° below zero on November 30. Temperatures dropped to below zero every night in northern Wisconsin. Over most of the North-Central and Northeastern States, it was the coldest week of the season. The cold extended to the Gulf of Mexico. Hard freezes occurred in Alabama and Tampa, Florida, registered 32° on Tuesday, December 1. Weekly temperatures averaged below normal from the Continental Divide to the Atlantic Ocean. Much of the northern and central Great Plains averaged 15° colder than normal. Most of the country west of the Divide averaged 1° to 4° above normal.

PRECIPITATION: Snow fell over the Northern States from the Cascade Mountains to Maine. Snow accumulated to 40 inches above 5,000 feet in Washington, to 12 to 18 inches in northern Michigan, and to 49 inches at Eastport, Maine. The Oklahoma Panhandle received 7 to 12 inches. Northern Indiana received 8 inches near Lake Michigan. Light snow fell in West Virginia.

Sleet and freezing rain made highway travel difficult south of the snow belt. Further south, where warm, moist gulf air met the colder air, local heavy rains occurred. Excessive rains in southern Georgia on Thursday and Friday caused extensive damage to roads and farmlands. Two train derailments occurred where the roadbeds had been weakened or washed out. Spots in Georgia and Louisiana received over 8 inches of rain. Portions of northeastern Texas, Arkansas, Tennessee, and Kentucky received more than 2 inches. Two-inch totals were also common along the Washington and Oregon coast. No rain or only light sprinkles fell over southern Arizona and central and southern Texas. Precipitation over the Rocky Mountains and the northern and central Great Plains was generally less than 0.50 inch. (Summary supplied by U.S. Weather Bureau).



DELPHACID PLANTHOPPERS - FLORIDA - Following species taken on rice at Kramer Island, Belle Glade, Palm Beach County: Sogata sp., 2 adult females; S. furcifera complex, one adult male; S. cubana, one adult male; and Delphacodes sp., one adult. (Humphries, Nov. 13).

A LEAFHOPPER (Graminella nigrifrons) - FLORIDA - An adult taken on rice at Kramer Island, Belle Glade, Palm Beach County. (Humphries, Nov. 13).

DEVASTATING GRASSHOPPER (Melanoplus devastator) - CALIFORNIA - Adults heavy on grasslands in Big Sur area, Monterey County. (Cal. Coop. Rpt.).

WHITE GRUBS - TEXAS - Unspecified species causing heavy, local damage to small grains in Wilson County. (Bippert).

A LEAF MINER FLY (Phytobia muscina) - CALIFORNIA - Pupae medium in leaves of Italian ryegrass (Lolium multiflorum) in Palos Verdes Estates, Los Angeles County. L. multiflorum used for lawns in many locations in southern part of State and larvae could become of considerable concern by mining grass leaves. (Cal. Coop. Rpt.).

MARCH FLIES - CALIFORNIA - Dilophus orbatus heavy in Bermuda grass in Camarillo, Ventura County, and in soil and lawns in El Cajon, San Diego County. (Cal. Coop. Rpt.). ALABAMA - Adults of unspecified species numerous in isolated zoysia grass lawns in Lee County. Larvae apparently feed on decaying vegetative material in sod. (Buttram, et al.).

#### FRUIT INSECTS

Citrus Insect Situation in Florida - End of November - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 60 percent of groves (norm 71 percent); 43 percent economic (norm 47 percent). Upward trend will keep population in high range in December. Will be more abundant on leaves than on fruit. All districts will have important infestations. Highest districts south, west and east. TEXAS CITRUS MITE (Eutetranychus banksi) infested 43 percent of groves (norm 30 percent); 17 percent economic (norm 13 percent). Strong upward trend now underway will keep population above average through December. Numerous light to moderate infestations with a few heavy infestations expected in all districts. Highest districts north, west and central. CITRUS RED MITE (Panonychus citri) infested 37 percent of groves (norm 54 percent); 8 percent economic (norm 24 percent). Will continue below average level despite slight upward trend. Few heavy infestations expected. Highest districts north, west and central. GLOVER SCALE (Lepidosaphes gloverii) above normal; near high range. Little change expected. Infestations scattered and spotty. Highest districts south and central. PURPLE SCALE (L. beckii) near normal; in moderate range. Decrease expected; highest district south. CHAFF SCALE (Parlatoria pergandii) above normal; in moderate range. Slight increase expected; highest districts south and east. YELLOW SCALE (Aonidiella citrina) above normal; in moderate range. Slight increase expected. Highest districts central and south. BLACK SCALE (Saissetia oleae) above normal; in low range. Decrease expected; highest districts east and central. Populations of WHITEFLIES near normal; in low range. Little change expected. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

YELLOW SCALE (Aonidiella citrina) - FLORIDA - Scattered and moderate on leaves of trifoliate-orange at Bay Lake, Lake County. (Henderson, Holley, Nov. 13). This is a new host record for the Florida Division of Plant Industry. (Fla. Coop. Sur.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - ALABAMA - Extremely heavy and killing population observed on 5-year-old peach tree in Dallas County. Lighter infestation noted in Lee County. (Granberry et al.).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Gum residue from injury at ground line and below noticeable on 90-100 percent of all untreated peach, plum and wild cherry trees throughout central and southern area of State. (McQueen).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - CALIFORNIA - Larvae light and damaging citrus leaves in 7-acre planting in Woodland Hills, Los Angeles County. (Cal. Coop. Rpt.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Locally heavy on fruit of grapefruit in Willows, Glenn County. (Cal. Coop. Rpt.).

A LEAF-FOOTED BUG (Leptoglossus zonatus) - ARIZONA - Found on backyard citrus in Yuma, Yuma County. (Ariz. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Large numbers of larvae overwintering in pecan shucks under most dooryard trees observed in Tuscaloosa, Lee and other counties. (Cooper et al.).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Caused local damage to pecans in Nueces County. (Meisch).

#### TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Medium to heavy and damaging truck crops in scattered areas of Maricopa and Yuma Counties. (Ariz. Coop. Sur.).  
FLORIDA - Causing light damage to commercial celery and cabbage plantings at Sanford, Seminole County. (Desin).

SQUASH VINE BORER (Melittia cucurbitae) - FLORIDA - Noted on squash at Waldo, Alachua County. (Wasdin, Nov. 28).

BEAN LEAF ROLLER (Urbanus proteus) - FLORIDA - Larvae heavy and damaging cowpeas at Bartow, Polk County. (Snell, Nov. 23).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Light to medium with light damage to lettuce in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - Appears to be decreasing in most lettuce-growing areas. (Ariz. Coop. Sur.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Causing light damage to a commercial celery planting at Sanford, Seminole County. (Desin).

TURNPUP APHID (Hyadaphis pseudobrassicae) - OKLAHOMA - On spinach, moderate to heavy in Tulsa County and light in Wagoner County. (Okla. Coop. Sur.).

#### COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Light to heavy infestations still being reported in southern Luna and Eddy Counties. (N.M. Coop. Rpt.).

#### FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SPRUCE NEEDLE MINER (Taniya albolineana) - CALIFORNIA - Larvae light in small spruce tree in Chester, Plumas County. No other infested trees found in Chester by delimiting survey. This is a new county record; eradication action will be taken. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Overwintering egg masses on some wild cherry trees in Tuscaloosa County range 15-20 groups per tree. (Holstun, Granberry, et al.).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Severely damaged ornamental flowering peaches and plums in Lee County. (McQueen).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - High number of egg masses in cocoon bags noted on trees and shrubs in north central and northern counties. (Holstun, Granberry, et al.).

TEA SCALE (Fiorinia thea) - FLORIDA - Adults heavy on leaves of holly and all stages moderate on Camellia sp. at Sanford, Seminole County. (McLeod, Nov. 23). All stages severe on holly at Okahumpka, Lake County. (Fatic).

EUONYMUS SCALE (Unaspis euonymi) - NEW MEXICO - Medium to heavy on euonymus in Bernalillo County. (N.M. Coop. Rpt.). NORTH CAROLINA - Infested euonymus at Wake County location. (Mount).

TULIPTREE SCALE (Toumeyella liriiodendri) - CALIFORNIA - Medium locally on tulip-trees in San Jose, Santa Clara County. Several new infested trees found, separated from original infestation. Eradication treatment being applied. (Cal. Coop. Rpt.).

A WAX SCALE (Ceroplastes sp.) - NORTH CAROLINA - Present on chrysanthemum stems from Durham County. Also reported on azaleas and camellias at Person County home. (Mount).

AN APHID (Neophyllaphis podocarpi) - CALIFORNIA - Medium on Podocarpus macrophylla nursery stock in Carmel Valley, Monterey County. (Cal. Coop. Rpt.).

#### INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - FLORIDA - Anopheles quadrimaculatus (common malaria mosquito) and Culex salinarius taken biting man at Cedar Key, Levy County. (O'Berry, Nov. 28).

CATTLE LICE - UTAH - Conspicuous on cattle at Kaysville, Davis County, and Wellsville, Cache County; numerous on some cattle in area east of Knab, Kane County. (Knowlton).

A PLATYPSYLLID BEETLE (Platypsyllus castoris) - CALIFORNIA - This beaver parasite light on beavers (Castor sp.) in Isleton, Sacramento County. (Cal. Coop. Rpt.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - WYOMING - Heavy on Leghorn chickens at Gillette, Campbell County. Def. by R. Pfadt. (Marks).

TICKS - ALABAMA - Numerous complaints in Tuscaloosa, Lee and other counties of infestations around homes. (Ballew, Holstun et al.).

BLACK WIDOW SPIDER (Latrodectus mactans) - UTAH - Reported in another home at Salt Lake City, Salt Lake County. (Knowlton).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Found in trunk of car in Stillwater area, Payne County. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - MARYLAND - Continuing problem on farm and at nearby homes at Kingsville, Baltimore County. (U. Md., Ent. Dept.). UTAH - Annoying in homes and other buildings in northern area. (Knowlton).

#### HOUSEHOLD AND STRUCTURAL INSECTS

MILLIPEDS - NORTH CAROLINA - Reported as nuisance at locations in Wake and Davidson Counties. (Taylor, Lyle).

A SCIARID MIDGE (Bradysia sp.) - NORTH CAROLINA - Adults present in Randolph County schoolroom; appeared to be breeding in soil of potted plants. Det. by D. A. Mount. (Young).

RICE WEEVIL (Sitophilus oryzae) - MARYLAND - Adults present in home at Baltimore, November 1, and in birdseed in home at University Park, Prince Georges County. (U. Md., Ent. Dept.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - MARYLAND - Adults numerous in a home kitchen at Baltimore. (U. Md., Ent. Dept.).

ANTS - MARYLAND - Monomorium minimum (little black ant) infesting property in Bethesda, Montgomery County. (U. Md., Ent. Dept.). CALIFORNIA - Iridomyrmex humilis (Argentine ant) noted in home in Hollister, San Benito County. (Cal. Coop. Rpt.).

SPRINGTAILS - NORTH CAROLINA - Large numbers reported on porch of Pitt County home, and in yard and on sides of Onslow County house. (Goodman, Baucom).

AN ERYTHRACARINID MITE (Tarsotomus sp.) - CALIFORNIA - Adults of this predaceous species heavy on walls of house in Yucaipa, San Benito County. (Cal. Coop. Rpt.).

#### STORED-PRODUCT INSECTS

YELLOW MEALWORM (Tenebrio molitor) - TEXAS - Heavy locally on stored earcorn in Fayette County. (Newton).

RICE WEEVIL (Sitophilus oryzae) - CALIFORNIA - Medium in popcorn in Hanford, Kings County. (Cal. Coop. Rpt.).

#### BENEFICIAL INSECTS

VEDALIA (Rodolia cardinalis) - ARIZONA - Larvae feeding on Icerya purchasi (cottony-cushion scale) in citrus areas of Yuma County. (Ariz. Coop. Sur.).

A LADY BEETLE (Coleomegilla maculata fuscilabris) - ALABAMA - Hibernating beetles observed in large area in woods near cotton in Dallas County. (Granberry et al.).

#### MISCELLANEOUS INSECTS

A GROUND PEARL (Margarodes meridionalis) - FLORIDA - Eggs and larvae severe on roots of maidencane (Panicum hemitomon) at Groveland, Lake County. (Henderson, Oct. 26).

FIRE ANT (Solenopsis geminata) - TEXAS - Infestations light in lawns and gardens of Milam County. (Texas Coop. Rpt., Jacksons, Markdwart).

#### CORRECTIONS

CEIR 14(48):1257 - EASTERN TENT CATERPILLAR (Malacosoma americanum) - Should read: read: ALABAMA - Egg masses on wild cherry trees in southern portion of State, especially in Henry and Barbour Counties, much less numerous than in northern counties. Only one tree in 10 with 1-3 egg masses observed. (McQueen, Nov. 20).

CEIR 14(49):1273 - A LEAFHOPPER (Oncometopsis undata) should be (Oncometopia undata).

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

Screw-worm cases in the Southwestern Eradication Area plummeted from a yearly high of 30 cases 2 weeks ago to zero during the period November 29-December 5. No cases were reported in the United States during this period. The Republic of Mexico reported 170 cases in the States of Sonora 82, Chihuahua 23, Nuevo Leon 10, Tamaulipas 11, Coahuila 12, Durango 22, San Luis Potosi 1, Veracruz 6, Puebla 1, and Zacatecas 2. Sterile screw-worm flies released: Texas 27,307,850, New Mexico 160,000, Arizona 3,752,000, and Mexico 58,476,000.

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	499	50,467	48	3,062	1,039.58	1,648.17
1963	14	6,319	104	7,222	13.46	87.49
1964	0	237	55	6,119	0.00	3.87
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	96	5,863	37	1,387	259.45	422.71
1964	138	4,269	48	1,995	287.50	213.98
Table 2A. Mexican portion of Barrier Zone only.						
1963	88	2,005	8	227	1,100.00	883.25
1964	138	4,024	37	878	327.97	458.31

\* 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.).

LIGHT TRAP COLLECTIONS

GEORGIA - Tifton (Nov. 19-25) - Heliothis zea (corn earworm) 4; H. virescens (tobacco budworm) 0; Protoparce quinquemaculata (tomato hornworm) 0; P. sexta (tobacco hornworm) 0. Tifton (Nov. 26 - Dec. 2) - H. zea 22; H. virescens 0; P. quinquemaculata 0; P. sexta 0.



ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Corn for grain  
(Commodity or Crop)

A. Pest or pest complex: Cutworms, wireworms, corn leaf aphid, armyworm, chinch bug, European corn borer, thrips, flea beetles, billbugs, corn rootworms (larvae)

B. Number of acres <sup>a</sup> produced (From CRS)	No.	2,903,000
C. Average yield per acre <sup>a</sup> (From CRS)	bu.	76
D. Price <sup>b</sup> per unit ( bu. ) <sup>c</sup> (From CRS)	\$/bu.	1.05
E. Acres <sup>a</sup> needing control	No.	435,150
F. Acres <sup>a</sup> treated	No.	560,600 (over treatment)

G. Reduction due to not treating where needed:

H. Loss in yield, percent	%	10
I. Loss in yield, units per acre <sup>a</sup> , C x H	Units/acre	7.8 bu.
J. Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/acre	8.19
K. Loss in quality, \$ per acre <sup>a</sup>	\$/acre	-----
L. Yield loss for all acres <sup>a</sup> , (E-F) x I	Units	-----
M. Control cost, \$ per acre <sup>a</sup>	\$/acre	3.00
N. Control cost for all acres <sup>a</sup> , F x M	\$	1,741,800
O. Yield loss for all acres <sup>a</sup> , (E-F) x J	\$	-----
P. Quality loss for all acres <sup>a</sup> , (E-F) x K	\$	-----
Q. Combined control cost and losses, N + O + P	\$	1,741,800
R. Percent loss due to each insect in the complex:		

Comment: Record corn yields were again established for Ohio in 1963, in spite of adverse weather conditions. The average yield of 76 bushels above the two bushels above the previous high set in 1962 and 14.3 bushels above the 1957-61 average.

- 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 William F. Lyon  
Date September 6, 1964

ATTACKING All hay  
(Commodity or Crop)

A. Pest or pest complex: Flea aphid, potato leafhopper, meadow spittlebug, alfalfa weevil, clover root borer, lesser clover leaf weevil, plant bugs, sweetclover weevil, clover leaf weevil, grasshoppers

B. Number of acres <sup>a</sup> produced (From CRS)	No.	1,907,000
C. Average yield per acre <sup>a</sup> (From CRS)	Units/acre	1.75 tons
D. Price <sup>b</sup> per unit ( ton ) <sup>c</sup> (From CRS)	\$/ton	27.00
E. Acres <sup>a</sup> needing control	No.	915,360
F. Acres <sup>a</sup> treated	No.	343,860

G. Reduction due to not treating where needed:

H. Loss in yield, percent	%	22
I. Loss in yield, units per acre <sup>a</sup> , C x H	Units/acre	0.39 ton
J. Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/acre	10.53
K. Loss in quality, \$ per acre <sup>a</sup>	\$/acre	-----
L. Yield loss for all acres <sup>a</sup> , (E-F) x I	Units	223,119 tons
M. Control cost, \$ per acre <sup>a</sup>	\$/acre	2.50
N. Control cost for all acres <sup>a</sup> , F x M	\$	698,150
O. Yield loss for all acres <sup>a</sup> , (E-F) x J	\$	6,024,213
P. Quality loss for all acres <sup>a</sup> , (E-F) x K	\$	-----
Q. Combined control cost and losses, N + O + P	\$	6,882,363
R. Percent loss due to each insect in the complex:		

Comment: Dry periods and spotty rainfall resulted in lower than average hay yields for the State. The all-hay yield per acre of 1.75 tons rose above the 1.66 tons produced in 1962 but was slightly below the 1957-61 average of 1.78 tons per acre.

- 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 William F. Lyon  
Date September 6, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Wheat (Commodity or Crop)

ATTACKING Oats (Commodity or Crop)

A. Pest or pest complex: Hessian fly, sawflies, armyworm, wheat jointworm, chinch bug

B. Number of acres <sup>a</sup> produced (From CRS) No. 1,402,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 38 bu.

D. Price<sup>b</sup> per unit ( bu. ) <sup>c</sup> (From CRS) \$/ 1.70

E. Acres <sup>a</sup> needing control No. 28,040

F. Acres <sup>a</sup> treated No. 1,402

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 7

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ 2.66 bu.

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 4.22

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

L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 70,057 bu.

M. Control cost, \$ per acre <sup>a</sup>, \$/ 2.00

N. Control cost for all acres <sup>a</sup>, F x M \$ 2,804

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 120,404

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

Q. Combined control cost and losses, N + O + P \$ 123,208

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

Comment: Wheat was seeded in the fall of 1962 under excellent conditions.

Very little winter kill occurred during the severe winter due to an existing snow cover. A record state yield of 38 bushels per acre was six bushels above the average for the State. This was higher than the previous record yield set in 1960.

- a. Acres based on 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 William F. Lyon  
Date September 8, 1964

A. Pest or pest complex: Armyworms, aphids, stalk borers, grasshoppers

B. Number of acres <sup>a</sup> produced (From CRS) No. 775,000

C. Average yield per acre <sup>a</sup> (From CRS) Units/ 65 bu.

D. Price<sup>b</sup> per unit ( bu. ) <sup>c</sup> (From CRS) \$/ 0.63

E. Acres <sup>a</sup> needing control No. 71,750

F. Acres <sup>a</sup> treated No. -----

G. Reduction due to not treating where needed:

H. Loss in yield, percent % 7-

I. Loss in yield, units per acre <sup>a</sup>, C x H Units/ 4.55 bu.

J. Loss in yield, \$ per acre <sup>a</sup>, D x I \$/ 2.87

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

L. Yield loss for all acres <sup>a</sup>, (E-F) x I Units 35,263 bu.

M. Control cost, \$ per acre <sup>a</sup>, \$/ 2.00

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

O. Yield loss for all acres <sup>a</sup>, (E-F) x J \$ 22,243

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

Q. Combined control cost and losses, N + O + P \$ 22,243

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

Comment: After a very wet March, oat seeding got underway and progressed rapidly in early April. A record yield of 65 bushels per acre was established.

This exceeded by two bushels the previous high set in 1960.

- a. Acres based on 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 William F. Lyon  
Date September 8, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

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

ATTACKING Soybeans (for beans)  
(Commodity or Crop)

A.	Pest or pest complex:	Grasshoppers, seed-corn maggot, Mexican bean beetle, green cloverworm, locust leaf miner, blister beetles
B.	Number of acres <sup>a</sup> produced (From CHS)	No. 1,755,000
C.	Average yield per acre <sup>a</sup> (From CHS)	Units/ 24.0 bu.
D.	Price per unit ( bu. ) <sup>c</sup> (From CHS)	\$/ 2.65
E.	Acres <sup>a</sup> needing control	No. 26,325
F.	Acres <sup>a</sup> treated	No. 3,510
G.	Reduction due to not treating where needed:	
H.	Loss in yield, percent	% 15
I.	Loss in yield, units per acre <sup>a</sup> , C x H	Units/ 3.6 bu.
J.	Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/ 9.54
K.	Loss in quality, \$ per acre <sup>a</sup>	\$/ -----
L.	Yield loss for all acres <sup>a</sup> , (E-F) x I	Units 22,134 bu.
M.	Control cost, \$ per acre <sup>a</sup>	\$/ 2.50
N.	Control cost for all acres <sup>a</sup> , F x M	\$ 6,775.00
O.	Yield loss for all acres <sup>a</sup> , (E-F) x J	\$ 217,655
P.	Quality loss for all acres <sup>a</sup> , (E-F) x K	\$ -----
Q.	Combined control cost and losses, N + O + P	\$ 226,430
R.	Percent loss due to each insect in the complex:	

Comment: August marked the beginning of one of the worst droughts in Ohio's history. Yield per acre at 24 bushels was down one bushel from the previous year and four bushels below the record yield of 28 bushels per acre set in 1961. Reporting Service.

- a. Season average price per unit as given by CHS (describe basis).
- b. Bushels, boxes, tons or other marketing units used by CHS; show which in ( ).

Submitted by William F. Lyon  
Date September 8, 1964

ATTACKING Tobacco  
(Commodity or Crop)

A.	Pest or pest complex:	Wireworms, flea beetles, grasshoppers, hornworms, cutworms, slugs, scarab larvae, corn earworm, aphids
B.	Number of acres <sup>a</sup> produced (From CHS)	No. 10,400
C.	Average yield per acre <sup>a</sup> (From CHS)	Units/ 2,245 lbs.
D.	Price per unit ( lb. ) <sup>c</sup> (From CHS)	\$/ 0.549
E.	Acres <sup>a</sup> needing control	No. 5,200
F.	Acres <sup>a</sup> treated	No. 1,456
G.	Reduction due to not treating where needed:	
H.	Loss in yield, percent	% 16
I.	Loss in yield, units per acre <sup>a</sup> , C x H	Units/ 359 lbs.
J.	Loss in yield, \$ per acre <sup>a</sup> , D x I	\$/ 197.00
K.	Loss in quality, \$ per acre <sup>a</sup>	\$/ -----
L.	Yield loss for all acres <sup>a</sup> , (E-F) x I	Units 1,344,096 lbs.
M.	Control cost, \$ per acre <sup>a</sup>	\$/ 5.50
N.	Control cost for all acres <sup>a</sup> , F x M	\$ 8,008
O.	Yield loss for all acres <sup>a</sup> , (E-F) x J	\$ 737,568
P.	Quality loss for all acres <sup>a</sup> , (E-F) x K	\$ -----
Q.	Combined control cost and losses, N + O + P	\$ 745,576
R.	Percent loss due to each insect in the complex:	

Comment: Barley (Type 31) tobacco yield at 2245 pounds per acre was higher than the 1962 yield of 1700 pounds per acre.

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

Submitted by William F. Lyon  
Date September 8, 1964

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Sugar beets IN Ohio DURING 1963  
 (Commodity) (State or District) (Year)

A. Pest or pest complex: Leaf miners, wireworms, cutworms, aphids, flea beetles, blister beetles, grasshoppers

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B. Number of <u>acres</u> <sup>a</sup> produced (From CRS)	No.	<u>29,100</u>
C. Average yield per <u>acre</u> <sup>a</sup> (From CRS)	Units/	<u>13.1 tons</u>
D. Price <sup>b</sup> per unit ( <u>ton</u> ) <sup>c</sup> (From CRS)	\$/	<u>11.10</u>
E. <u>Acres</u> <sup>a</sup> needing control	No.	<u>2,910</u>
F. <u>Acres</u> <sup>a</sup> treated	No.	<u>291</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>5</u>
I. Loss in yield, units per <u>acre</u> <sup>a</sup> , C x H	Units/	<u>0.66 ton</u>
J. Loss in yield, \$ per <u>acre</u> <sup>a</sup> , D x I	\$/	<u>7.33</u>
K. Loss in quality, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>-----</u>
L. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x I	Units	<u>1,729 tons</u>
M. Control cost, \$ per <u>acre</u> <sup>a</sup>	\$/	<u>2.50</u>
N. Control cost for all <u>acres</u> <sup>a</sup> , F x M	\$	<u>727.50</u>
O. Yield loss for all <u>acres</u> <sup>a</sup> , (E-F) x J	\$	<u>19,197.25</u>
P. Quality loss for all <u>acres</u> <sup>a</sup> , (E-F) x K	\$	<u>-----</u>
Q. Combined control cost and losses, N + O + P	\$	<u>19,924.75</u>
R. Percent loss due to each insect in the complex:		

Comment: The 1963 yield of 13.1 tons per acre was below the 1962 yield of 16.6 tons per acre. Drought in August and September curtailed sugar beet production markedly.

- 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 William F. Lyon

Date September 8, 1964



OFFICIAL BUSINESS



VOL. 14 No. 51

December 18, 1964

S13  
823  
C27

*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

# SEASON'S GREETINGS

## HIGHLIGHTS

WINTER GRAIN MITE heavy on oats in Ellis and Kaufman Counties, Texas. (p. 1293).

PINK BOLLWORM heavy at gins in southern Eddy County, New Mexico, and new infestations found in Pinal, Maricopa, Pima, Cochise and Graham Counties, Arizona. (p. 1294).

## DETECTION

ZIMMERMAN PINE MOTH (*Dioryctria zimmermani*) reported for first time in Maryland. (p. 1294). IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) workers collected in Calhoun County, Georgia, constitute a new county record. (p. 1296).

## FORECAST

ALFALFA WEEVIL egg mass counts high in Tennessee, indicating extremely heavy outbreak in spring of 1965. (p. 1293).

## SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1298).

Survey Methods for Corn Insects Damage in Southeastern United States. (pp. 1299-1302).

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

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-DECEMBER 1964 TO MID-JANUARY 1965

The Weather Bureau's 30-day outlook for mid-December to mid-January calls for temperatures to average below seasonal normals over most of the Nation except for near normal in the far Southwest and near to above normal in the Southeast. Coldest weather is expected in the Northern Plains.

Precipitation, frequently in the form of snow in the northern half of the Nation, is expected to exceed normal over most areas east of the Continental Divide. West of the Divide greater than normal precipitation is indicated for the central Pacific coast while subnormal totals should be confined to the Southern Plateau. Elsewhere, near normal amounts are in prospect.

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

WEATHER OF THE WEEK ENDING DECEMBER 14

Temperatures averaged cooler than normal over the West and slightly above seasonal over the East. Some generous rains fell along the Texas coast and over the lower Mississippi River Valley.

TEMPERATURE: High pressure and clear skies predominated over the Great Basin and the Rocky Mountains. Temperatures cooled over the area dropping to 11° below zero at Ely, Nevada, on Sunday morning and to 20° to 30° below zero in some of the mountain valleys in Colorado. Temperatures at Albuquerque, New Mexico, averaged 8° below normal. The eastern half of the Nation warmed gradually during the week. Most of the East averaged 1° to 4° above seasonal. The principal exception was New England where temperatures 10° to 20° below normal continued to Friday morning. In spite of rapid warming, beginning on December 11, the weekly temperatures over most of New England averaged 3° to more than 6° below normal.

PRECIPITATION: Precipitation was mostly widespread and light. Only light precipitation fell from southern California to the northern Great Plains and parts of central Florida received no rain. Rains began along the lower Texas coast early in the week and spread northward and eastward. On Thursday, Houston, Texas, received 3.26 inches and Lake Charles, Louisiana, 4.50 inches. Stations along the Ohio River received over an inch on Friday. By Friday night, the rains had spread over 25 States from Michigan to Louisiana and eastward to the Atlantic Ocean. Fog accompanied the rains over much of the area. The fog held air traffic at a standstill at Chicago's O'Hare airport most of Saturday forenoon. The fog reduced the visibility in the New York City area to a few hundred feet most of the day on Sunday and severely hampered air traffic at many locations along the east coast. A cold front ended the foggy, cloudy, mild weather along the coast late Sunday night and early Monday morning and again clear skies and cool temperatures prevailed. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Infestations heavy on oats in Ellis County (Turney, Cole) and in Kaufman County (Turney).

PINK SCAVENGER CATERPILLAR (Sathrobrota rileyi) - CALIFORNIA - Larvae heavy in sorghum in Holtville, Imperial County. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Counts ranged 5-10 per linear foot in wheat in Perkins area, Payne County. (Okla. Coop. Sur.). ARKANSAS - Surveys negative in Washington and Madison Counties, northwest. (Ark. Ins. Sur.).

LEAFHOPPERS - ALABAMA - Extremely large numbers occurring as usual in pasture sod and grass sods along highways in Tallapoosa and other central and southern counties. (Barwood et al.).

A DESERT TERMITE (Amitermes sp.) - TEXAS - Undetermined species reported in CEIR 14(44):1187 as locally heavy on oats in Madison County, determined as this genus by T. E. Snyder. (Meisch).

ALFALFA WEEVIL (Hypera postica) - TENNESSEE - Fall counts of egg masses on alfalfa range 25-50 per square foot; this is indicative of extremely heavy outbreak in spring of 1965. (Mullett).

PEA APHID (Acyrtosiphon pisum) - ARKANSAS - Numbers continue somewhat higher than normal for this time of year. Counts range 10-15 per square foot in vetch on University of Arkansas farm. (Ark. Ins. Sur.). NEW MEXICO - Populations continue light in alfalfa in Dona Ana County. (N.M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Infestations remain light in Dona Ana County alfalfa. (N.M. Coop. Rpt.). ARKANSAS - Surveys negative in Washington and Madison Counties, northwest. (Ark. Ins. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Few scattered infestations persist in alfalfa; ranged light to medium in Pinal, Pima and Maricopa Counties. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARKANSAS - Occasional larva collected December 9 in Washington County. This unexpected because of low temperatures in area. (Ark. Ins. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Populations decreased to noneconomic levels in alfalfa in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

FRUIT INSECTS

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - All stages scattered and moderate on leaves of orange at Lake Mary, Seminole County. (McLeod, Nov. 24).

A SNOW SCALE (Unaspis citri) - FLORIDA - Noted in several trees of grapefruit in grove at Ferndale, Lake County. (Felshaw, Nov. 30).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on flowering plum nursery stock in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Noted on trunk of peach tree at Tampa, Hillsborough County. Wasp parasites present. (Fla. Coop. Sur., Dec. 1).

A LEAF-FOOTED BUG (Leptoglossus zonatus) - ARIZONA - Five infestations observed in backyard citrus in Phoenix, Maricopa County. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Populations decreasing in most lettuce fields in Maricopa County. Few small, heavy populations continue to cause damage. (Ariz. Coop. Sur.). FLORIDA - Caused light damage to cabbage and celery examined in commercial planting at Sanford, Seminole County. (Desin).

BEET ARMYWORM (*Spodoptera exigua*) - ARIZONA - Light infestations and light damage noted in lettuce fields of Maricopa County. (Ariz. Coop. Sur.).

WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) - CALIFORNIA - Adults medium on lettuce in Reedley, Fresno County. (Cal. Coop. Rpt.).

COWPEA APHID (*Aphis craccivora*) - FLORIDA - Adults severe on cowpeas at Bartow, Polk County. (Snell, Nov. 23).

A LEAFHOPPER (*Empoasca* sp.) - FLORIDA - Nymphs severe on cowpeas at Bartow, Polk County. (Snell, Nov. 23).

A LEAF MINER FLY (*Liriomyza* sp.) - FLORIDA - Lightly damaged 100 percent of celery examined in commercial planting at Sanford, Seminole County. (Desin).

COTTON INSECTS

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Lint cleaner examinations show infestations to be quite heavy at gins in southern Eddy County; 695 larvae taken from 2,773 bales at Otis, 156 larvae from 2,911 bales at Loving, 219 larvae from 1,106 bales at Malaga, and 361 larvae from 2,364 bales at Carlsbad. Infestations indicated as lighter in northern Pecos Valley around Roswell, Chaves County. (N.M. Coop. Rpt.). ARIZONA - New infestations found in Pinal, Maricopa, Pima Cochise and Graham Counties. (Ariz. Coop. Sur.).

BOLL WEEVIL (*Anthonomus grandis*) - NEW MEXICO - All surveys and inspections to date have been negative. (N.M. Coop. Rpt.).

A WEEVIL (*Anthonomus* sp.) - ARIZONA - Infestations still being found in Yuma, Maricopa, Pinal and Pima Counties. Infestation found at Salome in northern Yuma County. (Ariz. Coop. Sur.).

A MEALYBUG (*Spilococcus* sp.) - CALIFORNIA - Populations medium on cotton plants locally in Calexico, Imperial County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

ZIMMERMAN PINE MOTH (*Dioryctria zimmermani*) - MARYLAND - Larvae infested cones of loblolly pine (*Pinus taeda*) at Willards, Wicomico County, on July 31, 1964. Larvae collected by R. C. Moore and moths reared from these larvae determined by W. D. Duckworth. This is a new State record. (U. Md., Ent. Dept.).

MORNING-GLORY LEAF MINER (*Bedellia somnulentella*) - CALIFORNIA - Heavy population mining morning-glory foliage in El Centro, Imperial County. Ornamental morning-glories are used extensively in desert areas. (Cal. Coop. Rpt.).

AZALEA LEAF MINER (*Gracilaria azaleella*) - CALIFORNIA - Adults light on azaleas in Fresno, Fresno County; and heavy on azalea nursery stock in Saratoga, Santa Clara County. (Cal. Coop. Rpt.).

AN IO MOTH (*Automeris io liliith*) - FLORIDA - Larvae observed on leaves of azalea at Tampa, Hillsborough County. (Simmons, Dec. 1).

A SAP BEETLE (Conotelus mexicanus) - CALIFORNIA - Medium on rose bushes in Winterhaven, Imperial County. (Cal. Coop. Rpt.).

A PETIOLE GALL APHID (Pemphigus populicaulis) - NEW MEXICO - Some galls, probably caused by presence of this species, noted on freshly dug nursery stock in Dona Ana County. (N.M. Coop. Rpt.).

A ROYAL PALM BUG (Xylastodoris luteolus) - FLORIDA - Adults and nymphs noted on leaves of royal palm (Roystonea sp.) at Fort Myers, Lee County. (Kelley).

COCCIDS - MARYLAND - Aspidiotus perniciosus (San Jose scale) heavy on pyracantha in University Park, Prince Georges County. Crawlers of Pulvinaria sp. noted on same host at same locality. (U. Md., Ent. Dept.). FLORIDA - All stages of Cerococcus sp. light on Hibiscus sp. at Hialeah, Dade County. (Hickman, Dec. 4). CALIFORNIA - Asterolecanium arabidis heavy on Pittosporum tobira nursery stock in Campbell, Santa Clara County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Small larvae common in leaves of American holly at College Park, Prince Georges County. (U. Md., Ent. Dept.).

WILLOW BEAKED-GALL MIDGE (Phytophaga rigidae) - MARYLAND - Galls prominent on pussy willow at Temple Hills, Prince Georges County. (U. Md., Ent. Dept.).

#### INSECTS AFFECTING MAN AND ANIMALS

CATTLE LICE - OKLAHOMA - Infestations of several species ranged light to moderate on cattle in Seminole (central) and Stephens (south central) Counties. (Okla. Coop. Sur.). UTAH - Controls applied to over 1,000 cattle in Garfield County and 2,000 cattle in Kane County; controls also applied to 1,800 head in San Juan County and approximately 30 percent of cattle in eastern Box Elder County treated. (Knowlton). Controls applied to 4,000 cattle in Uintah County and 2,000 cattle in Daggett County. (Knowlton, Bendixsen).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Infestations noted on hogs in Stephens County, south central. (Okla. Coop. Sur.).

A BROWN SPIDER (Loxosceles reclusa) - ARKANSAS - Single male collected in agriculture building on University of Arkansas campus at Fayetteville, Washington County. (Ark. Ins. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - MICHIGAN - Several specimens removed from dog recently in Oakland County. (Abel, Wells).

#### HOUSEHOLD AND STRUCTURAL INSECTS

BLACK CARPET BEETLE (Attagenus piceus) - MARYLAND - Larvae noted in home at College Park, Prince Georges County. (U. Md., Ent. Dept.).

COCKROACHES - OKLAHOMA - Infestations of unspecified species moderate in homes in Cleveland County, central area. (Okla. Coop. Sur.).

A BRACONID (Meteorus laeiventris) - CALIFORNIA - Adults medium in a residence in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

MUSHROOM MITE (Tyrophagus putrescentiae) - CALIFORNIA - Heavy infestation in building and on ice cream machine in Santa Ana, Orange County. (A. Siber, Cal. Coop. Rpt.).

OLD-HOUSE BORER (Hylotrupes bajulus) - MARYLAND - Infesting structural wood in home at Pasadena, Anne Arundel County. (U. Md., Ent. Dept.).

WESTERN DRYWOOD TERMITE (Incisitermes minor) - CALIFORNIA - Medium infestation in paneling of house trailer in Gazelle, Siskiyou County. (Cal. Coop. Rpt.).

#### STORED-PRODUCT INSECTS

RED FLOUR BEETLE (Tribolium castaneum) - FLORIDA - Adults heavy on small grain and wheat at feed and grain mill at Okeechobee, Okeechobee County. (Strickland, Thomas, Dec. 1).

RICE WEEVIL (Sitophilus oryzae) - FLORIDA - Adults severe on wheat at Okeechobee, Okeechobee County. (Strickland, Thomas, Dec. 1).

CIGARETTE BEETLE (Lasioderma serricorne) - FLORIDA - Adults general on sacks of feed at Okeechobee, Okeechobee County. (Strickland, Thomas, Dec. 1).

AMERICAN COCKROACH (Periplaneta americana) - ALABAMA - Extremely heavy numbers reported in feed house where pet food stored in Lee County. (Barwood).

#### BENEFICIAL INSECTS

A PARASITIC WASP (Copidosoma truncatellum) - TEXAS - Infesting cabbage looper (Trichoplusia ni) from tomato greenhouse in Dallas County. (Meisch).

#### MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Workers collected in city of Arlington, Calhoun County, on November 30. Det. by C. H. Lauffer. This is a new county record. (PPC).

PUMPKIN CATERPILLAR (Diaphania indica) - FLORIDA - Adults taken in Steiner traps at several locations in Pinellas County during period November 23 to December 1. (Fla. Coop. Sur.).



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

During the period December 6-12, only one screw-worm infestation was reported in the Southwestern Eradication Area and this from Atascosa County, TEXAS. No cases were reported from NEW MEXICO or ARIZONA. The Republic of Mexico reported 90 cases: Sonora 40, Veracruz 5, Chihuahua 15, Puebla 1, Coahuila 8, Tamaulipas 14, Durango 4, San Luis Potosi 1 and Nuevo Leon 2. Sterile screw-worm flies released: Texas 20,134,250, New Mexico 2,560,000, Arizona 5,720,000 and Mexico 51,328,800.

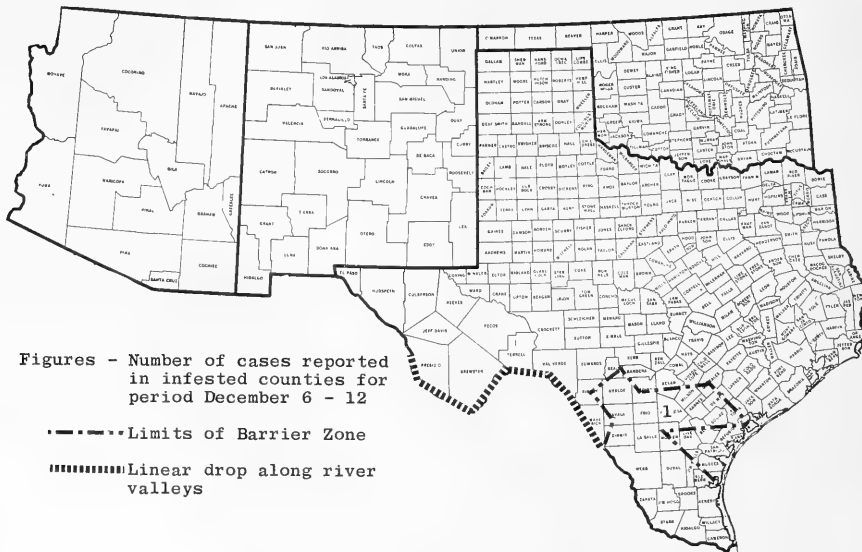
Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1. Comparison of specimens reported during corresponding weeks in 1962 and 1963 in Southwestern Eradication Area.						
1962	312	50,779	35	3,097	891.42	1,639.61
1963	20	6,339	78	7,300	25.64	86.83
1964	1	238	34	6,153	2.94	3.86

Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	67	5,930	24	1,411	279.16	420.26
1964	79	4,348	23	2,018	343.47	215.46

Table 2A. Mexican portion of Barrier Zone only.

1963	52	2,057	9	236	577.77	871.61
1964	79	4,103	13	891	607.69	460.49

\* 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.).



Figures - Number of cases reported in infested counties for period December 6 - 12

- Limits of Barrier Zone
- ||||| Linear drop along river valleys



## Survey Methods for Corn Insects Damage in Southeastern United States

H. C. Cox, K. J. Starks, and W. W. McMillian  
Entomology Research Division, ARS, USDA

Each year personnel from the Southern Grain Insects Research Laboratory conduct a survey of insect damage and abundance throughout the major corn-producing area of five Southeastern States. Data are obtained on the abundance, distribution, and damage caused by the corn earworm (*Heliothis zea* (Boddie)), and on the abundance and distribution of the rice weevil (*Sitophilus oryzae* (L.)), pink scavenger caterpillar (*Sathrobrotia rileyi* (Walsingham)), and the fall armyworm (*Spodoptera frugiperda* (J. E. Smith)). Distribution data are obtained on the European corn borer (*Ostrinia nubilalis* (Hübner)), and the southwestern corn borer (*Zeadiatraea grandiosella* (Dyar)). Records are made of agronomic factors which might directly or indirectly influence insect abundance, e.g., row width, plants per acre, number of ears per plant, kernel color, interplanting with other crops, weed conditions, disease, drought, etc. The survey is useful in providing this Laboratory with information regarding the general status of the insects for which the Laboratory is responsible. In addition, it also provides a continuous record of changing cultural conditions which influence insect abundance.

On the average, one field is examined for every 700,000 bushels of corn produced during the 5 years immediately prior to the survey in each crop district. Production data are obtained from the Federal-State Crop Reporting Service, Statistical Reporting Service, USDA, which has headquarters in each State.

Specific cornfields within a district are determined prior to the start of the survey by placing dots, each representing a field, along the main highways on a road map. A commercial map obtained from oil companies is preferred to the official State Highway Department map from each State because it is usually more detailed and, therefore, useful in estimating mileage between fields or distance of fields from towns. Dots, representing cornfields, are placed along main highways. Considerable time is saved by limiting travel to main highways rather than including the secondary highways. Occasionally during the course of a survey, no cornfield is found in the vicinity of the dot on the map. In this situation, travel is continued in the same direction and the first cornfield encountered is surveyed. The only exception to this rule is made when such a field occurs in another crop-reporting district. In this situation the course of travel is reversed.

The survey is usually begun during the last week in August in south Georgia and north Florida and ends during the last week in September in North Carolina. All work is done by two-man teams, one man to record the data and one to make the observations.

Each field is entered near the center of the most accessible side, usually the side near the road. The first sampling site is located by walking into the field 25 paces from the margin. Observations are made on the top ears of 10 consecutive plants beginning with the first plant on the right in front of the observer, depending on the direction of the row. After a general examination of the field, the husks are pulled back from each ear of corn to be observed and the following information is recorded: (1) Date; (2) location of field in State; (3) row width; (4) number of plants per acre; (5) number of ears per plant; (6) kernel color; (7) earworm damage class; (8) number of ears infested with rice weevil, pink scavenger caterpillar, and fall armyworm; (9) plants infested with European corn borer and southwestern corn borer; and (10) notes on miscellaneous items such as cultural practices, weeds, etc.

After observations on the last plant at the first sampling site are recorded, the second sampling site is selected by walking 20 paces toward the center of the field from the first site. Data are again obtained on items 7 through 10 above. The same procedure is repeated for subsequent sampling sites until 50 ears (10 ears each from 5 sampling sites) are examined in each field.

After the field is surveyed, the dot on the map is crossed off. The field number recorded on the survey-data-sheet is also recorded on the map beside the dot. Maps are filed for future reference.

For the fall armyworm, only those ears in which the fall armyworm larvae are actually present are counted as infested. This procedure probably results in a lower estimate of fall armyworm infestation than actually occurs in addition to increasing the estimate of corn earworm damage.

The following table of damage classes was first determined by R. A. Blanchard, formerly of the Entomology Research Division, ARS, USDA, a few years ago after he had graded several thousand ears of corn damaged by the corn earworm:

Class	0	1	2	3	4	5
Penetration (in.)	0	To 0.4	0.4 to 1.0	To 2	To 3	Over 3
Percent loss	0	0.44	1.87	4.10	7.87	16.55

A number of hybrids and open-pollinated lines were included in the study. Mr. Blanchard and the authors are aware that the true percentage of loss, when measured on a depth of penetration basis, depends on the size of the ear; however, they believe that the system is the best approximation of true damage when limitations must be placed on time, personnel, and funds. All measurements of actual earworm penetration are made beginning with the first kernels of the ear, not with the tip of the ear.

Until 1963, the form shown in Figure 1 was used to record data from the survey. In 1963, data were recorded on IBM cards in the field by means of the IBM Port-A-Punch. Figure 2 shows an IBM card on which the same data in Rep. 1 Figure 1 have been entered. The headings are used only to illustrate the various columns used to record the different data. The date and any observational data were written on the back of the card.

Table 1 illustrates the summary of the results of the 1962 survey in Georgia, whereas table 2 is a summary of the estimated loss of corn due to earworm damage in five Southeastern States in 1962.

Tables and figures on the following two pages.



Table 1 - Extent and degree of infestation by corn insect pests recorded during the 1962 survey in Georgia.

District	Number of fields examined	Percent of fields infested:				Percent of plants infested:				Percent loss of grain	Number of fields with European corn borer larvae
		earworm	weevil	erpillar	worm	Corn:scaven-ear-	Rice:ger cat-army-ear-	Corn:scaven-ear-	Rice:ger cat-army-ear-		
IV	4	100	57.1	100	42.8	78.1	4.5	31.8	1.7	1.2	0
V	14	100	57.1	92.8	7.1	66.2	5.7	55.6	.5	.7	1
VI	15	100	86.6	100	.0	88.2	17.6	69.0	.0	1.5	0
VII	25	100	100	100	4.0	61.1	29.1	77.9	.1	.4	0
VIII	27	100	100	100	14.8	76.1	18.4	83.7	.3	1.3	0
IX	9	100	100	100	.0	78.6	53.1	80.4	.0	1.1	0
State Average	-	100	88.6	98.9	9.2	72.9	21.4	72.1	.3	1.0	-

Table 2 - Production, percent damage, and estimated loss (bushels) of the corn crop due to corn earworm damage (1962 survey areas).

State	Average yearly production 1957-1961	Loss due to corn earworm (percent)	Total loss due to earworm (bu.)
Georgia	60,696,800	1.0	606,968
Florida	7,913,600 <sup>a/</sup>	1.1	87,050
Alabama	48,599,400	1.7	826,190
South Carolina	21,959,400	1.4	307,432
North Carolina	71,386,400	1.5	1,070,796
Total	210,555,600		2,898,436
Average	--	1.3	--

<sup>a/</sup> Average production 1956-1960.



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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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



## COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Unusually large number of COTTON FLEAHOPPER adults feeding on oats in Henry County, Alabama. (p. 1305).

All citrus-growing districts in Florida will have important infestations of CITRUS RUST MITE in at least 20 percent of groves. (p. 1306).

DETECTION

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) reported for the first time in Stewart, Montgomery, Houston, Dickson, Hickman, Williamson, Lewis, Giles and Maury Counties, Tennessee. (p. 1305). WHITE-FRINGED BEETLES (Graphognathus spp.) reported for the first time in Hardin County, Tennessee, and Pickens County, South Carolina. (p. 1309). CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) and an APHID (Aphis oenotherae) collected for the first time in Maui County, Hawaii. (pp. 1310-1311).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1308).

Hawaiian Insect Notes. (pp. 1310-1311).

Distribution map - Psoroptic sheep scabies reported. (p. 1313).

CORRECTIONS

See page 1309.

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Reports in this issue are for the week ending December 18, unless otherwise indicated.

WEATHER OF THE WEEK ENDING DECEMBER 21

Arctic air poured across the northern Great Plains during most of the week. Strong winds, falling temperatures, and blowing snow combined in one of the most severe blizzards in many years.

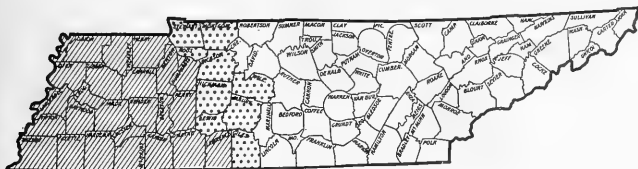
TEMPERATURE: Minimum temperatures dropped to zero as far South as Oklahoma. Sub-zero temperatures occurred in 18 States on Thursday morning and localities in 11 States registered subzero maxima Thursday afternoon. The entire State of Minnesota remained below zero on Thursday, December 17. As the cold front advanced to the gulf, the temperatures tumbled to the freezing mark or lower. Mobile, Alabama, registered 61° at 1:00 a.m. Friday morning and 34° at 7:00 a.m. Friday. By noon Friday the arctic high was centered over Missouri and extended from Texas to the Great Lakes. Brownsville, Texas, registered 32° on Friday morning. Over most of the Great Plains, the season's coldest weather occurred last week. Temperatures averaged below normal over almost the entire Nation. Most of the northern Rocky Mountains and northern and central Great Plains averaged more than 10° colder than normal. The few areas, northwestern Idaho, the Tucson, Arizona, vicinity, and the Florida Peninsula averaged slightly warmer than normal.

PRECIPITATION: Most Northern States from the Rocky Mountains to New England received from 1 to 5 inches of snow during the week. Sleet and freezing rain fell along the southern edge of the snow belt. Precipitation totals from California to New England were generally less than 0.10 inch. A few localities received only light snow flurries or light rain. An area extending from Louisiana to southwestern Virginia received more than 0.50 inch and Key West, Florida, received slightly more than 3 inches. The storm moved into the Far Northwest late in the week. It furnished more than 2 inches of precipitation along the Washington and Oregon coast and more than 1 inch over northern California, eastern Washington and Oregon, northern Idaho, and western Montana. Snow fell over all parts of Oregon. This storm brought 4 to 10 inches of snow to the lower elevations in Washington and heavier snow to the mountains. Snow accumulated 60 to 80 inches at elevations above 3,000 feet in Washington. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - TENNESSEE - Small numbers found in Stewart, Lewis, Montgomery, Houston, Dickson, Hickman, William-son, Giles and Maury Counties. These are all new county records for 1964. (Bennett, Henderson, Dec. 15). Accompanying map shows present known distribution of this species in State. (PPC).

Southwestern Corn Borer  
in Tennessee as of December 15



////// Previously infested counties

..... Counties found infested  
for first time in 1964

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Averaged 3 per linear foot in oats in Comanche County. (Okla. Coop. Sur.). TEXAS - Locally heavy on late corn in Starr County. (Tex. Coop. Rpt., Clyler).

COTTON FLEAHOPPER (Psallus seriatius) - ALABAMA - Unusually large number of adults feeding on oats in Henry County. (McQueen).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Adults numerous on oats in Henry County. (McQueen).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Averaged 3 per linear foot on oats in Comanche and Tillman Counties and 2 per linear foot in wheat in Ottawa County. (Okla. Coop. Sur.). ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

FLORIDA - Two heights of alfalfa and 2 heights of lupine yielded 100 sweeps on December 10 at University of Florida Experiment Station given the following insects:

	Alfalfa		Lupine	
	18-22 inches	12-24 inches	12-16 inches	5-7 inches
<u>Cuerna costalis</u>	8 adults	2 adults	3 adults	2 adults
<u>Empoasca spp.</u>	20 adults	8 adults	0	0
<u>Macrostelus fascifrons</u>	4 adults	5 adults	1 adult	4 adults
<u>Aceratagallia sanguinolenta</u>	10 adults	3 adults	0	9 adults
	1 nymph			
<u>Spissistilus festinus</u>	11 adults	4 adults	1 adult	0
<u>Lygus lineolaris</u>	11 adults	10 adults	1 adult	0
<u>Taylorilygus pallidulus</u>	48 adults	25 adults	61 adults	35 adults
<u>Creontiades rubrinervus</u>	5 adults	5 adults	2 adults	0
<u>Diabrotica undecimpunctata howardi</u>	7 adults	6 adults	0	0
<u>Sogata spp.</u>	30+ adults	13 adults	18 adults	24 adults
<u>Therioaphis maculata</u>	several hundred	common	0	few
<u>Acyrtosiphon pisum</u>	few (dark forms)	0	0	0
<u>Carneocephala sagittifera</u>	0	0	0	5 adults
<u>Nabis sp.</u>	11 adults	22 adults	10 adults	0
<u>Hippodamia convergens</u>	4 adults	4 adults	0	0
		1 larva		
<u>Chrysopa sp.</u>	14 adults	16 adults	0	0

Temperature 74° F.; wind under 10 m.p.h. (Mead).

PEA APHID (Acyrtosiphon pisum) - ARKANSAS - Continues near same level of previous week; 10-15 per square yard in northwest area. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Surveys continue negative in northwest area. (Ark. Ins. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Adults ranged up to 2 per foot in drill in oats 6-8 inches high in Henry County; oats followed peanuts. (McQueen).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light in oats in Comanche County. (Okla. Coop. Sur.). TEXAS - Light, widespread infestations in small grains in Denton and Wise Counties. (Turney).

#### FRUIT INSECTS

Citrus Insect Situation in Florida - Mid-December - CITRUS RUST MITE (Phyllocop-truta oleivora) infested 62 percent of groves (norm 70 percent); 46 percent economic (norm 47 percent). Fall period of abundance resulted in population near normal level since late October. Gradual decrease expected through January but all districts will have important infestations in at least 20 percent of groves. Infestations will be lower on fruit than on leaves. Highest districts west, south and central. TEXAS CITRUS MITE (Eutetranychus banksi) infested 43 percent of groves (norm 30 percent); 19 percent economic (norm 12 percent). Population reached fall peak slightly above moderate level normal for December; decrease expected. Highest districts north and west. CITRUS RED MITE (Panonychus citri) infested 38 percent of groves (norm 55 percent); 9 percent economic (norm 24 percent). Population will continue at low level. Only a few, scattered groves will develop important infestations. Highest districts west and north. GLOVER SCALE (Lepidosaphes gloverii) infested 69 percent of groves (norm 27 percent); 23 percent economic (norm 1 percent). Decrease expected; heavy infestations are few and spotty. Highest districts south, central and east. PURPLE SCALE (L. beckii) infested 68 percent of groves (norm 74 percent); 6 percent economic (norm 8 percent). Slight increase will occur but not expected to be important. Highest district south. CHAFF SCALE (Parlatoria pergandii) infested 65 percent of groves (norm 45 percent); 13 percent economic (norm 1 percent). Slight increase expected; highest district south. YELLOW SCALE (Aonidiella citrina) infested 57 percent of groves (norm 11 percent); 20 percent economic (norm 1 percent). Further increase expected; highest districts central and south. BLACK SCALE (Saissetia oleae) infested 36 percent of groves (norm 29 percent); 13 percent economic (norm 8 percent). Increase attributed to favorable weather; population above normal low level. Decrease expected after December. Highest district east. WHITEFLIES infested 70 percent of groves (norm 58 percent); 10 percent economic (norm 9 percent). Increased to above normal level; further increase expected. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Adults severe on sweet orange at nursery in Plant City, Hillsborough County. (Custead, Nov. 24).

#### TRUCK CROP INSECTS

TURNIP APHID (Hyadaphis pseudobrassicae) - ALABAMA - Extremely heavy on home garden turnips in Tallapoosa and other central counties. Lady beetles active and feeding. (Barwood).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Caused light to moderate damage to 200 24-inch celery plants in commercial planting at Sanford, Seminole County. (Desin).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Reported in southern Angelina, southeastern Houston, northern Jasper and Trinity Counties; 111 trees treated on national forests. Loblolly, shortleaf and longleaf pines attacked. (Tex. Coop. Rpt.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Control of all remaining known infestations completed; fall discoloration of hardwood foliage restricted aerial detection. (Tex. Coop. Rpt.).

SCALE INSECTS - NEW MEXICO - Unspecified species problem on fern foliage in floral shop in Socorro County. (N.M. Coop. Rpt.). OKLAHOMA - Crawlers of unspecified species active on Shefflera sp. in greenhouses in Durant, Bryan County. Aspidiotus perniciosus (San Jose scale) moderate to heavy on pyracantha in Stillwater, Payne County. (Okla. Coop. Sur.). ALABAMA - Additional reports of Pseudaulacaspis pentagona (white peach scale) noted; extremely heavy on flowering peach in Montgomery County. (Griffith, Blackwell).

Coccids in Florida - All stages of Phenacoccus gossypii (Mexican mealybug) severe on stem, flowers and leaves of Acalypha sp. at nursery in Clermont, Lake County. (Fatic). Adults of Pseudococcus citri (citrus mealybug) moderate on leaves of Amaryllis sp. at garden center in Winter Haven, Polk County, (Norton, Dec. 12); severe on leaves of Dichorisanthra sp. at Apopka, Orange County. Adults of Pseudococcus adonidum (long-tailed mealybug) severe on pothos (Sindapsus aureus) and on stem and leaves of Dracaena marginata; adults of Saissetia oleae (black scale) severe on stem of Poinsettia (Musgrove, Dec. 13). Adults of Saissetia hemisphaerica (hemispherical scale) severe on leaves of coontie (Zamia floridana) at Apopka, (Musgrove, Dec. 9); all stages on same host at Daytona Beach, Volusia County, (Pott, Holley, Dec. 10). All stages of Fiorinia theae (tea scale) severe on leaves of camellia at Clermont. (Fatic). All stages of Ceroplastes floridensis (Florida wax scale) taken on Ilex cornuta 'Burford'; adults taken on stems and leaves of Raphiolepis sp. at nursery in Macclenny, Baker County, (Collins, Dec. 7); adults taken on stem and leaves of gardenia at nursery in Apopka. (Musgrove, Dec. 10). All stages of Coccus viridis (green scale) severe on stem and leaves of Ixora sp. in nursery in Clermont. (Fatic). All stages of Howardia biclavus (mining scale) severe on stems of egg-fruit tree (Pouteria campechiana var. nervosa) at nursery in Homestead, Dade County. (Knowles, Dec. 7). Adults of Pseudonidia duplex (camphor scale) light on leaves of passion-vine at De Leon Springs, Volusia County. (Roberts, Holley, Dec. 14). Ceroplastes floridensis (Florida wax scale) adults moderate on stem of flowering dogwood at Fort Mead, Polk County, (R. R. Snell, J. C. Denmark; Dec. 10); these last 2 scales are new host records for Florida Division of Plant Industry. (Fla. Coop. Sur.).

MEALYBUGS - NEW MEXICO - Light to fairly heavy on potted plants in greenhouses in Bernalillo, Otero and Dona Ana Counties. (N.M. Coop. Rpt.).

APHIDS - NEW MEXICO - Unspecified species found on several varieties of bedding plants in greenhouse at Alamogordo, Otero County. (N.M. Coop. Rpt.). FLORIDA - Adults of Aphis gossypii severe on leaves of dumbcane (Dieffenbachia picta) at Apopka, Orange County. (Musgrove, Dec. 9).

A PSYLLID (Trioza magnoliae) - FLORIDA - Nymphs and gall taken on redbay (Persea borbona) at Fruitland, Putnam County. (Graham, Dec. 10).

PANDORA MOTH (Coloradia pandora) - NEBRASKA - Larval infestation on ponderosa pine in pine ridge area of Dawes and Sheridan Counties; no apparent damage to trees noted. (Mohler).

SPIDER MITES - NEW MEXICO - Problem on house plants offered for sale in variety stores in Bernalillo, Valencia, Otero and Santa Fe Counties. (N.M. Coop. Rpt.). OKLAHOMA - Tetranychus sp. moderate and damaging euonymus in Stillwater area, Payne County. (Okla. Coop. Sur.). FLORIDA - Adults of Tetranychus tumidus (tumid spider mite) severe on leaves of Aralia balfouriana and Schefflera actinophylla at Apopka, Orange County. (Musgrove, Dec. 14).

INSECTS AFFECTING MAN AND ANIMALS

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

During the period December 13-19, no screw-worm cases were reported in the United States. The Republic of Mexico reported 112 cases during this period from Puebla 1, Chihuahua 30, Tamaulipas 8, Sonora 51, Coahuila 2, Nuevo Leon 3, San Luis Potosi 2, Veracruz 2, and Durango 13. Sterile screw-worm flies released: Arizona 4,960,000, New Mexico 2,080,000, Texas 15,508,250 and Mexico 52,234,000.

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	126	50,905	25	3,122	504.00	1,630.00
1963	11	6,350	19	7,319	57.89	86.76
1964	0	238	21	6,174	0.00	3.85
Table 2. Comparison of specimens reported during corresponding weeks and in a corresponding area in 1963 in the United States-Mexico Barrier Zone.*						
1963	47	5,977	10	1,421	470.00	420.61
1964	94	4,442	27	2,045	348.14	217.21
Table 2A. Mexican portion of Barrier Zone only.						
1963	34	2,091	7	243	485.71	860.49
1964	94	4,197	26	917	361.53	457.68

\* 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.).

CATTLE LICE - OKLAHOMA - Several species heavy on cattle in Stephens County. (Okla. Coop. Sur.). UTAH - Total of 4,495 cattle treated in Wasatch County. (Daniels, Knowlton).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Total of 200 cattle treated in Wasatch County. (Daniels, Knowlton).

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

TROPICAL RAT MITE (Ornithonyssus bacoti) - TEXAS - Found in Harris County home. (Williams).

HOUSEHOLD AND STRUCTURAL INSECTS

BROWN-BANDED COCKROACH (Supella supellectilium) - UTAH - Infested 2 apartments at Logan, Cache County. (Knowlton).

A LONG-HORNED BEETLE (Neoclytus sp.) - MARYLAND - Adults emerged from firewood in home in Chestertown, Kent County. (U. Md., Ent. Dept.).

RICE WEEVIL (Sitophilus oryzae) - MARYLAND - Adults numerous in home in Bel Air, Harford County. (U. Md., Ent. Dept.).

A PYRALID MOTH (Aglossa cuprealis) - MARYLAND - Larvae noted in home in Montgomery County. (U. Md., Ent. Dept., Dec. 7).

STORED-PRODUCT INSECTS

BEAN WEEVIL (Acanthoscelides obtectus) - TEXAS - Locally heavy in stored beans and peas in Brazos County. (Tex. Coop. Rpt., Meisch).

MISCELLANEOUS INSECTS

WHITE-FRINGED BEETLES (Graphognathus spp.) - Inspections made in 36 TENNESSEE counties; new infested areas found in Hardin, Henry and Lawrence Counties. Hardin County is a new county record. All known infested areas in Bladen, Harnett, Pitt, Wake and Warren Counties, NORTH CAROLINA, treated. Treatments made in Richland, McCormick and Orangeburg Counties, SOUTH CAROLINA; new, limited area found in Pickens County. This is a new county record. Surveys in 12 ALABAMA counties revealed spot infestations in most areas. Treatment applied to extension of infested area in Webster County, MISSISSIPPI. (PPC South. Reg., Nov. Rpt.).

CORRECTIONS

CEIR 14(9):115 - FLOWER FLIES - FLORIDA - Volucella anastacia should read Volucella anastasia.

CEIR 14(45):1207 - APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Specimens determined as Rhopalosiphum rufiabdominalis by H. W. Van Cleave.

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 707th meeting of the Hawaiian Entomological Society held on November 16, 1964.

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum (Marchal)) was reported from Molokai; specimens of the thrips and infested leaves of Chinese banyan were collected in 3 localities at Kaunakakai on November 13, 1964, by John Blalock. The infestation appears to be confined to Kaunakakai and constitutes a new island record as well as a new record for Maui County. (J. Blalock, H. Nakao).

Adults of an ANTHOCORID BUG (Montandoniella moraguesi Puton) were released on foliage of a Chinese banyan tree in Aliamanu Housing during late August and early September 1964; a heavy infestation of Gynaikothrips ficorum (Marchal) (Cuban-laurel thrips) was present on this tree. On November 8, 1964, survey of leaves infested with G. ficorum showed that 20 percent also contained M. moraguesi in various stages of development. One week later, on November 15, another survey showed that M. moraguesi had increased in numbers and occupied 40 percent of leaves infested with G. ficorum. During the second survey, all stages of G. ficorum were being preyed upon by adults and nymphs of M. moraguesi, and a large number of damaged leaves contained only dead G. ficorum. (H. Clagg). This predaceous anthocorid is spreading throughout Honolulu and rural areas of Oahu. In addition to Pauoa Valley and Manoa Valley, M. moraguesi has been recovered on Round Top, Ala Moana Park, Honolulu International Airport, Lanikai, Kaneohe and Sand Island. It was also recovered for the first time at Port Allen, Kauai, by S. Au. (C. J. Davis).

A GRASSHOPPER (Schistocerca vaga (Scudder)) - Surveillance and eradication were continued on Sand Island. During the latter part of October, 2 adults were collected. Rains during early November apparently triggered hatching of eggs on Sand Island, as a total of 15 first to third instar nymphs were found. All were found on a weed, Waltheria americana, a good "indicator" plant for young nymphs. (C. J. Davis).

A LEAF BEETLE (Ocotoma scabripennis Guérin) - First recovery of this leaf mining chrysomeiid from lantana on Oahu was recently made by J. Kim and M. Hironaka from material collected on Round Top Drive, Tantalus. This species was originally introduced in 1902 and reintroduced in 1953 and 1954. It was recovered for the first time in the Kona District, Hawaii, in July 1963. (C. J. Davis).

Larvae of a NOCTUID MOTH (Catabena esula Druce) were moderately heavy on lantana in Ulupalakua-Auwahi area, Maui; 5-10 late stage larvae and cocoons per bush were noted. Activity is 2-3 months earlier than in previous 4 years and is first report of activity of this species this year. (N. Miyahira).

Feeding injury by PUNCTUREVINE WEEVILS (Microlarinus spp.) was recorded on the following weed hosts by S. Au: Amaranthus spinosus (spiny amaranth), Chenopodium album (lambquarters goosefoot) and Malva parviflora (little mallow). Only plants in close proximity to Tribulus sp. (puncturevine) were attacked. A similar observation was made on Oahu by Navy and State Department of Agriculture entomologists. (C. J. Davis).

Several specimens of BARNACLE SCALE (Ceroplastes cirripediformis Comstock) were collected from Eugenia sp. at Hilo, Hawaii, on October 27, 1964, by S. Matayoshi. This constitutes a new host record as well as a new insect record for the island of Hawaii. E. S. Shiroma collected several specimens of this scale insect from stems of Pluchea indica (Indian pluchea) in Fort Kam area of Hickam Air Base, Honolulu. This also constitutes a new host record for this scale insect. (Shiroma).



A POWDER-POST BEETLE (Minthea reticulata Lesne) - Three specimens were collected by Mrs. F. Achong of Hawaii Kai, Oahu. The beetles had emerged from furniture manufactured in Honolulu of Philippine mahogany (Shorea polysperma). The lumber had been imported from the Philippines. The beetles made exit holes from unfinished parts of the furniture. Det. by T. J. Spilman. (W. C. Mitchell, J. W. Beardsley).

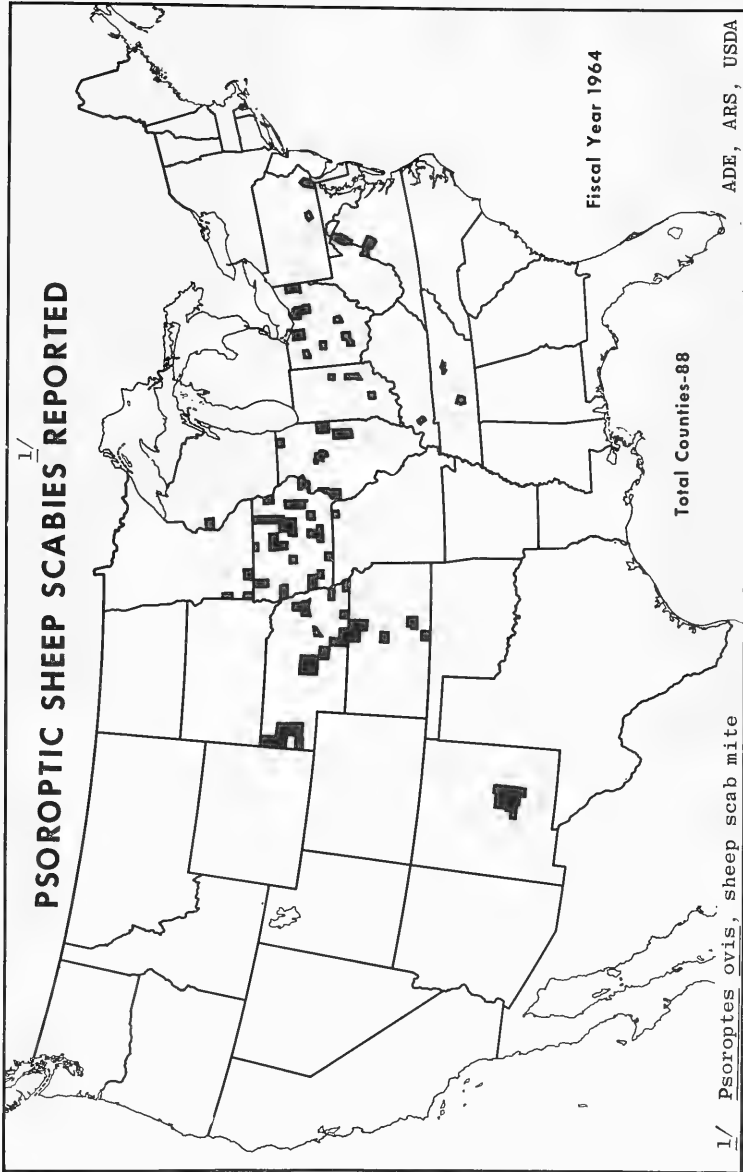
A small GEOMETRID MOTH (Cosymbia serrulata (Packard)) was first taken at light in Honolulu in May 1964. The species has subsequently been found established on Maui and is now reported for the first time from Hilo, Hawaii, on the basis of specimens found in light trap material collected during November 1964. Original determination was made by E. L. Todd of the material collected in Honolulu. (J. W. Beardsley).

Specimens of an APHID (Aphis oenotherae Oestlund) were collected from Oenothera odorata (an evening-primrose) on the island of Maui on Haleakala Crater at 7,000 feet elevation on August 28, 1964. Collection and determination were by J. W. Beardsley. This constitutes new records for the island and county of Maui. (Beardsley).

CONVERGENT LADY BEETLE (Hippodamia convergens Guérin), reported from Maui in June 1964 on the basis of a single specimen, now appears well established at higher elevations on Haleakala. On 2 occasions, once in August and once in September, numerous adults and larvae were taken on Dabautia sp. at elevations of 7,000-10,000 feet. (J. W. Beardsley).

Two specimens of a NOCTUID MOTH (Anomis flava (Fabricius)) have been taken to date in light trap material on Oahu. This newly established species in the State is widespread in the south and western Pacific; larvae feed on such plants as hibiscus and okra. (J. W. Beardsley).









UNITED STATES DEPARTMENT OF AGRICULTURE  
Hyattsville, Maryland 20781

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VOL. 14 INDEX

1964

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*Cooperative*  
**ECONOMIC INSECT  
REPORT**

*Issued by*

**PLANT PEST CONTROL DIVISION**

**AGRICULTURAL RESEARCH SERVICE**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# AGRICULTURAL RESEARCH SERVICE

## PLANT PEST CONTROL DIVISION

### SURVEY AND DETECTION OPERATIONS

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

Reports and inquiries pertaining to this release should be mailed to:

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

# COOPERATIVE ECONOMIC INSECT REPORT

## Volume 14

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## 1964

### INTRODUCTION

The explanations that follow will aid in using the 1964 index.

1. Page numbers underlined represent references to the "Summary of Insect Conditions in the United States - 1963."
2. Page numbers in parentheses represent loss estimates.
3. The small ° that follows the common name of certain species in the index indicates that the name is not listed in the "Common Names of Insects" as approved by the Entomological Society of America. However, most of these common names are of foreign species, and the common names used in the Cooperative Economic Insect Report were taken from literature sources from a country or countries where the species occurs.
4. Complete cross indexing of page references of insects with common names is not used. The "Scientific Names" should be used to locate all page references, with the exception of those insects or groups of insects where the scientific names were not reported. In these cases, the page reference will be listed in the "Common Names."
5. A combination of both common and scientific name of an insect or pest may not appear on the page referenced, but one or the other will be present.
6. A list of corrections for volume 14, not previously published, is on pages 41 and 42.

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- Alfalga caterpillar  
(*Colias eurytheme*)
- Alfalga looper  
(*Autographa californica*)
- Alfalga plant bug  
(*Adelphocoris lineolatus*)
- Alfalga seed chalcid  
(*Bruchoaphagus roddii*)
- Alfalga snout beetle  
(*Brachyrhinus ligustici*)
- Alfalga webworm  
(*Toxostege commixtalis*)
- Alfalga weevil  
(*Hypera postica*)
- Alkali bee  
(*Nomia melanderi*)
- Almond moth  
(*Cadra cautella*)
- American cockroach  
(*Periplaneta americana*)
- American dagger moth  
(*Acronicta americana*)
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(*Rhopalosiphum fitchii*)
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- Apple maggot  
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- Apple rust mite  
(*Aculus schlechtendali*)
- Apple seed chalcid  
(*Torymus duparum*)
- Apple twig borer  
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  - (*Tenodera aridifolia sinensis*)
- Chrysanthemum aphid
  - (*Macrosiphoniella sanborni*)
- Chrysanthemum leaf miner
  - (*Phytomyza atricornis*)
- Cicada killer
  - (*Sphecius speciosus*)
- Cicadas
  - 20, 260, 485, 622, 641
- Cigar casebearer
  - (*Colophora serratella*)
- Cigarette beetle
  - (*Lasioderma serricorne*)
- Citheronid moth, a
  - 545
- Citricola scale
  - (*Coccus pseudomagnoliarum*)
- Citrophilus mealybug
  - (*Pseudococcus fragilis*)
- Citrus blackfly
  - (*Aleurocanthus woglumi*)
- Citrus bud mite
  - (*Aceria sheldoni*)
- Citrus Flat mite
  - (*Brevipalpus lewisi*)
- Citrus leaf miner\*
  - (*Phyllocnistis citrella*)
- Citrus mealybug
  - (*Pseudococcus citri*)
- Citrus psylla\*
  - (*Diaphorina citri*)
- Citrus red mite
  - (*Panonychus citri*)
- Citrus rust mite
  - (*Phyllocolpura oleivora*)
- Citrus thrips
  - (*Scirtothrips citri*)
- Citrus whitefly
  - (*Dialeurodes citri*)
- Clay-backed cutworm
  - (*Agrotis gladiaria*)
- Clear-winged grasshopper
  - (*Camnula pellucida*)
- Click beetles
  - See wireworms
- Clothes moths
  - 300, 303
- Clouded sulphur
  - (*Colias philodice*)
- Clover aphid
  - (*Anuraphis bakeri*)
- Clover cutworm
  - (*Scotogramma trifolii*)
- Clover head caterpillar
  - (*Grapholita interstinctana*)
- Clover head weevil
  - (*Hypera meles*)
- Clover leaf weevil
  - (*Hypera punctata*)
- Clover leafhopper\*
  - (*Aceratagallia sanguinolenta*)
- Clover looper
  - (*Caenurgina crassiuscula*)
- Clover mite
  - (*Bryobia praetiosa*)
- Clover mites
  - (1179)
- Clover root borer
  - (*Hylastinus obscurus*)
- Clover root curculio
  - (*Sitona hispidula*)
- Clover seed chalcid
  - (*Bruchophagus platyptera*)
- Clover seed weevil
  - (*Microtrogus picirostris*)
- Clover stem borer
  - (*Languria mozdari*)
- Clover weevil
  - 154, (1248)
- Cluster fly
  - (*Pollenia rudis*)
- Coccids
  - 1053, 1115
- Cockchafer\*
  - (*Melolontha melolontha*)
- Cocklebur weevil
  - (*Rhodobaenus tredecimpunctatus*)
- Cockroaches
  - 25, 89, 300, 1195, 1295
- Coconut leaf roller
  - (*Hedylepta blackburni*)
- Coconut mealybug
  - (*Pseudococcus nipae*)
- Coconut scale
  - (*Aspidiotus destructor*)
- Codling moth
  - (*Carpocapsa pomonella*)
- Coffee bean weevil\*
  - (*Araceus fasciculatus*)
- Coffee berry borer\*
  - (*Stephanoderes hampei*)
- Coffee trunk borer, a
  - 25
- Colaspis, a
  - (1215)
- Colorado potato beetle
  - (*Leptinotarsa decemlineata*)
- Columbine borer\*
  - (*Papipema purpurifascia*)
- Columbine leaf miner
  - (*Phytomyza minuscula*)
- Common cattle grub
  - (*Hypoderma lineatum*)
- Common malaria mosquito
  - (*Anopheles quadrimaculatus*)
- Comstock mealybug
  - (*Pseudococcus comstocki*)
- Conchuela
  - (*Chlorochroa ligata*)
- Confused flour beetle
  - (*Tribolium confusum*)
- Conifer sawflies
  - 213, 352, 443, 515, 694, 948
- Convergent lady beetle
  - (*Hippodamia convergens*)
- Cool spruce gall aphid
  - (*Chermes coolleyi*)
- Coreid bugs
  - 193
- Corn blotch leaf miner
  - (*Agromyza parvicornis*)
- Corn flea beetle
  - (*Chaetocnema pulicaria*)
- Corn leaf aphid
  - (*Rhopalosiphum maidis*)
- Corn root aphid
  - (*Anuraphis maidiradicis*)
- Corn root weevil
  - (*Crambus caliginosellus*)
- Corn sap beetle
  - (*Carpophilus dimidiatus*)
- Corn silk beetle
  - (*Luperodes brunneus*)
- Cotton aphid
  - (*Aphis gossypii*)
- Cotton fleahopper
  - (*Psallus seriatus*)
- Cotton jassid\*
  - (*Empoasca lybica*)
- Cotton leaf perforator
  - (*Bucculatrix thurberiella*)
- Cotton leafworm
  - (*Alabama argillacea*)
- Cotton square borer
  - (*Strymon natus*)
- Cotton stem borer\*
  - (*Sphenoptera gossypii*)
- Cottonseed bug\*
  - (*Oxycaenus hyalinipennis*)
- Cottonwood borer
  - (*Plectroderus scotalor*)
- Cotton-cushion scale
  - (*Icecya purchasi*)
- Cottony maple scale
  - (*Pulvinaria innumerabilis*)
- Cowpea aphid
  - (*Aphis craccivora*)
- Cowpea curculio
  - (*Chalcoedermus aeneus*)
- Cowpea weevil
  - (*Callosobruchus maculatus*)
- Cranberry fruitworm
  - (*Acrobasis vaccinii*)
- Cranberry girdler
  - (*Crambus topiarius*)
- Cranberry weevil
  - (*Anthonomus musculus*)
- Crane fly, a
  - 714
- Craspeomyte aphid
  - (*Myzocallis kahawaluokalani*)
- Crescent-marked lily aphid
  - (*Neomyzus circumflexus*)
- Crickets
  - 22, 887, 971, 1054, 1074, 1084, (1179)
- Crown borer, a
  - (597)
- Cuban-laurel thrips
  - (*Gynaikothrips ficorum*)
- Cucumber beetles
  - 509, 688, 764
- Curculios
  - 507, 544
- Currant aphid
  - (*Capitophorus ribis*)
- Currant borer
  - (*Ramosia tipuliformis*)
- Currant fruit weevil
  - (*Pseudanthonomus validus*)
- Currant stem girdler
  - (*Janus integer*)
- Cutworms
  - 96, 113, 318, 121, 131, 163, 175, 212, 224, 225, (226), 240, 257, 258, 261, 262, 289, 368, 403, 440, 471, 474, 475, 503, 509, 512, 535, 544, 551, 566, 576, 590, 602, 617, 638, 653, 655, 683, 686, 725, 726, 740, 803, 940, 999, 1023, 1087, 1127, 1138, 1145, (1176), 1231, 1233, (1246), (1247), (1248), (1249), (1287), (1289), (1290)
- Cyclamen mite
  - (*Stenotarsonemus pallidus*)



- Damsel bugs
  - 341, 450, 560
- Dark mealworm
  - (*Tenebrio obscurus*)
- Dark-sided cutworm
  - (*Euxoa messoria*)
- Darkling beetles
  - 692, 729, (1179)
- Deer flies
  - See tabanid flies
- Deodar weevil
  - (*Pissodes nemorensis*)
- Dermeid beetles
  - 6, 818, 851, 1276, 1277
- Desert corn flea beetle
  - (*Chaetocnema ectypa*)
- Desert locust\*
  - (*Schistocerca gregaria*)
- Desert spider mite
  - (*Tetranychus desertorum*)
- Devastating grasshopper
  - (*Melanoplus devastator*)
- Diamondback moth
  - (*Plutella maculipennis*)
- Dicotyledonous scale
  - (*Chrysomphalus dictyospermi*)
- Differential grasshopper
  - (*Melanoplus differentialis*)

Dingy cutworm  
(*Feltia subgothica*)

Dog flea  
(*Ctenocephalides canis*)

Dog follicle mite  
(*Demodex canis*)

Dogwood borer  
(*Thannosnephcia scitula*)

Dogwood club-gall midge  
(*Mycodiplosis alternata*)

Dogwood scale  
(*Chionaspis corni*)

Dogwood twig borer  
(*Oberea tripunctata*)

Douglas-fir beetle  
(*Dendroctonus pseudotsugae*)

Douglas-fir tussock moth  
(*Hemerocampa pseudotsugata*)

Douglas-fir twig weevil  
(*Cylindrocopturus furnissi*)

Dragonflies  
245, 819

Dried-fruit beetle  
(*Carpophilus hemipterus*)

Dried-fruit moth  
(*Vitula edmandsae serratilineella*)

Drugstore beetle  
(*Stegobium paniceum*)


Drywood termite, a  
218

Durra aphid<sup>o</sup>  
(*Aphis sorghi*)

Durra stalk borer<sup>o</sup>  
(*Sesamia cretica*)

Dusky birch sawfly  
(*Croesus latitarsis*)

Dusky sap beetle  
(*Carpophilus lugubris*)



Ear tick  
(*Otobius megnini*)

Earwigs  
241, 813, 818, 887, (1179)

Eastern field wireworm  
(*Limonius agonus*)

Eastern lubber grasshopper  
(*Romalea microptera*)

Eastern raspberry fruitworm  
(*Byturus rubi*)

Eastern spruce gall aphid  
(*Chermes abietis*)

Eastern subterranean termite  
(*Reticulitermes flavipes*)

Eastern tent caterpillar  
(*Malacosoma americanum*)

Eggplant flea beetle  
(*Epirixia fuscula*)

Eggplant fruit borer<sup>o</sup>  
(*Leucinodes orbonalis*)

Eggplant lace bug  
(*Gargaphia solani*)

Eggplant leaf miner  
(*Keiferia glochinella*)

Egyptian cottonworm<sup>o</sup>  
(*Prodenia litura*)

Eight-spotted forester  
(*Alypia octomaculata*)

Elm borer  
(*Saperda tridentata*)

Elm calligrapha  
(*Calligrapha scalaris*)

Elm cockscomb-gall aphid  
(*Colopha ulmicola*)

Elm leaf aphid  
(*Myzocallis ulmifolii*)

Elm leaf beetle  
(*Galerucella xanthomelaena*)

Elm leaf miner  
(*Fenusia ulmi*)

Elm sawfly  
(*Cimbex americana*)

Elm spanworm  
(*Ennomos subsignarius*)

Elongate flea beetle  
(*Systema elongata*)

Engelmann spruce beetle  
(*Dendroctonus engelmanni*)

English grain aphid  
(*Macrosiphum avenae*)

Eriophyid mites  
353, 361, 480, 555, 697, 820,  
882, 1254

Ermine moth  
(*Yponomeuta padella*)

Euonymus scale  
(*Unaspis euonymi*)

European apple sawfly  
(*Hoplocampa testudinea*)

European carrot borer<sup>o</sup>  
(*Phalonia zephyrana*)

European chafer  
(*Amphimallon majalis*)

European corn borer  
(*Ostrinia nubilalis*)

European cherry fruit fly<sup>o</sup>  
(*Rhagoletis cerasi*)

European earwig  
(*Forficula auricularia*)

European elm scale  
(*Gossyparia spuria*)

European fruit lecanium  
(*Lecanium corni*)

European peach scale  
(*Lecanium persicae*)

European pine sawfly  
(*Neodiprion sertifer*)

European pine shoot moth  
(*Rhyacionia buoliana*)

European red mite  
(*Panonychus ulmi*)

European spruce sawfly  
(*Diprion hercyniae*)

Eye-spotted bud moth  
(*Spilota ocellana*)



Face fly  
(*Musca autumnalis*)

Fall armyworm  
(*Spodoptera frugiperda*)

Fall cankerworm  
(*Alopiophila pomataria*)

Fall webworm  
(*Hyphantria cunea*)

False chinch bug  
(*Nysius ericae*)

False codling moth<sup>o</sup>  
(*Cryptophlebia leucotreta*)

False potato beetle  
(*Leptinotarsa juncta*)

Fern scale  
(*Pinnaspis aspidistrae*)

Fiery hunter  
(*Chalocoma calidum*)

Fig scale  
(*Lepidosaphes ficus*)

Filbert aphid  
(*Myzocallis coryli*)

Filbertworm  
(*Melissopus latiferraneanus*)

Fir engraver  
(*Scolytus ventralis*)

Fire ant  
(*Solenopsis geminata*)

Flat grain beetle  
(*Cryptolestes pusillus*)

Flathheaded apple tree borer  
(*Chrysothrips femorata*)

Flathheaded fir borer  
(*Melanophila drummondii*)

Flea beetles  
23, 224, 225, (226), 249, 262,  
404, 438, 473, 511, 549, 550,  
551, 578, 616, 653, 655, 685,  
692, 726, 753, 761, 799, 802,  
874, 940, 1189, 1233, 1234,  
(1250), 1254, (1287), (1289),  
(1290)

Fleahoppers  
581, (634), 656, 691, 728, 806,  
975, (1182), (1266)

Fleas  
285, 448, 521, 700, 886, 981

Flesh flies  
294

Fletcher scale  
(*Lecanium fletcheri*)

Flies  
147, (1102), 1193

Floodwater mosquito  
(*Aedes sticticus*)

Florida harvester ant  
(*Pogonomyrmex badius*)

Florida red scale  
(*Chrysomphalus aonidum*)

Florida wax scale  
(*Ceroplastes floridensis*)

Flower flies  
134, 245, 381, 388, 412, 450,  
484, 524, 560, 851, 1055, 1137,  
1227, 1243

Forage looper  
(*Caenurgina erechtea*)

Forbes scale  
(*Aspidiotus forbesi*)

Foreign grain beetle  
(*Anasverus advena*)

Forest tent caterpillar  
(*Malacosoma disstria*)

Formosan subterranean termite  
(*Coptotermes formosanus*)

Four-lined plant bug  
(*Poecilcapus lineatus*)

Four-spotted spider mite  
(*Tetranychus canadensis*)

Fowl tick  
(*Argas persicus*)

Foxglove aphid  
(*Acyrtosiphon solani*)

Frit fly  
(*Oscinella frit*)

Frit flies  
641

Fruit flies  
200, 873


Fruit-tree leaf roller  
(*Archips argyrospilus*)

Fulgurid planthopper, a  
848

Fuller rose beetle  
(*Pantomorus godmani*)

Fungus gnats  
(1179)

Furniture carpet beetle  
(*Anthrenus flavipes*)



Gall midges  
373, 515

Garden fleahopper  
(*Halticus bracteatus*)

Garden spiders  
(1178)

Garden springtail  
(*Bourletiella hortensis*)

Garden symphytan  
(*Scutigera immaculata*)

Garden webworm  
(*Loxostege similalis*)



- Gelechid moth, a 1187, 1222, (1246), (1247), 770 (1248), (1249), (1250), 1254, (1287), (1288), (1289), (1290)
- Genista caterpillar (Deroceras reticulatum)
- Geometrid moths Great Basin tent caterpillar (Malacosoma fragile)
- 1137 Great Basin wireworm (Cteniceira pruinina)
- German cockroach (Blattella germanica)
- Giant African snail (Achatina fulica)
- Giant bark aphid (Longistigma caryae)
- Giant hornet (Vespa crabro germana)
- Giant stag beetle (Lucanus elaphus)
- Giant water bug (Lethocerus americanus)
- Gladiolus thrips (Taeniothrips simplex)
- Glassy cutworm (Crymodes devastator)
- Globose scale (Lecanium prunastris)
- Gloomy scale (Chrysomphalus tenebrosus)
- Glover scale (Lepidosaphes gloverii)
- Gnats 290
- Golden buprestid (Buprestis aurulenta)
- Golden-eye Tacingwing (Chrysope oculata)
- Golden nematode (Heterodera rostochiensis)
- Golden oak scale (Asterolecanium variolosum)
- Golden Tortoise beetle (Metriana bicolor)
- Gooseberry fruitworm (Zophodia convolutella)
- Grain storage insects (1176)
- Granary weevil (Sitophilus granarius)
- Granulate cutworm (Feltia subterranea)
- Grape berry moth (Paralobesia viteana)
- Grape erineum mite (Eriophyes vitis)
- Grape flea beetle (Altica chalybea)
- Grape leaf folder (Desmia funeralis)
- Grape leaf skeletonizer (Harrisina americana)
- Grape mealybug (Pseudococcus maritimus)
- Grape phylloxera (Phylloxera vitifoliae)
- Grape plume moth (Pterophorus periselidactylus)
- Grape root borer (Vitacea polistiformis)
- Grape scale (Aspidiotus uvae)
- Grapevine aphid (Aphis illinoisensis)
- Grass bugs 434, 866
- Grasshoppers 19, 21, 23, 24, 27, 85, 99, (100), 101, 103, 104, 200, 205, 269, 311, 351, 369, 401, 435, 497, 513, (527), 533, 565, (594), 601, 637, 638, 673, 689, 692, 709, 710, 725, 745, 749, 770, 785, 801, 806, 829, 830, (857), 861, 862, 897, 909, 936, 930, 951, 989, 999, 1015, 1016, (1038), 1043, 1063, 1084, 1109, 1137, 1142, 1143, 1163,
- Hackberry-nipple-gall maker (Pachypsylla celtidismanama)
- Hag moth (Phobetrion pithecius)
- Hairy chincha bug (Blissus leucopterus hirtus)
- Hall scale (Nilotaspis halli)
- Harlequin bug (Margantia histrionica)
- Harvester ant 1044, (1178)
- Hawthorn lace bug (Corythucha cydoniae)
- Head louse (Pediculus humanus capitis)
- Hemispherical scale (Saissetia hemisphaerica)
- Hemlock looper (Lambdina fiscellaria)
- Hessian fly (Phytophaga destructor)
- Hibiscus mealybug ("Phenacoccus" hirsutus)
- Hickory horned devil (Citheronia regalis)
- Hickory plant bug (Lygocoris caryae)
- Hickory snuckworm (Laspeyresia caryana)
- Hide beetle (Dermestes maculatus)
- Hog louse (Haematopinus suis)
- Holly leaf miner (Phytomyza ilicis)
- Holly scale (Aspidiotus britannicus)
- Hollyhock weevil (Apion longirostre)
- Honey bee (Apis mellifera)
- Hop aphid (Phorodon humuli)
- Hop flea beetle (Psylliodes punctulata)
- Horn fly (Haematobia irritans)
- Horned squash bug (Anasa armigera)
- Hornets See Vespid wasps
- Hotworms 23, 224, 511, (1233), (1234), (1289)
- Horse flies See Tabanid flies
- House centipede (Scutigraea coleoptrata)
- House fly (Musca domestica)
- House flies 245, 294, 624
- Howard scale (Aspidiotus howardi)
- Human bot fly (Dermatobia hominis)
- Human flea (Pulex irritans)
- Ichneumon, an 524
- Imported cabbageworm (Pieris rapae)
- Imported currantworm (Nematus ribesii)
- Imported fire ant (Solenopsis saevissima richteri)
- Imported willow leaf beetle (Plagiodyra versicolora)
- Introduced pine sawfly (Diprion similis)
- Indian-meal moth (Plodia interpunctella)
- Io moth (Automeris io)
- Iris borer (Macronoctua onusta)
- Italian locust (Calliptamus italicus)
- Italian pear scale (Epidiaspis piricola)
- Jack-pine budworm (Choristoneura pinus)
- Jack-pine sawfly (Neodiprion pratti banksianae)

Japanese beetle  
(*Popillia japonica*)  
Java sugarcane leaf mite\*  
(*Oligonychus exsicicator*)  
Jeffrey pine beetle  
(*Dendroctonus jeffreyi*)  
Juniper scale  
(*Diaspis carueli*)  
Juniper webworm  
(*Dichomeris marginella*)

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Katydids  
205  
Khapra beetle  
(*Trogoderma granarium*)

**L**

Lace bugs  
331, 583, 663, 735, 847, 971,  
1005, 1053  
Lacewings  
341, 389, 412, 449, 484, 523,  
560, 667, 739, 887  
Lady beetles  
134, 319, 380, 386, 411, 449,  
484, 560, 667, 701, 739, 778,  
779, 819, 851, 887, 921, 953,  
982, 1030, 1054, 1074, 1093,  
1117, 1137, 1217  
Lantana lace bug  
(*Teleonemia scrupulosa*)  
Lantana seed fly  
(*Ophiomyia lantanae*)  
Larch casebearer  
(*Coleophora laricella*)  
Larch sawfly  
(*Pristiphora erichsonii*)  
Larder beetle  
(*Derместes lardarius*)  
Large aspen tortrix  
(*Choristoneura conflictana*)  
Large white butterfly\*  
(*Pieris brassicae*)  
Larger canna leaf roller  
(*Calpodex ethlius*)  
Larger elm leaf beetle  
(*Monocesta coryli*)  
Larger yellow ant  
(*Acanthomyops interjectus*)  
Lawn armyworm  
(*Spodoptera mauritia acronyctoides*)  
Lead-cable borer  
(*Scobicia declivis*)  
Leaf beetles  
20, 347, 348, 440  
Leaf crumpler  
(*Acrobasis indiginella*)  
Leaf-cutting bees  
624  
Leaf-footed bug  
(*Leptoglossus phyllopus*)  
Leaf miners\*  
252, 346, 354, 615, 720, 724,  
729, 784, 801, 1023, (1177), (1290)  
Leaf miner flies  
252, 346, 687  
Leaf roller moths  
345, 507, 570  
Leaf rollers  
516, 546, 554  
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238, 252, 259, 265, 266, 311, 350,  
431, 480, 546, 339, 611, 648, 653,  
683, 685, 721, 740, 754, 772, 798,  
799, 811, 847, 852, 876, 882, 938,  
946, 996, (1174), (1247), (1248),  
(1249), (1250), 1293

Leafworm, a  
19  
Leek moth\*  
(*Acrolepia assectella*)  
Lemon butterfly\*  
(*Papilio demoleus*)  
Leopard moth  
(*Zeuzera pyrina*)  
Lepidopterous larvae  
20, 27, 1151  
Lesser bulb fly  
(*Eumerus tuberculatus*)  
Lesser clover leaf weevil  
(*Hypera nigrostris*)  
Lesser cornstalk borer  
(*Elasmopalpus lignosellus*)  
Lesser grain borer  
(*Rhyzopertha dominica*)  
Lesser mealworm  
(*Alphitobius diaperinus*)  
Lesser peach tree borer  
(*Synanthedon pictipes*)  
Lesser pumpkin fly\*  
(*Dacus ciliatus*)  
Lettuce root aphid  
(*Pemphigus bursarius*)  
Lilac borer  
(*Podosesia syringae syringae*)  
Lilac leaf miner  
(*Gracilaria syringella*)  
Lima-bean pod borer  
(*Etiella zinckenella*)  
Lima-bean vine borer  
(*Monoptilota pergratialis*)  
Linden looper  
(*Erannis tiliaria*)  
Little black ant  
(*Monomorium minimum*)  
Little house fly  
(*Fannia canicularis*)  
Locust borer  
(*Megacyllene robiniae*)  
Locust leaf miner  
(*Xenochalepus dorsalis*)  
Locust twig borer  
(*Ectyolopha insiticiana*)  
Lodgepole needle miner  
(*"Recurvaria" milleri*)  
Lone star tick  
(*Amblyomma americanum*)  
Long-horned beetle, a  
110  
Long-nosed cattle louse  
(*Linognathus vituli*)  
Long-tailed mealybug  
(*Pseudococcus adonidum*)  
Loopers  
181, 167, 581, 966, 1013, 1062,  
1144  
Lygus bugs  
24, 472, (593), (634), 716,  
717, 946

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Maggots  
580, 654, 687, 910  
Magnolia scale  
(*Neolecanium cornuparvum*)  
Mange mites  
297  
Mango weevil  
(*Sternonchus mangiferae*)  
Maize and jowar borer\*  
(*Chilo zonellus*)  
Maize billbug  
(*Sphenophorus maidis*)  
Maize stalk borer\*  
(*Busselotia fusca*)  
Maize bladder-gall mite  
(*Yasates quadripedes*)  
Maize gall mites  
624

Maple petiole borer  
(*Caulocampus acericaulis*)  
March flies  
472, 501, 641, 1282  
Margarodid scales  
165, 605, 870, 1127  
Margined blister beetle  
(*Epicauta pestifera*)  
Masked hunter  
(*Reduvius personatus*)  
Meadow plant bug  
(*Leptopterna dolabratus*)  
Meadow spittlebug  
(*Philaenus spumarius*)  
Meal moth  
(*Pyralis farinalis*)  
Mealy plum aphid  
(*Hyalopteris pruni*)  
Mealybugs  
25, 77, 203, 359, 402, 470,  
542, 613, 698, 721, 970, 996,  
1067, (1174), 1307  
Mediterranean flour moth  
(*Anagasta kuhniella*)  
Mediterranean fruit fly  
(*Ceratitis capitata*)  
Melon aphid  
(*Aphis gossypii*)  
Melon fly  
(*Dacus cucurbitae*)  
Melonworm  
(*Diaphania hyalinata*)  
Membracids  
1137  
Merchant grain beetle  
(*Oryzaephilus mercator*)  
Mexican bean beetle  
(*Epilachna varivestis*)  
Mexican fruit fly  
(*Anastrepha ludens*)  
Mexican mealybug  
(*Phenacoccus gossypii*)  
Midges  
378, 447  
Migratory grasshopper  
(*Melanoplus sanguinipes*)  
Millipedes  
35, 177, 253, 300, 305, 518,  
522, 664, 703, 1092, 1151,  
1208, 1284  
Mimosa webworm  
(*Homadaula albizziae*)  
Mining scale  
(*Howardia biclavis*)  
Minute pirate bugs  
See anthocorid bugs  
Mites  
53, 162, 194, 196, 197, 198,  
202, 204, 205, 233, 263, 265,  
266, 352, 361, 403, 473, 511,  
726, 754, 765, 790, 834, 848,  
911, 944, 972, 1053, 1086  
(1174), (1216), 1233, (1246),  
1276, 1277  
Mole crickets  
166  
Monterey-pine weevil  
(*Pissodes radiatae*)  
Morning-glory leaf miner  
(*Bedeiella somnulentella*)  
Mormon cricket  
(*Anabrus simplex*)  
Moroccan locust\*  
(*Doclostaurus maroccanus*)  
Mosquitoes  
95, 116, 177, 215, 286, 287,  
288, 289, 317, 378, 480, 520,  
356, 537, 585, 586, 624, 664,  
699, 737, 774, 775, 814, 849,  
884, 919, 951, 980, 1006,  
105, 1073, 1092, 1115, 1116,  
1132, 1150, (1177), 1192, 1210,  
1226, 1241

- Moth flies  
304, 559, 738
- Moths  
(1179)
- Mottled tortoise beetle  
(*Deloyala guttata*)
- Mountain-ash sawfly  
(*Pristiphora geniculata*)
- Mountain pine beetle  
(*Dendroctonus monticolae*)
- Mourning-cloak butterfly  
(*Nymphalis antiopa*)
- Mulberry whitefly  
(*Tetraleurodes mori*)
- Mushroom mite  
(*Tyrophagus putrescentiae*)
- N**
- Nabids  
245
- Nantucket pine tip moth  
(*Rhyacionia frustrana*)
- Narcissus bulb fly  
(*Lampetia equestris*)
- Native elm bark beetle  
(*Hylurgopinus rufipes*)
- Native holly leaf miner  
(*Phytomyza ilicicola*)
- Navel orangeworm  
(*Paranyelois transitella*)
- Negro bug  
(*Corimelaena pulicaria*)
- Nematodes  
(594)
- Nepticulid moth, a  
1128
- New-house borer  
(*Arhopalus productus*)
- Noctuid moths  
179, 334, 648, 1137
- Northern cattle grub  
(*Hypoderma bovis*)
- Northern corn rootworm  
(*Diabrotica longicornis*)
- Northern fowl mite  
(*Ornithonyssus sylviarum*)
- Northern house mosquito  
(*Culex pipiens pipiens*)
- Northern masked chaffer  
(*Cyclocephala borealis*)
- Northern mole cricket  
(*Gryllotalpa hexadactyla*)
- Norway-maple aphid  
(*Periphyllus lyropictus*)
- Nutgrass armyworm  
(*Spodoptera exempta*)
- Nuttall blister beetle  
(*Lytta nuttallii*)
- O**
- Oak lace bug  
(*Corythucha arcuata*)
- Oak Iecanium  
(*Lecanium quercifex*)
- Oak skeletonizer  
(*Bucculatrix ainisiella*)
- Oak webworm  
(*Archips fervidanus*)
- Oat cyst nematode  
(*Heterodera avenae*)
- Oblique-banded leaf roller  
(*Archips rosaceanus*)
- Obscure scale  
(*Chrysomphalus obscurus*)
- Odorous house ant  
(*Tapinoma sessile*)
- Oleander aphid<sup>o</sup>  
(*Aphis nerii*)
- Oleander scale  
(*Aspidiotus hederæe*)
- Old-house borer  
(*Hylotrupes bajulus*)
- Old World bollworm<sup>o</sup>  
(*Heliothis armigera*)
- Olive fruit fly  
(*Dacus oleæ*)
- Olive moth  
(*Prays oleellus*)
- Olive psyllid<sup>o</sup>  
(*Euphyllura olivina*)
- Olive scale  
(*Parlatoria oleæ*)
- Omnivorous leaf tier  
(*Cnephias longana*)
- Omnivorous looper  
(*Sabulodes caberata*)
- Onion maggot  
(*Hylemya antiqua*)
- Onion root mites  
473, 510, 548, 614
- Onion thrips  
(*Thrips tabaci*)
- Orange-dog  
(*Papilio cressphontes*)
- Orange-striped oakworm  
(*Anisota senatoria*)
- Orange tortrix  
(*Argyrotaenia citrana*)
- Orb weaver spiders  
392
- Orchard mites  
718, 758, 797, 969, 1020
- Oriental cockroach  
(*Blatta orientalis*)
- Oriental fruit fly  
(*Dacus dorsalis*)
- Oriental fruit moth  
(*Grapholitha molesta*)
- Oystershell scale  
(*Lepidosaphes ulmi*)
- P**
- Pacific Coast tick  
(*Dermacentor occidentalis*)
- Pacific Coast wireworm  
(*Limonius canus*)
- Pacific dampwood termite  
(*Zootermopsis angusticollis*)
- Pacific flatheaded borer  
(*Chrysobothris mali*)
- Pacific spider mite  
(*Tetranychus pacificus*)
- Packard grasshopper  
(*Melanoplus packardii*)
- Painted hickory borer  
(*Megacyllene caryæe*)
- Painted leafhopper  
(*Endria inimica*)
- Painted maple aphid  
(*Drepanaphis acerifoliae*)
- Pale-striped flea beetle  
(*Systena blanda*)
- Pale-striped flea beetles  
(595)
- Pale tussock moth  
(*Halisiotida tessellaris*)
- Pale western cutworm  
(*Agrotis orthogonia*)
- Pales weevil  
(*Hylobius pales*)
- Pamphiliid sawfly, a  
879
- Pandora moth  
(*Coloradia pandora*)
- Papaya fruit fly  
(*Toxotrypana curvicauda*)
- Parasitic hymenopteron  
134, 387, 412, 1212, 1227
- Parasitic wasps  
485, 820
- Parlatoria date scale  
(*Parlatoria blanchardi*)
- Pavement ant  
(*Tetramorium caespitum*)
- Pea aphid  
(*Acyrtosiphon pisum*)
- Pea leaf weevil  
(*Sitona lineata*)
- Pea weevil  
(*Bruchus pisorum*)
- Peach fruit moth<sup>o</sup>  
(*Carposina niponensis*)
- Peach silver mite  
(*Aculus cornutus*)
- Peach tree borer  
(*Sanninoidea exitiosa*)
- Peach twig borer  
(*Anarsia lineatella*)
- Pear lace bug<sup>o</sup>  
(*Stephanitis pyri*)
- Pear leaf blister mite  
(*Eriophyes pyri*)
- Pear psylla  
(*Psylla pyricola*)
- Pear rust mite  
(*Epirimerus pyri*)
- Pear-slug  
(*Caliroa cerasi*)
- Pear thrips  
(*Taeniothrips inconsequens*)
- Pecan aphids  
198, 649
- Pecan bud moth  
(*Gretchena holliana*)
- Pecan leaf casebearer  
(*Acrobasis juglandis*)
- Pecan leaf phylloxera  
(*Phylloxera notabilis*)
- Pecan leafroll mite  
(*Aceria caryæe*)
- Pecan nut casebearer  
(*Acrobasis caryæe*)
- Pecan phylloxera  
(*Phylloxera devastatrix*)
- Pecan spittlebug  
(*Clastoptera achatina*)
- Pecan weevil  
(*Curculio caryæe*)
- Pepper maggot  
(*Zonosemata electa*)
- Pepper weevil  
(*Anthrenomus eugeni*)
- Persimmon psylla  
(*Trioxa diospyri*)
- Pharaoh ant  
(*Monomorium pharaonis*)
- Phlox plant bug  
(*Lopidea davisii*)
- Pickleworm  
(*Diaphania nitidalis*)
- Pigeon tremex  
(*Tremex columba*)
- Pillbugs  
305, 509, 666, (1179)
- Pine aphids  
112, 241, 658
- Pine bark aphid  
(*Pineus strobi*)
- Pine colaspis  
(*Colaspis pini*)
- Pine engraver  
(*Ips pini*)
- Pine leaf chermid  
(*Pineus pinifoliae*)
- Pine needle miner  
(*Exoteleia pinifoliella*)
- Pine needle scale  
(*Phenacaspis pinifoliae*)

Pine root collar weevil  
(*Hylobius radicus*)  
Pine shoot moth, a  
846  
Pine spittlebug  
(*Aphrochroa parallela*)  
Pine tip moths  
213, 808, 977, 1240  
Pine tortoise scale  
(*Toumeyella numismaticum*)  
Pine Tussock moth  
(*Dasychira plagiata*)  
Pine webworm  
(*Tetralopha robustella*)  
Pineapple scale  
(*Diaspis bromeliae*)  
Pink bollworm  
(*Pectinophora gossypiella*)  
Pink scavenger caterpillar  
(*Sathrobrotia rileyi*)  
Pink-striped oakworm  
(*Anisota virginiensis*)  
Pink sugarcane mealybug  
(*Trioxymus sacchari*)  
Pitch-pine tip moth  
(*Rhyacionia rigidana*)  
Plant bugs  
151, 164, 189, 251, 371, 402,  
568, 644, 677, 696, 715, 729,  
768, 806, 844, 878, 914, 946,  
975, 1025, 1071, (1122), 1143,  
(1216), 1232, (1248), (1250),  
(1287)  
Planthoppers  
165  
Plum curculio  
(*Conotrachelus nenuphar*)  
Plum gouger  
(*Anthonomus scutellaris*)  
Plum rust mite  
(*Aculus foeckei*)  
Plum moths  
355  
Poplar-and-willow borer  
(*Sternonchetus lapathi*)  
Poplar petiole gall aphid  
(*Pemphigus populitransversus*)  
Poplar twig gall aphid  
(*Pemphigus populiramulorum*)  
Poplar vagabond aphid  
(*Mordwilkoja vagabunda*)  
Potato aphid  
(*Macrosiphum euphorbiae*)  
Potato flea beetle  
(*Epitrix cucumeris*)  
Potato leafhopper  
(*Empoasca fabae*)  
Potato psyllid  
(*Paratrioza cockerelli*)  
Potato stalk borer  
(*Trichobaris trinitata*)  
Potato tuberworm  
(*Gnorimoschema operculella*)  
Powder-post beetles  
318, 380, 738  
Praying mantids  
147, 389  
Predaceous stink bugs  
1133  
Predaceous thrips  
739  
Predators  
921, 1030, 1055, 1093  
Privet mite  
(*Brevipalpus obovatus*)  
Privet thrips  
(*Dendrothrips ornatus*)  
Pseudoscorpions  
392  
Psocids  
90, 852, 1194, 1211, 1276, 1277  
Psyllids  
24, 556  
Pumpkin caterpillar<sup>o</sup>  
(*Diaphania indica*)

Purple scale  
(*Lepidosaphes beckii*)  
Purple-spotted lily aphid  
(*Macrosiphum lili*)  
Puss caterpillar  
(*Megalopyge opercularis*)  
Putnam scale  
(*Aspidiotus ancyclus*)  
Pyriform scale  
(*Protopulvinaria pyriformis*)

**Q**

Quince curculio  
(*Conotrachelus crataegi*)

**R**

Raisin moth  
(*Cadra figulilella*)  
Range caterpillar  
(*Hemileuca oliviae*)  
Rapid plant bug  
(*Adelphocoris rapidus*)  
Raspberrry cane borer  
(*Ooecera bimaculata*)  
Raspberrry cane maggot  
(*Pegomya rubivora*)  
Raspberrry crown borer  
(*Bembecia marginata*)  
Raspberrry sawfly  
(*Monophadnoides geniculatus*)  
Red-admiral  
(*Vanessa atalanta*)  
Red-backed cutworm  
(*Euxoa ochrogaster*)  
Red-banded leaf roller  
(*Argyrotaenia velutinana*)  
Red-banded thrips  
(*Selenothrips rubrocinctus*)  
Red elm bark weevil  
(*Magdalis armicollis*)  
Red flour beetle  
(*Tribolium castaneum*)  
Red harvester ant  
(*Pogonomyrmex barbatus*)  
Red-headed ash borer  
(*Neoclytus acuminatus*)  
Red-headed pine sawfly  
(*Neodiprion lecontei*)  
Red-humped caterpillar  
(*Schizura concinna*)  
Red-legged flea beetle  
(*Derocrepis erythropus*)  
Red-legged grasshopper  
(*Melanoplus femurrubrum*)  
Red-legged ham beetle  
(*Necrobia rufipes*)  
Red-necked cane borer  
(*Agrilus ruficollis*)  
Red-necked peanutworm  
(*Stegasta bosquella*)  
Red-pine cone beetle  
(*Conophthorus resinosa*)  
Red-pine scale  
(*Matsucoccus resinosa*)  
Red pumpkin beetle<sup>o</sup>  
(*Raphidopalpa foveicollis*)  
Red turnip beetle  
(*Entomoscelis americana*)  
Redberrry mite  
(*Aceria essigi*)  
Regal moth  
(*Githeronia regalii*)  
Rhodes-grass scale  
(*Antonina graminis*)  
Rhododendron borer  
(*Ramosia rhododendri*)

Rhubarb curculio  
(*Lixus concavus*)  
Rice delphacid  
(*Sogatia orizicola*)  
Rice stalk borer  
(*Chilo plejadellus*)  
Rice stink bug  
(*Oebalus pugnax pugnax*)  
Rice water weevil  
(*Lissorhoptrus oryzophilus*)  
Rice weevil  
(*Sitophilus oryzae*)  
Ring-legged earwig  
(*Euborellia annulipes*)  
Robber fly, a  
820  
Rocky Mountain wood tick  
(*Dermacentor andersoni*)  
Root aphids  
618, 972, (1246)  
Rose aphid  
(*Macrosiphum rosae*)  
Rose chafer  
(*Macrodactylus subspinosus*)  
Rose curculio  
(*Rhynchites bicolor*)  
Rose leafhopper  
(*Edwardsiana rosae*)  
Rose root-gall wasp  
(*Diplolepis radicum*)  
Rose scale  
(*Aulacaspis rosae*)  
Rose-slug  
(*Endelomyia aethiops*)  
Rose stem girdler  
(*Agrilus rubicola*)  
Rosy apple aphid  
(*Anuraphis rosea*)  
Rove beetle, a  
1212  
Rusty grain beetle  
(*Cryptolestes ferrugineus*)  
Rusty plum aphid  
(*Hysteroneura setariae*)

**S**

Saddleback caterpillar  
(*Sibine stimulea*)  
Saddled prominent  
(*Heterocampa guttivitta*)  
Safflower fruit fly<sup>o</sup>  
(*Acanthophilus eluta*)  
Sagebrush defoliator  
(*Aroga websteri*)  
Salt-marsh caterpillar  
(*Estigmene aceris*)  
Salt-marsh mosquito  
(*Aedes sollicitans*)  
San Jose scale  
(*Aspidiotus perniciosus*)  
Sand wireworm  
(*Horistonotus uhlerii*)  
Sap beetles  
134, 906, 1093  
Saratoga spittlebug  
(*Aphrophora saratogensis*)  
Satin moth  
(*Stilpnotia salicis*)  
Saw-toothed grain beetle  
(*Oryzaphilus surinamensis*)  
Sawflies  
27, 343, 371, 381, 437, 477,  
611, 623, 725, 1137, (1288)  
Say stink bug  
(*Chlorochroa sayi*)  
Scale insects  
19, 110, 202, 213, 343, 350,  
353, 357, (1175), 1189, 1307  
Scarb larvae  
(1289)

Schoene spider mite ( <i>Tetranychus schoenei</i> )	Southern pine beetle ( <i>Dendroctonus frontalis</i> )	Stable fly ( <i>Stomoxys calcitrans</i> )
Scorpions (1179)	Southern pine sawyer ( <i>Monochamus titillator</i> )	Stalk borer ( <i>Papaipema nebris</i> )
Screw-worm ( <i>Cochliomyia hominivorax</i> )	Southern potato wireworm ( <i>Conoderus falli</i> )	Stem borer, a 22
Scurfy scale ( <i>Chionaspis furfura</i> )	Southern red mite ( <i>Oligonychus illicis</i> )	Stink bugs 160, 166, 168, 193, 232, 256, 618, 677, 714, 790, 797, 834, 868, 872, 913, 946, 967, 975, 1089, 1107, (1122), 1169, (1175)
Secondary screw-worm ( <i>Cochliomyia macellaria</i> )	Southwestern corn borer ( <i>Zea diatraea grandiosella</i> )	Strawberry aphid ( <i>Pentatrichopus fragae-folii</i> )
Seed-corn beetle ( <i>Agonoderus lecontei</i> )	Soybugs (1179), 1212	Strawberry aphids 404
Seed-corn beetle, a 590	Soybean cyst nematode <sup>o</sup> ( <i>Heterodera glycines</i> )	Strawberry crown borer ( <i>Tylocladia fragariae</i> )
Seed-corn maggot ( <i>Hyalema platura</i> )	Spider beetles 300	Strawberry crown moth ( <i>Ramosia bibionipennis</i> )
Sen. pest <sup>o</sup> ( <i>Dryogaster integriceps</i> )	Spider mites 13, 125, 136, 151, 162, 187, 196, 204, 259, 260, 263, 268, 270, 343, 353, 360, 376, 439, 556, 575, 585, 618, 656, 659, 689, 699, 728, 735, 760, 763, 766, 772, 803, 806, 813, 842, 844, 845, 866, 879, 906, 913, 917, 946, 975, 978, 979, 1002, 1026, 1028, 1051, 1053, 1071, 1083, 1089, 1110, 1131, (1181), 1231, (1250), (1266), 1307	Strawberry leaf roller ( <i>Ancylis comptana fragariae</i> )
Serpentine leaf miner, a 806	Spinners 1137	Strawberry leaf rollers 875
Shallot aphid ( <i>Myzus ascalonicus</i> )	Spinach flea beetle ( <i>Disonychia xanthomelas</i> )	Strawberry root aphid ( <i>Aphis foebes</i> )
Sharpshooter leafhopper, a 605	Spinach leaf miner ( <i>Pegomya hyoscyami</i> )	Strawberry root weevil ( <i>Brachyrhinus ovatus</i> )
Sheep bot fly ( <i>Oestrus ovis</i> )	Spiny bollworm ( <i>Earias insulana</i> )	Strawberry rootworm ( <i>Paria fragariae</i> )
Sheep ked ( <i>Melophagus ovinus</i> )	Spiny oakworm ( <i>Anisota stigma</i> )	Strawberry sawfly, a 653, 688
Sheep lice 299	Spittlebugs 27, 164, 268, 504, 510, 549, 641, 754, 821, 881, 1019, 1085, 1137	Strawberry spider mite ( <i>Tetranychus atlanticus</i> )
Sheep scab mite ( <i>Psoroptes ovis</i> )	Springtails 79, 85, 148, 266, 300, 305, 448, 450, 501, 576, 627, 652, 666, 701, 703, 777, 1285	Strawberry weevil ( <i>Anthonomus signatus</i> )
Short-nosed cattle louse ( <i>Haematopinus eurysternus</i> )	Spotted alfalfa aphid ( <i>Heteroacaphis maculata</i> )	Strawberry whitefly ( <i>Trialeurodes packardii</i> )
Shot-hole borer ( <i>Scolytus rugulosus</i> )	Spotted asparagus beetle ( <i>Crioceris duodecimpunctata</i> )	Striped cucumber beetle ( <i>Acalymma vittata</i> )
Silk ant ( <i>Formica fusca</i> )	Spotted blister beetle ( <i>Epicauta maculata</i> )	Striped cutworm ( <i>Euxoa tessellata</i> )
Silver-spotted tiger moth ( <i>Halisidota argentata</i> )	Spotted cucumber beetle ( <i>Diabrotica undecimpunctata howardi</i> )	Striped flea beetle ( <i>Phyllotreta striolata</i> )
Silverfish ( <i>Lepisma saccharina</i> )	Spotted cutworm ( <i>Amathes c-nigrum</i> )	Striped horse fly ( <i>Tabanus lineola</i> )
Silverfish 25, (1179)	Spotted garden slug ( <i>Limax maximus</i> )	Striped mealybug ( <i>Ferrisia virgata</i> )
Six-spotted leafhopper ( <i>Macrostelus fasciatus</i> )	Spotted pine sawyer ( <i>Monochamus maculosus</i> )	Subterranean termites 279, 339, 340, 379, 380, 522
Six-spotted mite ( <i>Eotetranychus sexmaculatus</i> )	Spotted tussock moth ( <i>Halisidota maculata</i> )	Suckfly ( <i>Cyrtopeltis notatus</i> )
Slugs 137, 253, 256, 264, 377, 465, 550, 688, 765, 1112, (1289)	Spirea aphid ( <i>Aphis spiraeicola</i> )	Sudan durra bug <sup>o</sup> ( <i>Agonoscelis pubescens</i> )
Smaller European elm bark beetle ( <i>Scolytus multistriatus</i> )	Spring cankerworm ( <i>Paleacrita vernata</i> )	Sugar-beet root aphid ( <i>Pemphigus betae</i> )
Snails 22, 550, 579	Spruce aphid ( <i>Aphis abietina</i> )	Sugar-beet root maggot ( <i>Tetanops myopaeformis</i> )
Sod webworms 162, 567, 590, 604	Spruce bud scale ( <i>Physokermes piceae</i> )	Sugar-beet wireworm ( <i>Limonius californicus</i> )
Soil insects 745, (1198)	Spruce budworm ( <i>Christoneura fumiferana</i> )	Sugarcane beetle ( <i>Eutheola rugiceps</i> )
Solitary oak leaf miner ( <i>Cameraria hamadryadella</i> )	Spruce needle miner ( <i>Taniva albolineana</i> )	Sugarcane borer ( <i>Diatraea saccharalis</i> )
Solpugids 392, 820	Spruce spider mite ( <i>Oligonychus ununguis</i> )	Sunflower moth ( <i>Homoeosoma electellum</i> )
Sorghum midge ( <i>Contarinia sorghicola</i> )	Square-necked grain beetle ( <i>Cathartus quadricollis</i> )	Superb plant bug ( <i>Adelphocoris superbus</i> )
Sorghum webworm ( <i>Celama sorghiella</i> )	Squash beetle ( <i>Epilachna borealis</i> )	Swallow bug ( <i>Oeciacus vicarius</i> )
Southern armyworm ( <i>Prodenia eridania</i> )	Squash bug ( <i>Anasa tristis</i> )	Sweetclover aphid ( <i>Therioaphis riehmi</i> )
Southern corn rootworm ( <i>Diabrotica undecimpunctata howardi</i> )	Squash vine borer ( <i>Melittia cucurbitae</i> )	Sweetclover weevil ( <i>Sitona cylindricollis</i> )
Southern cornstalk borer ( <i>Diatraea crambidoides</i> )		Sweetpotato flea beetle ( <i>Chaetocnema confinis</i> )
Southern fire ant ( <i>Solenopsis xyloni</i> )		Sweetpotato hornworm ( <i>Agrius cingulatus</i> )
Southern green stink bug ( <i>Nezara viridula</i> )		Sweetpotato leaf roller ( <i>Pilocrocis truncata</i> )
Southern house mosquito ( <i>Culex pipiens quinquefasciatus</i> )		Sweetpotato leaf beetle ( <i>Typhophorus nigrus viridicyaneus</i> )
Southern lyctus beetle ( <i>Lyctus planicollis</i> )		
Southern masked chafer ( <i>Cyclocephala immaculata</i> )		

Sweetpotato weevil  
(Cylas formicarius elegantulus)  
Sweetpotato whitefly  
(Bemisia tabaci)  
Sycamore lace bug  
(Corythucha ciliata)  
Symphylans  
270, 652, 678, 725  
Syrphid flies  
See flower flies

**T**

Tabanid flies  
286, 294, 557, 586, 626, 664,  
700, 737, 776, 814, 815, 886,  
919, 981, 1005, 1054, 1073  
Tachina flies  
388  
Tahitian coconut weevil  
(Dicallandria taitensis)  
Tarnished plant bug  
(Lygus lineolaris)  
Tea scale  
(Fiorinia theae)  
Ten-lined June beetle  
(Polyphylla decemlineata)  
Tent caterpillars  
343, 477, 515, 649  
Termites  
23, 25, 26, 27, 115, 166, 179,  
217, 244, 300, 1054, 1163, 1242  
Terrapin scale  
(Lecanium nigrofasciatum)  
Texas citrus mite  
(Eutetranychus banksi)  
Texas leaf-cutting ant  
(Atta texana)  
Thief ant  
(Solenopsis molesta)  
Thirteen-spotted lady beetle  
(Hippodamia tredecimpunctata tibialis)  
Three-cornered alfalfa hopper  
(Spissistilus festinus)  
Three-lined potato beetle  
(Lema trilineata)  
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(Disonycha triangularis)  
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Page	Correction	Page	Correction
3	SOUTHWESTERN CORN BORER ( <i>Zeadiatraea grandiosella</i> ) should read <i>Zeadiatraea grandiosella</i> .	281	AN OLETHREUTID MOTH ( <i>Eucosma dorisignatana</i> ) should read <i>Eucosma dorsisignatana</i> (same correction for DETECTION page 270).
7	A PARASITIC BRACONID ( <i>Aphidius testaceipes</i> ) should read <i>Lysiphlebus testaceipes</i> .	283	Fourth paragraph BANDED GREENHOUSE THRIPS ( <i>Hercinotrips femora</i> (Reuter)) should read <i>Hercinotrips femoralis</i> (O. M. Reuter).
21	Last paragraph, sixth line from bottom - DURRA ANDAT BUG ( <i>Agonoscellis pubescens</i> ) should read <i>SUDAN DURRA BUG</i> .	296	TICKS, primarily LONE STAR TICK ( <i>Amblyomma americanum</i> ) should read <i>Amblyomma americana</i> .
50	Tenth paragraph, line 5 - <i>Coccinella sanguinea</i> should read <i>Cycloneda sanguinea</i> .	305	Second paragraph, line 4 - A MARCH FLY ( <i>Dilophus strigulata</i> ) should read <i>Dilophus strigilatus</i> .
51	Coccids in Florida - <i>A. jugulansregiae</i> should read <i>A. juglansregiae</i> .	340	A DRYWOOD TERMITE ( <i>Cryptotermes</i> sp.) should read A <u>POWDER-POST</u> TERMITE ( <i>Cryptotermes</i> sp.).
57	<i>Clavaspis herculeana</i> (Doane & Hadden) should read <i>Aspidiotus herculeanus</i> (Cockerell & Hadden).	341	A PRICKLYPEAR WEEVIL ( <i>Gerstaeckeria</i> sp.) should read <i>Gerstaeckeria</i> sp.
67	GALL MIDGES ( <i>Cecidomyia</i> spp.) - line 4 - <i>C. pseudotsugae</i> should read <i>Contarinia pseudotsugae</i> .	348	Third paragraph - <i>Physonata alutacea</i> should read <i>Physonota alutacea</i> .
87	AN ORCHID SCALE ( <i>Genaparlatoria pseudaspidiotus</i> ) should read AN ARMORED SCALE ( <i>Parlatoria pseudaspidiotus</i> ).	351	A STINK BUG ( <i>Elasmostethus interstinctus</i> ) should read <i>Elasmostethus interstinctus</i> .
90	A GRASS BUG ( <i>Arhyssus idenatus</i> ) should read A <u>COREID</u> BUG ( <i>Arhyssus indentatus</i> ).	355	First line - <i>Pyraustia orphisalis</i> should read <i>Pyrausta orphisalis</i> .
110	A CENTIPEDE ( <i>Geophilomorpha</i> sp.) - should read A CENTIPEDE <u>belonging to the order Geophilomorpha</u> and a crane fly....	358	Fifth paragraph, line 6 - <i>Aspidiotus degeratus</i> should read <i>Aspidiotus degeneratus</i> .
121	DINGY CUTWORM ( <i>Feltia duzens</i> ) should read A <u>CUTWORM</u> ( <i>Feltia duzens</i> ).	376	A PYRALID MOTH ( <i>Herculia phoezalis</i> ) should read <i>Herculia phaezalis</i> .
136	Fourth paragraph - CORN LEAF BLOTCH MINER ( <i>Agromyza parvicornis</i> ) should read CORN <u>BLOTCH LEAF MINER</u> ( <i>Agromyza parvicornis</i> ).	376	COCCIDS - CALIFORNIA - <i>Aspidiotus degenerata</i> should read <i>Aspidiotus degeneratus</i> .
150	A TARO LEAFHOPPER ( <i>Tarophagus proserpina</i> ) should read <i>Tarophagus proserpina</i> .	376	ERIOPHYID MITES - <i>Trisetacus</i> sp. should read <i>Trisetacus</i> sp., <i>Nalepella tsugifolia</i> should read <i>Nalepella tsugifoliae</i> .
160	Fifth paragraph, line 7 - DINGY CUTWORM ( <i>Feltia duzens</i> ) should read A <u>CUTWORM</u> ( <i>Feltia duzens</i> ).	387	Fourth paragraph, line 11 - <i>Microcentrus gifuensis</i> should read <i>Macrocentrus gifuensis</i> .
179	NOCTUID MOTHS - WISCONSIN - <i>Lithophane laticinera</i> should read <i>Lithophane laticinera</i> .	389	LADY BEETLES - <i>Rhizobius satellus</i> should read <i>Rhizobius satelles</i> .
185	Third paragraph, line 5 - <i>Lithocolletes blancardella</i> should read <i>Lithocolletis blancardella</i> .	406	PHYCITID MOTHS ( <i>Dioryctria</i> spp.) - <i>D. clarioralis</i> should read <i>D. clarioralis</i> .
185	UNSPOTTED TENTIFORM LEAF MINER ( <i>Calisto geminatella</i> ) should read <i>Callisto geminatella</i> .	517	APHIDS - WASHINGTON - <i>Cinara winonkae</i> should read <i>Cinara tujaifilina</i> .
198	Eighth paragraph, line 9 - <i>R. sauis</i> should read <i>R. sauis</i> .	567	Last paragraph - A chalcid parasite ( <i>Tetrastichus</i> sp.) should read a <u>eulophid</u> ( <i>Tetrastichus</i> sp.).
222	BENEFICIAL ORGANISMS - Line 12 - A PARASITIC APHELINID ( <i>Aphytis holoxanthus</i> ) should read A <u>EULOPHID</u> ( <i>Aphytis holoxanthus</i> ).	569	ALFALFA WEEVIL ( <i>Hypera postica</i> ) - INDIANA - <i>Palmyra</i> should read <i>Palmyra</i> .
223	Line 3 - A LEAF MINING HISPID ( <i>Octotoma scabripennis</i> ) should read A <u>LEAF BEETLE</u> ( <i>Octotoma scabripennis</i> ).	582	MAY BEETLES ( <i>Phyllophaga</i> spp.) - <i>P. implicata</i> should read <i>P. implicita</i> .
230	Second paragraph, line 8 - A PYRALID MOTH ( <i>Noctuella rufofascialis</i> ) should read A <u>PYRAUSTID</u> MOTH ( <i>Noctuella rufofascialis</i> ).	601	Line 22 - <i>Trachyrachys kiowa</i> should read <i>Trachyrachys kiowa</i> .
258	COWPEA WEEVIL ( <i>Chalcoedermus aeneus</i> ) should read <i>COWPEA CURCULIO</i> ( <i>Chalcoedermus aeneus</i> ).	615	A LEAFHOPPER ( <i>Paraphepsinus strobi</i> ) should read <i>Paraphepsinus strobi</i> .
260	ASPARAGUS BEETLE ( <i>Crioceris asparagi</i> ) should read <i>Crioceris asparagi</i> .	628	A CHALCID ( <i>Tetrastichus incertus</i> ) should read A <u>EULOPHID</u> ( <i>Tetrastichus incertus</i> ).
		628	A CHALCID ( <i>Tetrastichus</i> sp.) should read A <u>EULOPHID</u> ( <i>Tetrastichus</i> sp.).
		629	Third paragraph, line 5 - <i>Cylosorus dentatus</i> should read <i>Cylosorus dentatus</i> .

# Corrections in Volume 14

Page	Correction	Page	Correction
646	A LEAF BLOTCH MINER (Lithocolletes crataegella) should read <u>Lithocolletis crataegella</u> .	1264	A NOCTUID MOTH (Sesamia nonagriodes) should read <u>Sesamia nonagrioides</u> .
659	AN ERIOPHYID MITE (Nalepella tsugifolia) should read <u>Nalepella tsugifoliae</u> .	1270	A SUGARCANE ROOTSTALK BORER (Diaprepes abbreviata) should read <u>Diaprepes abbreviata</u> .
696	PLANT BUGS - CALIFORNIA - Largus cinctus californicus should read A <u>PYRRHOCORID BUG</u> (Largus cinctus californicus).	1305	FLORIDA - Creontiaes rubrinervis should read <u>Creontiaes rubrinervis</u> .
702	A MELYRID BEETLE (Collops hirtella) should read <u>Collops hirtella</u> .	1309	A PYRALID MOTH (Aglossa cuprealis) should read <u>Aglossa cuprealis</u> .
731	A PINE TWIG BEETLE (Pityophthorus confinis) should read <u>Pityophthorus confinis</u> .		
733	PAVEMENT ANT (Tetramorium caespitum) should read <u>Tetramorium caespitum</u> .		
737	A SARCOPHAGID FLY (Wohlfahrtia vigil) should read <u>Wohlfahrtia vigil</u> .		
764	A LACE BUG (Piesma cinerum) should read A <u>PIESMATID BUG</u> (Piesma cinerum).		
780	A SCARAB (Pleurophorus caesus) should read <u>Pleurophorus caesus</u> .		
786	Line 35 - Aeolipides tenuipennis should read <u>Aeolipides tenuipennis</u> .		
811	COTTONWOOD BORER (Plectrodera scalator) should read <u>Plectrodera scalator</u> .		
851	ANTHRICID BEETLES (Notoxus spp.) should read <u>ANTHRICID BEETLES</u> (Notoxus spp.).		
906	A CLOVER SEED CHALCID (Bruchophagus platyptera) should read <u>Bruchophagus platyptera</u> .		
911	COWPEA APHID (Aphis medicaginis) should read <u>Aphis craccivora</u> .		
912	COTTON LEAF PERFORATOR (Bucculatrix thurberiella) should read <u>Bucculatrix thurberiella</u> .		
921	AN ALKALI BEE PARASITE (Zodion obliquefasciatum) should read <u>Zodion obliquefasciatum</u> .		
944	COWPEA APHID (Aphis medicaginis) should read <u>Aphis craccivora</u> .		
949	COTTONWOOD BORER (Plectrodera scalator) should read <u>Plectrodera scalator</u> .		
950	Second paragraph, line 11 - Erranis tiliaria (linden looper) should read <u>Erannis tiliaria</u> (linden looper).		
1004	A LEAF ROLLER (Anchyloperda spireaeifolia) should read <u>AN OLETHREUTID MOTH</u> (Anchyloperda spireaeifolia).		
1023	RASPBERRY CROWN BORER (Bembicia marginata) should read <u>Bembicia marginata</u> .		
1091	COCCIDS - Kermes boguei should read <u>Kermes boguei</u> .		
1136	PLANT BUGS - Megalocerola recticornis should read <u>Megalocerola recticornis</u> .		
1167	AN OAK KERMES SCALE (Kermes boguei) should read <u>Kermes boguei</u> .		
1168	A RHOPALID BUG (Niestrea sidae) should read <u>Niestrea sidae</u> .		
1168	A BRUSH-FOOTED BUTTERFLY (Agraulis vinillae) should read <u>Agraulis vinillae</u> .		
1225	NOTODONTID MOTHS - ARIZONA - Catabena sp. should read A <u>NOCTUID MOTH</u> (Catabena sp.).		

## CORRECTIONS TO THE INDEX OF VOL. 13

4	Baluchistan melon fly (Myiopardalis paradalina) should read <u>Myiopardalis pardalina</u> .
25	Errastum ocellaris should read <u>Errastum ocellaris</u> .
28	Holocera iceryaeella should read <u>Holocera iceryaeella</u> .
29	Hypodeocoris imperialis should read <u>Hypodeocoris imperialis</u> .
33	Myiopardalis paradalina should read <u>Myiopardalis pardalina</u> .
39	Rhagoletis sauvis should read <u>Rhagoletis suavis</u> .
42	Tarsonemus sertifer should read <u>Tarsonemus sertifer</u> .
42	Typhaea stercorea should read <u>Typhaea stercorea</u> .







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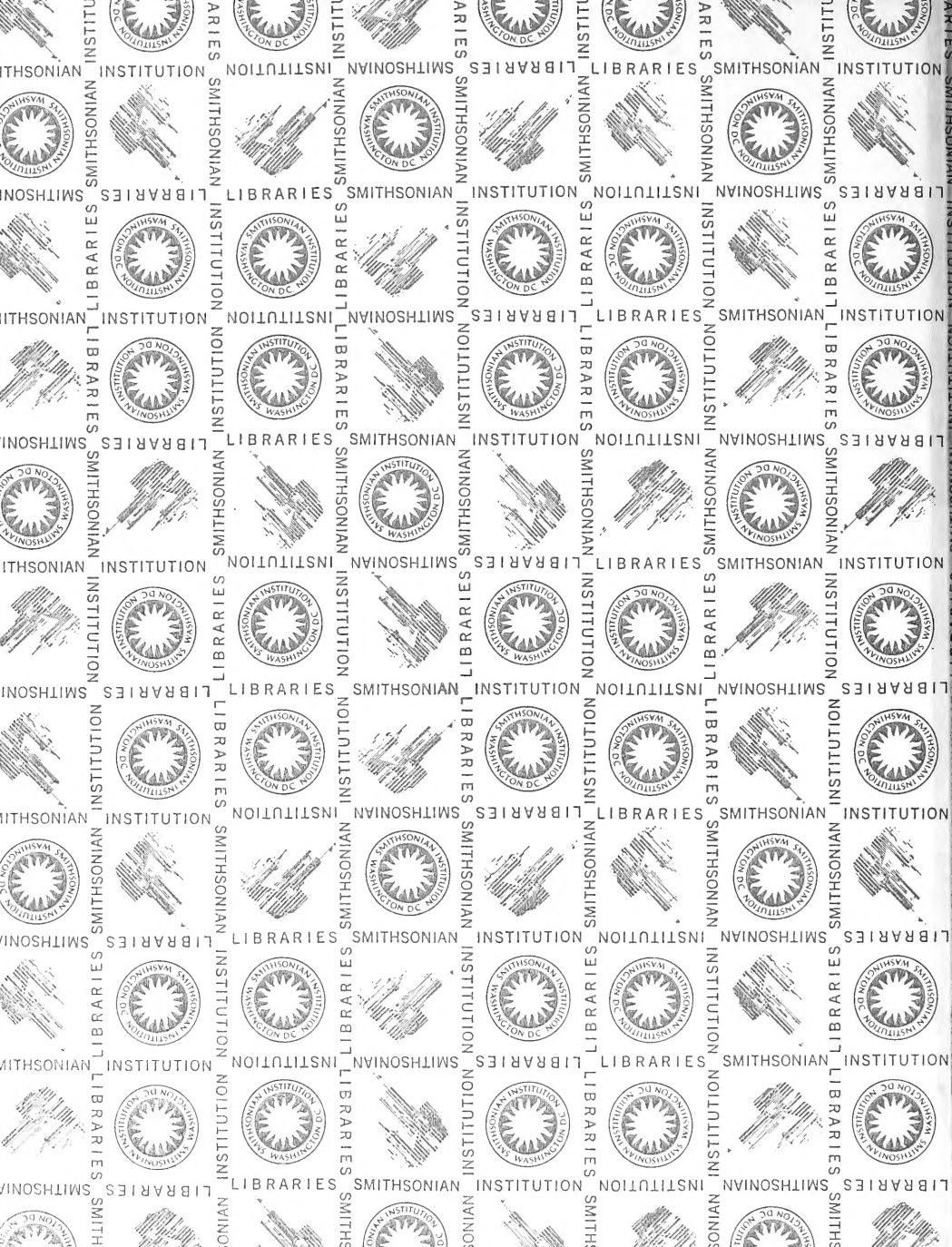


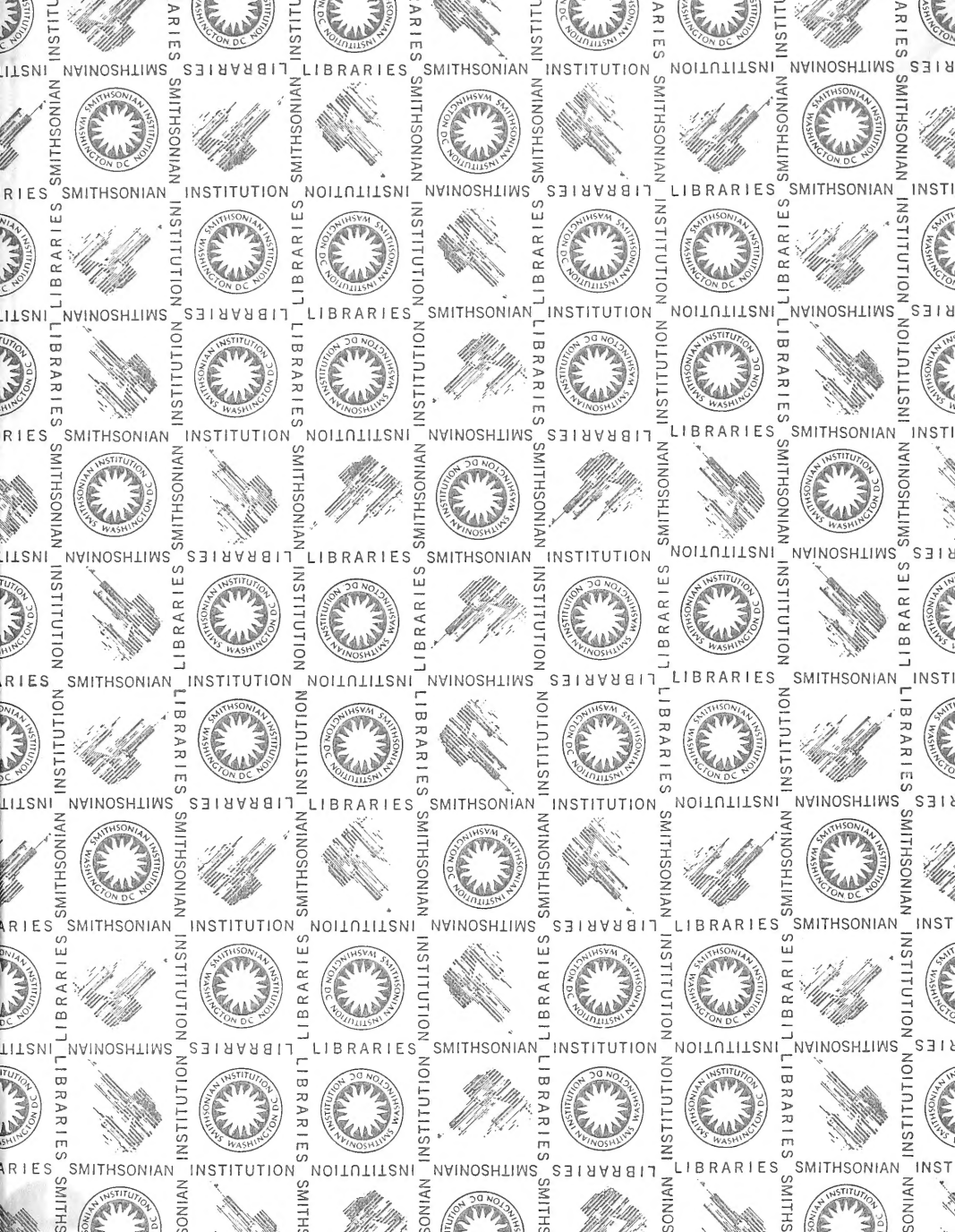












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