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Cooperative

**ECONOMIC INSECT
REPORT**

Issued by

PLANT PROTECTION DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PROTECTION DIVISION

ECONOMIC INSECT SURVEY AND DETECTION

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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Economic Insect Survey and Detection
Plant Protection Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

CORN EARWORM moths increasing in Kansas. Larvae damaged corn in Texas, sweet corn in Tennessee; ear infestations increased in Eastern Shore of Maryland. GREENBUG declined in several States; parasites and predators controlling populations. (p. 603).

EUROPEAN CORN BORER moth flights increased in Nebraska, Wisconsin, and Michigan. Second-generation larvae numerous in corn and peppers in Delaware (pp. 605, 614, 616). FALL ARMYWORM larvae severe on corn in Virginia, heavy on grasses in Georgia, South Carolina, and Alabama. (pp. 604, 606). CORN ROOTWORM larval damage heavy in parts of South Dakota. SPIDER MITES damaged corn in Colorado, Wyoming, and Texas. (p. 605). ENGLISH GRAIN APHID and BARLEY THRIPS damaged barley in northeastern North Dakota. (p. 606).

BOLLWORM moth catches and egg laying increased in Texas and Alabama, egg laying heavy in south Georgia. Larvae increased in south Alabama and damaging in west Tennessee. (pp. 607-608).

APPLE MAGGOT infestations heavier than previous years in Indiana; emergence heavy in Michigan. APPLE RUST MITE important on several commercial blocks in southeast New York. (p. 609).

ELM LEAF BEETLE troublesome on elms in several Southern States. FOREST TENT CATERPILLAR infestations at highest level since 1963 in southeastern Louisiana. Defoliation heavy in southwestern Alabama; populations epidemic in parts of Kentucky. SADDLED PROMINENT defoliated thousands of acres of woodland in Maine. (p. 610).

HORN FLY troublesome to cattle in several States. STABLE FLY annoying cattle in Wisconsin. (p. 611).

Light trap collections of interest - EUROPEAN CORN BORER, CORN EARWORM, HORNWORMS, and ARMY CUTWORM. (pp. 614-615).

Detection

New State records include an ARMORED SCALE from West Virginia (p. 609); an ERIOPHYID MITE from Pennsylvania, NORTHERN PINE WEEVIL and PALES WEEVIL from Missouri, and WHITE-PINE WEEVIL from South Carolina. (p. 610).

For new county records see page 613.

Special Reports

Techniques to Determine Losses. Selected References 1942-1949. Part VI. (pp. 616-617).

Witchweed Quarantine Map. Centerfold.

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

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Witchweed Quarantine Map. Centerfold.

WEATHER BUREAU'S 30-DAY OUTLOOK

MID-AUGUST TO MID-SEPTEMBER 1970

The Weather Bureau's 30-day outlook for mid-August to mid-September is for temperatures to average above seasonal normals over the western half of the Nation except for near normal along the west coast. Elsewhere temperatures are expected to average near normal except for below normal in the Southeast and the Ohio Valley. Precipitation is expected to exceed normal over the northeast coast, the Ohio Valley, the Southeast and the central and southern Plateau. Subnormal totals are indicated for the Great Plains and California. Elsewhere near normal precipitation is in prospect.

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

WEATHER OF THE WEEK ENDING AUGUST 17

HIGHLIGHTS: Summer heat continued last week over most of the Nation. Severe flash flooding occurred in western North Carolina. Drought intensified in many areas.

PRECIPITATION: Early in the week, a quasi-stationary front extended from the southern Great Plains to the southern Atlantic coast. Heavy downpours, up to 10 inches or more, fell in the Appalachians north of the front. Mortimer, North Carolina, received 11.10 inches of rain in 48 hours ending at 2 p.m., Monday, August 10. Severe flooding occurred in the central and southern Appalachians. Moderate to heavy thundershowers occurred along the gulf coast during the first half of the week. Lighter, more scattered showers dotted the Rocky Mountains and adjoining Great Plains. Weekend showers occurred over the northern and central Great Plains, and along the gulf and Atlantic coasts. Wide areas from the Pacific coast to the western edge of the northern and central Great Plains received no rain last week. Many smaller scattered areas in the Central and East were missed by the showers. Drought intensified in many areas.

Weather of the week continued on page 618.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - CALIFORNIA - Larvae heavy in soil in 200 acres of corn at Madera, Madera County. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - NORTH DAKOTA - Up to 150 per plant in half-ripe and green barley in Pembina, Walsh, Grand Forks, and northern Traill Counties. Up to 500 per head, along with Macrosiphum avenae (English grain aphid) in wheat. Heaviest populations in bearded wheat. (Kaatz). ILLINOIS - R. maidis decreased rapidly on field corn, apparently due to disease. Negative in many fields and others show dying populations. Very few (less than one percent) serious, or heavy. (Ill. Ins. Rpt.). MARYLAND - Populations below economic levels statewide. (U. Md., Ent. Dept.). TENNESSEE - Heavy on sweet corn in central area. (Batey, Jennings).

CORN EARWORM (Heliothis zea) - IDAHO - Infestations 90 percent on July 28, 10 percent on August 6, and 50 percent on August 10, in mature sweet corn plots near Parma, Canyon County. Extensive damage by July 28 and most larvae had left ears. First and second instars by August 10 and damage confined to ear tips. (Scott). UTAH - Light in sweet corn in Fort Duchesne, Uintah County (Mathews), and Wayne and Piute Counties (Chapman); moderate in Sevier County (Rickenbach). KANSAS - Light trap catches show moths increasing. Larvae averaged 0.5 per ear in cornfield in Brown County; about 1 per ear in 2 fields in Geary County; and 0.9 per ear in field in Stafford County. (Bell). Averaged 1 per row foot in field in Cherokee County. (Brooks). OKLAHOMA - Moderate in sorghum in Coal County and in peanuts in Bryan County. Very light in sorghum heads in northeast area. (Okla. Coop. Sur.). TEXAS - Larval damage heavy to corn foliage and ears in Culberson County. (Neeb). ARKANSAS - Infesting soybeans, mainly in southeast area. Counts vary but heavy in some cases. Heaviest (larvae 10 per row foot) in Ashley County. Infestations earlier than usual. (Boyer). TENNESSEE - Damaged sweet corn in central area. (Batey, Jennings). GEORGIA - Light to heavy on peanuts, and light to moderate on soybeans in south area. (French, Aug. 7). MARYLAND - Ear infestations increasing slightly on Eastern Shore. (U. Md., Ent. Dept.).

GREENBUG (Schizaphis graminum) - COLORADO - Ranged 0-2,000 per sorghum plant in Arkansas Valley. Heaviest in Otero and Crowley Counties; counts increasing in Prowers and Bent Counties. (Burchett). ARIZONA - Averaged 50 per sorghum plant at Kansas Settlement, Cochise County. (Ariz. Coop. Sur.). NEW MEXICO - Decreased on grain sorghum in Luna and Hidalgo Counties. Some isolated fields will need controls. (N.M. Coop. Rpt.). TEXAS - Declining in grain sorghum in High Plains. Predators abundant and parasites increased. About 64 percent greenbug reduction in grain sorghum at Lubbock July 23-30. Light on grain sorghum in Martin and Midland Counties. Heavy in fields of young preboot grain sorghum in Midland County. Light to moderate in El Paso, Reeves, and Pecos Counties. Light to moderate on grain sorghum in Haskell and Knox Counties. (Rummel et al.). OKLAHOMA - Very light to absent in most sorghum checked in northeast area. Ranged 100-150 per plant in occasional younger fields (just beginning to bloom), especially in Ottawa County; numbers declining even in these fields. Parasites and predators important in some fields, but hot, dry weather and plant maturity probably more important in many fields. Greenbug heavy in sorghum in Coal County. (Okla. Coop. Sur.). KANSAS - Remains heavy in some fields even though predators appear abundant, while in many fields populations declining and attributed to predation and parasitism. Based on population found July 30 in field of sorghum in Riley County, parasitism accounted for about 35 percent of decrease. (Bell). NEBRASKA - Greenbug continues to decline in east, southeast, south, and central districts. Negative in many fields. (Leininger et al.). Damage to grain and forage sorghums continues in north and northeast districts, parasitism still low (less than 10 percent). (Ehlers, Thomas). Heavily infested plantings of barley at Halsey, Thomas County, nearly destroyed; parasitism increasing, currently near 50 percent. (Sexson). SOUTH DAKOTA - S. graminum heavy on sorghum, controls required near Redfield and Frankfort, Spink County; at Wagner, Charles Mix County; and near Mitchell, Davison County. (Kantack, Aug. 7).

PICKLEWORM (Diaphania nitidalis) - MISSISSIPPI - Heavy on squash in Oktibbeha County. (Sartor, Aug. 7).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Heaviest in podded lima bean fields, as high as 3 per leaf in Rock and Walworth Counties. Counts of 1 per 3 leaves in fields still in blossom. Bud drop evident in some fields. (Wis. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - COLORADO - Up to 1,000 (average 150) per 100 sweeps of alfalfa in Pueblo, Otero, Bent, and Prowers Counties. (Burchett). WYOMING - Averaged 3 per 10 sweeps in third-crop alfalfa field near Hawk Springs, Goshen County. (Parshall). OKLAHOMA - Averaged 200 per 10 sweeps of alfalfa in Tulsa County. (Okla. Coop. Sur.). KANSAS - Found in all fields checked. Counts per sweep averaged 7.5 in one field in Reno County, 35 and 40 in 2 fields in Sedgwick County, 1 in one field in Sumner County, 1 in one field in Kingman County, 4 in one field in Barber County, 30 and 70 in 2 fields in Comanche County (Bell); ranged 250-350 per sweep in test plots of Buffalo alfalfa, averaged 40 per sweep in Cody alfalfa plot and 5 per sweep in Kanza alfalfa in Stafford County (Bell, Lundquist); and 2.5 and 5 per sweep in two fields in Meade County (Bell). WISCONSIN - Increasing in alfalfa on sandy areas; counts as high as 50 per sweep in some fields. (Wis. Ins. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on soybeans in south area. (French, Aug. 7).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Second generation heavy in some fields; all larval stages and few pupae present. (Redding). NEBRASKA - Moths remain abundant at light traps in east and northeast districts. Infested less than 1 percent of corn plants in 8 fields in Lincoln County. (Campbell). ILLINOIS - Survey completed for first generation. Statewide populations unusually low. Average percent plants infested by section as follows: Northwest 7, northeast 7, west 6, central 2, east 1, west-southwest 4, east-southeast 8, southwest 7, and southeast 2. (Ill. Ins. Rpt.). WISCONSIN - Moth flights continue to increase. Few pupae still found but most emerged in southern counties. Egg masses 4-5 per 25 sweet corn plants in Walworth County, 2 per 25 in Rock and Iowa Counties; few second instars present in some ear tips. Infested ears averaged 1 per 25 in Rock and Iowa Counties. All sweet corn fields examined treated. First to fourth instars in Brown, Manitowoc, Marinette, Kewaunee, Oconto, Outagamie, Door, and Culumet Counties. (Wis. Ins. Sur.). MICHIGAN - Adults increasing at all blacklight stations. Egg laying progressing and many larvae hatched. Blacklight counts at Lenawee County station totaled 174 moths week ending August 7 with lower counts at Montcalm Experiment Station. (Newman). INDIANA - Moths still present in northern district corn. Second-generation larvae observed, most early stages in silks, occasionally penetrated cob. (Meyer). OHIO - Surveys of Miami County sweet corn indicated average of 15 plants out of 100 had egg masses; some appeared to be nonviable. Moths observed in fields. No new-generation larvae found; some egg masses presumed hatched. (Miller, Roach). DELAWARE - Egg masses and early second-generation larvae numerous in corn and sweet peppers in most areas. Moths still abundant in blacklight traps throughout State. (Boys, Aug. 12). NEW YORK - Hatching on corn in Hudson Valley area; entering whorls, tassels, and silk throats. (N.Y. Wkly. Rpt., Aug. 10).

FALL ARMYWORM (Spodoptera frugiperda) - VIRGINIA - Larvae severe in several fields of corn in Nottoway County August 7. (Allen, Cassell). OKLAHOMA - Moderate on sorghum in Coal County. (Okla. Coop. Sur.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - NEBRASKA - Larvae infested 13 percent of ears in cornfield near Aurora, Hamilton County. Third to fifth instars. (Munson et al.).

CORN ROOTWORMS (Diabrotica spp.) - SOUTH DAKOTA - D. virgifera (western corn rootworm) adults averaged 10 per plant on corn near Brookings, Brookings County. Populations expected to increase next 7-10 days. Heavy Diabrotica spp. larval damage observed in Grant, Marshall, Brown, and Spink Counties. Insecticide applications for adult control made near Oral, Fall River County, and in Davison and Union Counties. (Jones, Kantack, Aug. 7). ILLINOIS - Adult averages per 100 corn plants by section as follows: Northwest 123, northeast 66, west 16, central 52, east 12, west-southwest 9, east-southeast 15, and south-east 30. (Ill. Ins. Rpt.). WISCONSIN - Ranged 2 per corn ear tip in Grant and Iowa Counties to 15 per ear in Rock and western Walworth Counties. Some sweet corn infested. (Wis. Ins. Sur.). PENNSYLVANIA - Small numbers of D. atripennis found on corn silks in Lycoming County August 6 along with D. longicornis (northern corn rootworm). This is a new county record for D. atripennis. (Adams).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - INDIANA - Adults moderate to heavy in 3 of 30 cornfields in northern district; 1 of 3 showed gooseneck symptoms. In this field, adults still numerous even though silks brown; up to 15 found in tip of husk where silks still moist, and nearly every ear had some adults. (Meyer).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - INDIANA - Adults taken in 5 fields in Lake County on August 12 by Smead, and 5 adults found at one site in Kosciusko County on August 11. These are new county records. (Meyer). WYOMING - Adults up to 12 (averaged 4) per corn plant in Goshen and Platte Counties. (Parshall). About 800 acres sprayed in these counties. (Theiman).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Increased in High Plains area. About 50 percent emergence from grain sorghum head samples occurred August 3-7. During period, 56 flies emerged from several hundred head samples collected in Lamb, Hale, Floyd, and Crosby Counties. Over 50 percent emergence from head samples collected in Foard County. (Rummel, Clymer).

BANKS GRASS MITE (Oligonychus pratensis) - COLORADO - Light on corn in Bent and Prowers Counties, very heavy damage to many fields in Pueblo, Otero, and Crowley Counties. (Burchett). WYOMING - Light damage in most corn checked in Goshen and Platte Counties. Two fields in Platte County "burned" 4-5 leaves up on plant; mites on 9-10 leaves. (Parshall). TEXAS - Oligonychus sp. caused moderate to heavy damage in isolated fields of post-boot grain sorghum in Pecos, Reeves, and El Paso Counties. Heavy damage on forage corn in El Paso County. Foliage 50-90 percent dessicated on forage corn in post-tasselling stage where pest very heavy (10-40 mites and eggs per square inch of leaf surface). Damaged forage corn in Hudspeth and Culberson Counties. Light to heavy on corn in Bailey, Lamb, and Castro Counties. (Rummel et al.).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Present in most sorghum checked in Washington, Nowata, Craig, and Ottawa Counties. Ranged 0-15 per plant in most fields, up to 30 per plant in few. (Okla. Coop. Sur.).

SMALL GRAINS

HESSIAN FLY (Mayetiola destructor) - ILLINOIS - Populations light as compared to 10-year average. Surveyed 7 sections, one approached average for period. Southwest section slightly higher at 6.2 puparia per 100 tillers compared to average of 5.4 puparia per 100 tillers last 10 years. Central and west sections averaged lowest as over ten-year period, and southwest section averaged highest as opposed to west-southwest section which was highest for ten-year period. State average 3.3 puparia per 100 tillers (compared to 6.2 puparia for 10 years). Highest individual counties were Jefferson at 12.8, Randolph at 11.2, and Jackson at 10.4. State average slightly higher (3.3 puparia per 100 tillers) than 1969 (2 puparia per 100 tillers). (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - NORTH DAKOTA - Heavy and widespread in northeast counties on green and half-ripe wheat, barley, alfalfa, and peas. Up to 300 per head on wheat and up to 100 per plant on barley in northern Traill, Pembina, Walsh, and Grand Forks Counties. Barley in many fields ruined. Controls applied to 10,000+ acres. (Kaatz).

BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Adults up to 40 per plant in late-seeded barley in northern Pembina County. Damage evident. (Kaatz).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - SOUTH CAROLINA - Heavy on common Bermuda grass lawn in Jasper County; first report of season. (Thompson, Nettles, July 29). Spreading to pastures and other grass areas throughout State. (Nettles, Aug. 5). GEORGIA - Populations heavy and defoliating Coastal Bermuda grass, millet, and grain sorghum throughout State. (Nolan, Aug. 7). ALABAMA - Damaged grass hay in one large field in Wilcox County, and several fields in Dale County. Larvae in several fields of Coastal Bermuda grass in Covington County, and heavy in a field of sorghum-sudan hybrid in Dallas County. (Farquhar et al.).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Moderate in St. Augustine grass lawns in Bryan County. (Okla. Coop. Sur.).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - UTAH - Light to moderate, averaged 35 per 10 sweeps, in Duchesne and Uintah County fields. (Knowlton, Mathews). Serious in some Sevier County alfalfa. (Rickenbach). NORTH DAKOTA - Up to 100 per tip in alfalfa in Pembina County. Some crop loss on peas in Pembina and Walsh Counties. About 500 acres treated. (Kaatz). OHIO - Ranged 50-100 per 10 sweeps of alfalfa in northeastern area. Nymphs and adults found but no winged forms. Damage to most fields not evident, some showed signs of yellowing. (Roach). MASSACHUSETTS - Averaged 104 per 100 sweeps of alfalfa in 4 Berkshire County fields. (Miller).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - MASSACHUSETTS - Averaged 33 per 100 sweeps of alfalfa in 4 Berkshire County fields. (Miller). WISCONSIN - Still dominant in alfalfa; as high as 60 per 10 sweeps in Brown County. Adults increasing. (Wis. Ins. Sur.). WYOMING - Adults and nymphs averaged 13 per 10 sweeps of alfalfa in Goshen and Platte Counties. (Parshall).

MEADOW SPITTLEBUG (Philaenus spumarius) - MISSOURI - Adult collected from alfalfa in Saline County. This is a new county record. (Hanning).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Averaged 9 per 10 sweeps in alfalfa in Tulsa County. (Okla. Coop. Sur.). ARIZONA - Lygus sp. averaged 800 per 100 sweeps in alfalfa seed fields at Yuma, Yuma County. Controls applied. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Averaged 12 per 10 sweeps of alfalfa in Tulsa County. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - Adults averaged 3 per 100 sweeps of alfalfa in 4 Berkshire County fields. (Miller). WISCONSIN - Adults averaged 1 per 10 sweeps of alfalfa in Rock and Walworth Counties and 1 per 50 sweeps in Grant County. Parasitism by Bathyplectes curculionis (an ichneumon) 50 percent in Outagamie County, 33 percent in Brown County, 25 percent in Calumet County, 4 percent in Winnebago County, and zero in Oconto, Marinette, Wood, and Portage Counties. (Wis. Ins. Sur.).

GRASSHOPPERS - WISCONSIN - Ranged 3-30 per square yard of alfalfa in south and southwest areas. Melanoplus differentialis (differential grasshopper) nymphs dominant in some fields. M. femurrubrum dominant in most, about 75 percent adults. M. sanguinipes moving into soybeans and margins of corn in sandy areas. Expect more migration if weather continues dry. Ranged 4-15 per 10 sweeps in northeastern areas. (Wis. Ins. Sur.).

LEAF MINER FLIES (Agromyza spp.) - MASSACHUSETTS - Damage heavy in 4 Berkshire County alfalfa fields. (Miller).

SOYBEANS

BEAN LEAF BEETLE (Cerotoma trifurcata) - OKLAHOMA - Averaged 1 per row foot in field in Craig County, very light in most northeast area fields. (Okla. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - SOUTH CAROLINA - Larvae severe on soybeans in Marion and Clarendon Counties. (Nettles, Aug. 5).

GREEN CLOVERWORM (Plathypena scabra) - KANSAS - Averaged about 5 per 3 row feet in all fields checked in Cherokee County. (Brooks).

GREEN STINK BUG (Acrosternum hilare) - OKLAHOMA - Adults light in fields setting pods in northeast area. (Okla. Coop. Sur.).

PEANUTS

NOCTUID MOTHS - GEORGIA - Light to moderate larval infestations of Spodoptera exigua (beet armyworm), S. frugiperda (fall armyworm), Prodenia eridania (southern armyworm), and Feltia subterranea (granulate cutworm) throughout peanut-growing area. Stegasta bosqueella (red-necked peanutworm) light to moderate in Tift County. (French, Aug. 7). ALABAMA - F. subterranea larvae damaging and difficult to control in 400 acres of peanuts on farm in Henry County. Few larvae in most fields of peanuts throughout southeast area. Second infestation this season of S. exigua in large peanut field in Coffee County. Controls planned. (Bond et al.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - In McLennan and Falls Counties, punctured squares averaged 2.4 (maximum 8.6) percent in 21 treated fields; averaged 5.5 (maximum 23) percent in 8 untreated fields. (Cowan et al.). For Boll Weevil in High Plains see page 612. OKLAHOMA - Moderate to heavy on cotton in Coal County. (Okla. Coop. Sur.). ARKANSAS - Normal increase. Of 6,308 fields scouted 1,117 needed treatment. (Barnes et al.). LOUISIANA - In Madison Parish, no weevils found in 34 wing traps. Infested squares ranged 8-55 (averaged 21.1) percent in 94 of 95 treated plots and fields. (Cleveland et al.). MISSISSIPPI - Generally light in delta counties, some "hot spots." Found 2 weevils in 12 fields; punctured squares averaged 5.5 percent in 1 field. (Pfrimmer et al.). Infestations averaged 3.93 percent in 12 counties. (Sartor). TENNESSEE - Second-generation weevils at peak. Infestations more general throughout regular infested area. Square counts ranged 4-78 percent (averaged 14) in fields found infested. Conditions ideal for further buildup. One field increased from 4 percent punctured squares to 32 percent in 7-day period. (Locke). ALABAMA - Weevil numbers remain heavy in south and central areas. Controls somewhat general and successful. Numbers continue to remain light in north area. Only few fields reached damaged square counts above 10 percent. Numerous parasites on weevil larvae in squares in field in Colbert County. (Landers et al.). GEORGIA - Adults migrating from "cut out" cotton throughout south area. (Womack). Punctured squares 11 percent in treated fields, 36 percent in untreated fields in Spalding County. (Beckham, Aug. 7).

BOLLWORMS (Heliothis spp.) - ARIZONA - H. zea infestations range 0-3 percent per 100 terminals at Safford, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - H. zea damage light in Luna, Hidalgo, and Dona Ana Counties. Some isolated fields required treatment. Eggs remain light in all fields checked. (N.M. Coop. Rpt.). TEXAS - Moths increased in McLennan and Falls County light traps. Egg laying increased. Infestations in few irrigated fields in area. Injured squares averaged 5 (maximum 12) percent in 21 treated fields; averaged 7.9 (maximum 14.5) percent in 8 untreated fields. Injured bolls averaged 2.2 (maximum 4.5) percent in 22 treated fields; averaged 4.6 (maximum 8.2) percent in 7 untreated fields.

H. virescens comprised 70 percent of 359 larvae collected on cotton this period. (Cowan et al.). LOUISIANA - In Madison Parish, damaged squares ranged 1-9 (averaged 2.4) percent in 83 of 95 treated plots and fields. Damaged bolls averaged 2.7 percent in 54 of 66 treated plots. Blacklight trap collection for 3 days totaled 51 H. zea and 2 H. virescens. (Cleveland et al.). ARKANSAS - H. virescens remains at relatively low level compared with total Heliothis population. Collections made mainly in southeast and east-central areas with small numbers from other areas. Total determinations 3,953; 102 or 2.6 percent being H. virescens. (Boyer et al.). MISSISSIPPI - Moth flights near normal in delta counties. Injured squares averaged 1.58 (maximum 6.5) percent in 8 of 12 fields checked. Expect increase following rain. (Pfrimmer et al.). H. zea infestation averages ranged 1-4 percent in fields checked in 9 counties. (Sartor). TENNESSEE - H. zea still causing much damage throughout west area. Larval and egg counts ranged 1-17 per 100 terminals; averaged 3 for those fields infested. (Locke). ALABAMA - Increased in most cotton in south and central areas. Moth flight and egg laying heavy. Larvae remain minor problem in north area. (McQueen). GEORGIA - Egg laying still heavy, about 80 percent of late instars H. virescens in south area. (Womack, Aug. 7).

CABBAGE LOOPER (Trichoplusia ni) - TENNESSEE - Increasing throughout west area, especially in rank late cotton. (Locke). MISSISSIPPI - Moths and eggs increasing in delta counties. Injury light. (Pfrimmer et al.).

BEE T ARMYWORM (Spodoptera exigua) - TENNESSEE - Several fields with pigweed found infested. Most larvae feeding on pigweed, expected to move to cotton later. (Locke).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - OKLAHOMA - Moderate to heavy populations caused much damage in Coal County. (Okla. Coop. Sur.).

POTATOES, TOMATOES, PEPPERS

POTATO FLEA BEETLE (Epitrix cucumeris) - NORTH DAKOTA - Shotholes ranged 50-60 per leaf on potatoes in Walsh and Pembina Counties. Controls underway. (Kaatz).

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) - CALIFORNIA - Adults 2 per leaf in potato planting at Yreka, Siskiyou County. (Cal. Coop. Rpt.).

POTATO APHIDS - MAINE - Survey at Presque Isle, Aroostock County, showed 66.6 percent of untreated potatoes infested. Macrosiphum euphorbiae (potato aphid) colonies ranged 1-37, parasitism 2.6 percent, and 2.3 percent killed by fungus. Summer dispersal forms present. Aphis nasturtii (buchthorn aphid) colonies ranged 1-81, few summer dispersal forms. Myzus persicae (green peach aphid) colonies ranged 1-9, no parasitized forms. No Acyrtosiphon solani (foxglove aphid) infestations found. (Gall).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Continues to build up in some potato fields in Otero County. Controls necessary in some cases. (Burchett).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - Larvae averaged 1 per broccoli plant in untreated research plots at Rutgers University. Egg populations also 1 per plant. Treatments suggested. (Ins.-Dis. Newsltr.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW JERSEY - Moth populations heavy; newly hatched borers easy to find on several crops. Scheduled treatment advised for peppers. (Ins.-Dis. Newsltr.).

ONION THRIPS (Thrips tabaci) - COLORADO - Ranged 0-50 per onion plant in fields checked in Arkansas Valley. (Burchett).

DECIDUOUS FRUITS AND NUTS

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Emergence still heavy in Fennville area of Allegan County. Emergence seems more prolonged than normal. (Howitt, Aug. 10). INDIANA - Infestations heavier in central area this year than in past years. (Clark).

CODLING MOTH (Laspeyresia pomonella) - WISCONSIN - Moths continue heavy in Madison County blacklight trap. High degree of infestation in untreated apples apparent near blacklight trap. (Wis. Ins. Sur.).

RED-HUMPED CATERPILLAR (Schizura concinna) - WASHINGTON - Late instars defoliating apple, ornamental crab apple, plum, Siberian pea (Caragana), and Norway maple in residential areas of Pullman, Whitman County. (Johansen).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Infestations reported throughout State. (Jensen, Shade).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - MICHIGAN - Second generation very active and near peak. (Howitt, Aug. 10).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Counts per 50 apple leaves in Hampshire County: 130 on McIntosh and 5,680 on Delicious with no dormant oil or no treatment; 2,105 on McIntosh and 5,840 on Delicious with dormant oil but no treatment. (Jensen).

APPLE RUST MITE (Aculus schlechtendali) - NEW YORK - Infestations important on several commercial blocks in Ulster, Dutchess, and Orange Counties. (N.Y. Wkly. Rpt., Aug. 10).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Moderate on pecans in Hughes County. Emergence continues light in parts of Payne County. (Okla. Coop. Sur.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Medium populations emerging; first control treatments applied. Continued warm to hot weather may result in heavy infestations where treatment timing off. (Cal. Coop. Rpt.). OREGON - Trapping data indicates peak numbers in Medford area of Jackson County August 3-5. Controls recommended by August 10. (Berry). Post spray check of 3 traps August 11 and 12 in Riddle area, Douglas County, showed total of 40 flies. Second spray may be needed to maintain control. (Passon).

YELLOW-NECKED CATERPILLAR (Datana ministra) - KANSAS - Feeding on leaves of 50 percent of pecan trees checked in Cherokee and Neosho Counties. (Redding).

SMALL FRUITS

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - Damaging grape foliage in Blanding area of San Juan County. (Jones). Determined by W.J. Hanson. Caused some damage in this area about 20 years ago. (Knowlton).

ORNAMENTALS

AN ARMORED SCALE (Lepidosaphes yanagicola) - WEST VIRGINIA - Found on Euonymus elatus in one nursery in Cabell County by J. Adkins July 30, 1970. Determined by G.B. Slesman. This is a new State record. (W. Va. Ins. Sur.). FLORIDA - Found on Florida butterfly orchid, Epidendrum tampense, at Naples, Collier County, June 9 by W.T. Walsh. This is a new county record. (Fla. Coop. Sur.).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Caused heavy damage to evergreen shrubs in Wilbarger, Lubbock, and Hockley Counties. (Boring, Green).

FOREST AND SHADE TREES

WHITE-PINE WEEVIL (Pissodes strobi) - SOUTH CAROLINA - Specimens collected from terminals of white pine at Pickens, Pickens County, during June 1970 by F.M. Flemming. Determined by R.C. Fox. This is a new State record. (Nettles).

NORTHERN PINE WEEVIL (Pissodes approximatus) - MISSOURI - Adult collected from Scotch pine in Boone County, May 27, 1970, and determined by W.H. Kearby. This is a new State record. (Hanning).

PALES WEEVIL (Hylobius pales) - MISSOURI - Adult collected from Scotch pine by W.S. Craig in St. Charles County May 1, 1948. This is a new State record. Adults collected by W.H. Kearby in Montgomery County July 9, 1970, from Scotch pine. This is a new county record. Determinations by W.H. Kearby. (Hanning).

AN ERIOPHYID MITE (Setoptus jonesi) - PENNSYLVANIA - Found under sheath of white pine needle by Wertz in Lebanon County June 15, 1970. Determined by C.C. Hall. This is a new State record. (Simons).

ELM LEAF BEETLE (Pyrrhalta luteola) - ALABAMA - Damage to lawn and street elms heavier than during last 2-3 years in central to north areas. Serious damage caused almost complete defoliation in Demopolis and Thomaston area of Marengo County. (Miller et al.). MISSISSIPPI - Larvae and adults caused heavy damage to Chinese elms in Oktibbeha, Lowndes, and Calhoun Counties. (Sartor, Aug. 7). TEXAS - Damaging Chinese elms in Wilbarger, Wichita, Lubbock, Hockley, Bailey, Winkler, Midland, Martin, Glasscock, Ector, Pecos, Upton, Ward, Reagan, and El Paso Counties. (Boring et al.). ARKANSAS - More damaging to Chinese Elm in extreme northwest area than in many areas. Extremely low rainfall in July 1969, and in June, July, and early August 1970, coupled with this beetle, resulted in most elms being in very poor condition. (Boyer). UTAH - Moderate on foliage at Roosevelt and Myton, Duchesne County. Damage unusually severe to some trees at Logan, Cache County. (Knowlton, Roberts).

FOREST TENT CATERPILLAR (Malacosoma disstria) - KENTUCKY - Epidemic populations caused defoliation of 1,200-acre area in Hopkins, McLean, Mecklenberg, and Ohio Counties. ALABAMA - Defoliated total of 45,820 acres of water tupelo in the Mobile and Tensaw River Basins in southwestern area; about 24,360 acres classed as heavy defoliation. LOUISIANA - Infestations reached heaviest level since 1963 in southeastern area; total of 477,000 acres of water tupelo forest damaged. Infestation declined from 10,000 acres in 1969 to 2,500 acres in Mermentau River Basin. (For. Pest Rptr., June).

SADDLED PROMINENT (Heterocampa guttivitta) - MAINE - Defoliated thousands of acres of woodland in southern Oxford County. (Clark). VERMONT - Defoliation of mountain top trees noted in Bennington County. (Nielsen, Aug. 10).

SATIN MOTH (Stilpnotia salicis) - CALIFORNIA - Adult collected in gypsy moth trap on August 4 at Burney, Shasta County, by J. Weber. Determined by W. Bauer. This is a new county record. Now known in Siskiyou, Modoc, Lassen, and Shasta Counties. (Cal. Coop. Rpt.).

A CICADA (Diceroprocta apache) - ARIZONA - Caused heavy tip damage on ash, bottle-brush, bottle tree, carob, mimosa, and other deciduous shade trees in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - Four cases reported in U.S. August 9-15 as follows: TEXAS - Brewster, Jeff Davis; NEW MEXICO - Grant 2. Total of 57 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 28, Chihuahua 26, Nuevo Leon 2, Tamaulipas 1. Total of 20 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where

CC

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COLORS ARE COMPLETELY REGULATED; COUNTIES
 ARE PARTIALLY REGULATED.

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

U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL RESEARCH SERVICE
 PLANT PROTECTION DIVISION
 COOPERATING WITH AFFECTED STATES

State and Federal regulations
 treatments not in progress or planned)

State and Federal regulations
 treatments in progress or planned)

regulations removed

posed on movement of regulated articles
 as follows:

into or through green or white.
 into or through white.
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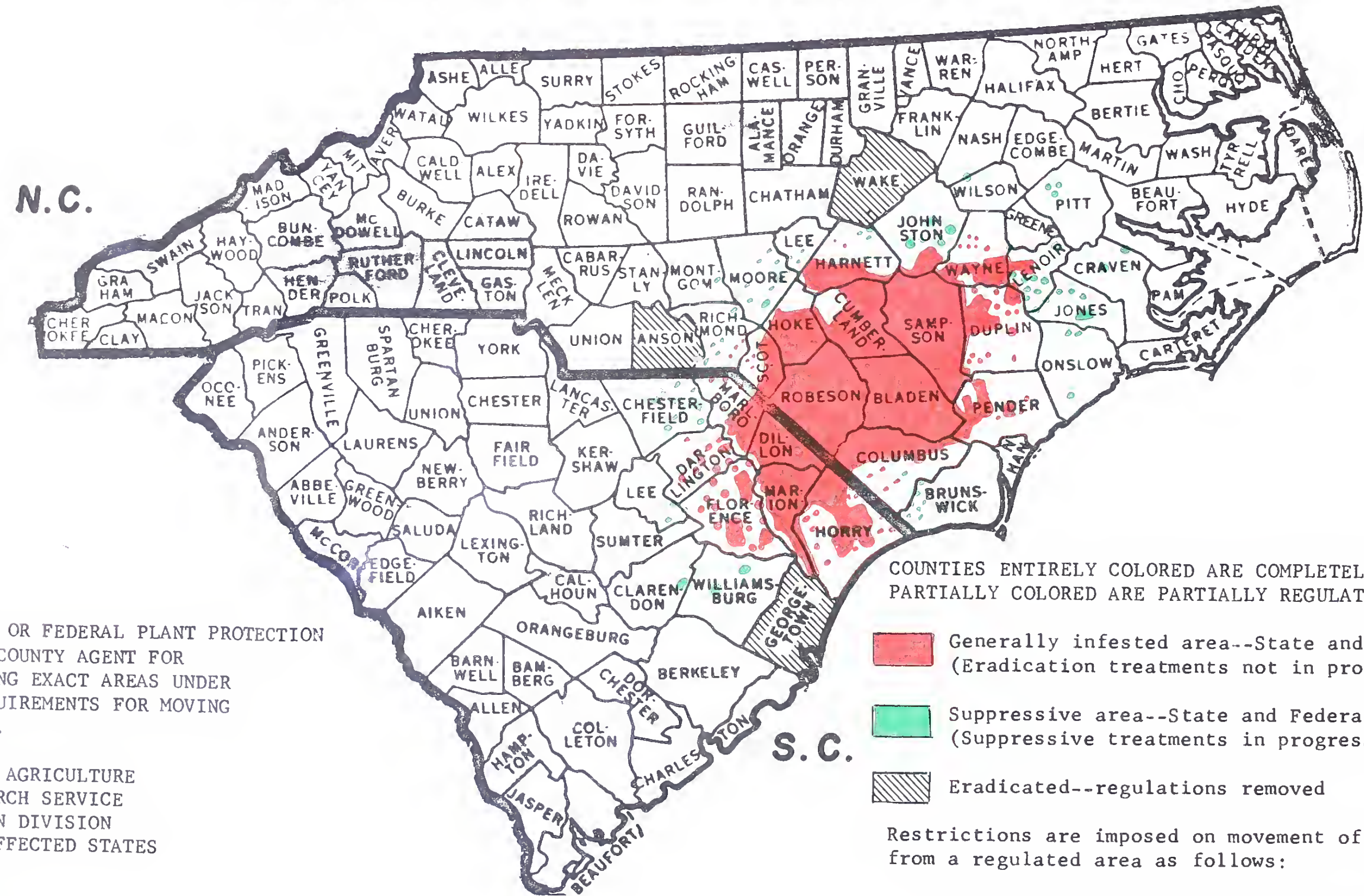
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WITCHWEED QUARANTINE

COOPERATIVE FEDERAL / STATE QUARANTINES



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

- Generally infested area--State and Federal regulations (Eradication treatments not in progress or planned)
- Suppressive area--State and Federal regulations (Suppressive treatments in progress or planned)
- Eradicated--regulations removed

Restrictions are imposed on movement of regulated articles from a regulated area as follows:

1. From red into or through green or white.
 2. From green into or through white.
 3. Green into green.
 4. Within green.*
- *If required by an authorized inspector.

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

U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL RESEARCH SERVICE
 PLANT PROTECTION DIVISION
 COOPERATING WITH AFFECTED STATES

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES

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

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things; sand; and gravel.
Soil samples of any size shipped to U.S. Army Corps of Engineers soil laboratories within the conterminous United States are exempt.
2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants.
6. Root crops, except those from which all soil has been removed.
Root crops are exempt if moving to a designated processing plant.*
Peanuts in shells and peanut shells, except boiled or roasted peanuts.
7. Small grains and soybeans.
Small grains are exempt** if such grains and any containers for the grains did not come in contact with the soil during harvesting, or if they have been cleaned at a designated facility.*
8. Soybeans are exempt** if such beans and any containers for the beans did not come in contact with the soil during harvesting and if such beans are moving forthwith to a designated oil mill or facility* for crushing or cleaning, or if they have been cleaned with an air-blast cleaner having a capacity of 2,500 cubic feet per minute.
9. Hay, straw, fodder, and plant litter of any kind.
10. Seed cotton, cotton lint, cotton linters, and gin trash.
Seed cotton is exempt if moving to a designated gin.*
11. Stumpwood.
12. Long green cucumbers, cantaloupes, peppers, squash, tomatoes, and watermelons, except those from which all soil has been removed.
13. Pickling cucumbers, string beans, and field peas.
Pickling cucumbers, string beans, and field peas are exempt** if washed free of soil with running water.

eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 55,978,000; New Mexico 9,010,000; Arizona 11,576,000; Mexico 93,028,000. (Anim. Health Div.).

ACE FLY (Musca autumnalis) - UTAH - Reported very numerous in Fort Duchesne area of Uintah County. (Matthews). WYOMING - Averaged 6 per face on one cattle herd in latte County. (Parshall). NEBRASKA - Ranged 12-15 per face on calves in 3 herds in Lincoln County. (Campbell). WISCONSIN - Severe on cattle in Chippewa County. Elsewhere annoyance to cattle varies from light to moderate. Populations reported heavy in Bayfield County. (Wis. Ins. Sur.). MISSISSIPPI - Averaged 17.5 per face on 300 cattle checked in Monroe County. (Sartor). VERMONT - Heavy on pastured cattle, especially during past hot weather. (Nielsen, Aug. 10).

OSQUITOES - MINNESOTA - Aedes vexans accounted for 87.7 percent of 7,802 females in light traps at Minneapolis and St. Paul week ending August 7. Counts decreased except at Lino Lakes and Forest Lake traps. In 81 larval collections, A. vexans in 35 percent, Culex tarsalis in 18 percent. Of 123 mosquitoes in 17 evening bite collections 105 were A. vexans and 9 A. trivittatus. Of 996 females in 117 daytime bite collections, 812 were A. vexans, 51 A. trivittatus, 27 A. triseriatus, and 25 A. dorsalis. (Minn. Pest Rpt.). WISCONSIN - Severe on cattle in Chippewa County, moderate in Trempealeau and Calumet Counties. Annoyance to man continues moderate to severe in scattered sites over State. Annoying populations encountered more frequently in northern counties. (Wis. Ins. Sur.). ARKANSAS - Anopheles quadrimaculatus increased in Lonoke County; light trap catches averaged 250 per night. (Meisch).

ORN FLY (Haematobia irritans) - UTAH - Severe in Fort Duchesne area of Uintah County; numerous on cattle elsewhere in Uintah and Duchesne Counties. (Knowlton, Matthews). Serious on unsprayed herds in Sevier County (Rickenbach); moderate throughout Wayne and Piute Counties (Chapman), and Cache County (Burtenshaw). WYOMING - Ranged 150-400 per head on 4 cattle herds in Goshen and Platte Counties. (Parshall). MONTANA - Averaged 150 per range animal (400 on bulls) in Madison County; averaged 50 per range animal (400+ on bulls) in 1 herd in Gallatin County. (Pratt). NORTH DAKOTA - Built up on untreated animals in west-central district. Ranged 150-800 (averaged 545) per animal on range cows in McKenzie County. Up to 5,000+ per head on several bulls. (Brandvik). NEBRASKA - Ranged 600-800 per animal in 3 untreated herds near North Platte, Lincoln County. (Campbell). WISCONSIN - Severe on cattle in Chippewa County. Annoyance to cattle elsewhere varies light to moderate. (Wis. Ins. Sur.). OKLAHOMA - Ranged up to 1,500 per head on cattle herd in Payne County, up to 200 per head on herd in Mayes County. Heavy in Hughes County, moderate in Cleveland County. (Okla. Coop. Sur.). MISSISSIPPI - Average adult counts per animal: 700 on 1,000 untreated head and 250 on another 70 untreated head in Yazoo County; 24 on 176 head in Hinds County; and 20 on 80 head in Pike County. (Sartor). FLORIDA - Adults averaged 399 (maximum 800) per untreated beef cow August 4; averaged 820 (maximum 1,200) per untreated beef animal at Gainesville, Alachua County, August 9. (Butler).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Counts heavy and annoyance to cattle severe in Bayfield, Chippewa, Crawford, Columbia, Wood, and Calumet Counties. Slight annoyance to cattle reported from Outagamie County. Annoyance moderate in Clark County. (Wis. Ins. Sur.).

TABANID FLIES - UTAH - Unusually numerous and troublesome to horses, cattle, and man in Rich, Uintah, Wasatch, and Duchesne Counties, and in some areas of Weber, Box Elder, Tooele, and Cache Counties (Knowlton); very troublesome in Sevier County (Rickenbach). OKLAHOMA - Tabanus spp. averaged 3 per head on cattle checked in Payne County. Light numbers of T. atratus (black horse fly) noted on cattle in Mayes County. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - MISSOURI - Specimen collected in Harrison County by D. Anderson. This is a new county record. (Hanning).

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

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things; sand; and gravel.
Soil samples of any size shipped to U.S. Army Corps of Engineers soil laboratories within the conterminous United States are exempt.
2. Plants with roots.
3. Grass sod.
4. Plant crowns and roots for propagation.
5. True bulbs, corms, rhizomes, and tubers of ornamental plants.
6. Root crops, except those from which all soil has been removed.
Root crops are exempt if moving to a designated processing plant.*
7. Peanuts in shells and peanut shells, except boiled or roasted peanuts.
8. Small grains and soybeans.
Small grains are exempt** if such grains and any containers for the grains did not come in contact with the soil during harvesting, or if they have been cleaned at a designated facility.*

Soybeans are exempt** if such beans and any containers for the beans did not come in contact with the soil during harvesting and if such beans are moving forthwith to a designated oil mill or facility* for crushing or cleaning, or if they have been cleaned with an air-blast cleaner having a capacity of 2,500 cubic feet per minute.
9. Hay, straw, fodder, and plant litter of any kind.
10. Seed cotton, cotton lint, cotton linters, and gin trash.
Seed cotton is exempt if moving to a designated gin.*
11. Stumpwood.
12. Long green cucumbers, cantaloupes, peppers, squash, tomatoes, and watermelons, except those from which all soil has been removed.
13. Pickling cucumbers, string beans, and field peas.
Pickling cucumbers, string beans, and field peas are exempt** if washed free of soil with running water.
14. Cabbage, except firm heads with loose outer leaves removed.
15. Leaf tobacco, except flue-cured leaf tobacco.
16. Ear corn, except shucked ear corn.
Ear corn in the shuck is exempt** if harvested without coming in contact with the soil.
17. Used crates, boxes, burlap bags, cotton picking sacks, and other used farm-products containers.
18. Used farm tools and implements.
Used farm tools and implements are exempt** if cleaned free of soil.
19. Used mechanized cultivating equipment and used harvesting machinery.
Used mechanized cultivating equipment and used harvesting machinery are exempt** if cleaned and repainted.
20. Used mechanized soil-moving equipment.
Used mechanized soil-moving equipment is exempt** if cleaned and repainted.
21. Any other products, articles, or means of conveyance, of any character whatsoever, not covered by the above when it is determined by an inspector that they present a hazard of spread of witchweed and the person in possession thereof has been so notified.

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

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

BENEFICIAL INSECTS

ALFALFA LEAF CUTTER BEE (Megachile rotundata) - IDAHO - Second generation begun at Parma, Canyon County, week ending August 3. At some locations up to 10 percent of 1970 capped holes showed second-generation emergence. (Waters).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults and nymphs averaged 13 per 10 sweeps in alfalfa of Goshen and Platte Counties. (Parshall).

LACEWINGS - CALIFORNIA - Chrysopa californica (a green lacewing) and Ermochrysa californica (a brown lacewing) noticeably absent this season. Apparently some upset in reproduction. (Cal. Coop. Rpt.).

A WEEVIL (Smicronyx interruptus) - WASHINGTON - Larvae heavy in galls on dodder patches in alfalfa field near Lowden, Walla Walla County; larvae collected July 21, emerged as adults in laboratory August 6. (Eves, Johansen).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations began to increase in late July. Currently economic infestations present in few fields in Kent and Hall Counties. Survey continues to reveal light infestations on High Plains near the Caprock. Increased weevil movement can be expected about mid-August. (Rummel, Clymer, Aug. 10). For Boll Weevil in other areas see page 607.

CARRIBEAN FRUIT FLY (Anastrepha suspensa) - FLORIDA - Surveys indicate increase in numbers trapped using torula yeast and borax lure. Catches in 190 McPhail traps indicate ratio of 5 females to 1 male at Key West, Dade County. (PPD South. Reg., July).

CEREAL LEAF BEETLE (Oulema melanopus) - OHIO - Larval damage survey indicates general buildup over much of State. Oatfields with highest populations located in east-central counties and several northwestern counties. Extreme northeastern counties had very low larval populations. (Treece).

GRASSHOPPERS - WASHINGTON - Arphia pseudonietana conspicuous with mixed populations of Melanoplus sanguinipes, M. bivittatus, and M. femurrubrum west of Addy in Stevens County. Averaged 25 per square yard over 600-1,000 acres. Anabrus spokan (a tettigoniid) averaged 3 per square yard on 300 acres. Infestation associated with mixed grasshopper population west of Addy. (Thomas). UTAH - Counts of 20 per square yard spotty on Cedar Mountain, Iron County. Camula pellucida dominant, followed by M. sanguinipes and M. borealis. In Kane County, C. pellucida, Aulocara elliotti, and M. infantalis averaged 30 per square yard on range along Podunk Creek. (Thornley). NEW MEXICO - Ranged 15-25 per 25 sweeps of alfalfa in Grants area, Valencia County. (Henigen). NEBRASKA - About 5,000 acres sprayed at Clay Center, Clay County, for Melanoplus spp. Pretreatment counts ranged 0-75 (averaged 25) per square yard. Controls 85 percent effective, reducing populations well below economic level. (Bell). MINNESOTA - Infestations economic, 12-35 per square yard, in Meeker, Kandiyohi, Stearns, Todd, Morrison, and Cass Counties. Melanoplus femurrubrum dominant species in most fields. M. bivittatus dominant in some heavily infested fields in Todd County. M. sanguinipes and M. packardii observed in scattered locations. (Minn. Pest Rpt.).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Moths trapped at Mahoning Township, Montour County, July 30 by D. Munsen. Determined by E.L. Todd. This is a new county record. (PPD).

JAPANESE BEETLE (Popillia japonica) - KENTUCKY - Adults collected in Jeffersonville, Montgomery County, during July by J. Henderson; at Augusta, Bracken County, by W.A. Smith July 20; and at Greenwood, McCreary County, July 28 by H.E. Hurst. Determined by R.D. Gordon. These are new county records. (PPD). INDIANA - Adults heavy in area of about 22 square miles in Jackson and Washington

Counties; control necessary in latter county. (Clark). Corn and soybeans also treated in Jackson County. (Matthew). OHIO - Adults heavy in mixed alfalfa and red clover field in Holmes County. Adults averaged 6 per 10 sweeps. About 10 percent of leaf surface destroyed. (Roach). MAINE - Damage and outbreaks reported in several local areas at Lewiston, Cumberland County. (Gould).

PINK BOLLWORM (Pectinophora gossypiella) - Sterile moths released August 7-13. CALIFORNIA - Bakersfield 4,548,760, total to date 26,465,460. No native moths trapped in Kern County; sterile moth drops increased in area where 2 native moths previously trapped. ARIZONA - Redington, Pima County, 67,500; total to date 989,800. Survey in Redington yielded no rosetted blooms. One native and 22 sterile moths trapped in treatment field; total to date, 19 native and 182 sterile moths trapped. (PPD). Treatments applied by 6 growers at Safford; infestations ranged 0-32 percent in Graham County. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - ARKANSAS - Specimens taken in soil sample from farm in Ashley County August 10 by B.F. Goolsby. Determined by A.M. Golden. This is a new county record. (PPD).

DETECTION

New State Records - AN ARMORED SCALE (Lepidosaphes yanagicola) WEST VIRGINIA - Cabell County (p. 609). AN ERIOPHYID MITE (Setoptus jonesi) PENNSYLVANIA - Lebanon County; NORTHERN PINE WEEVIL (Pissodes approximatus) MISSOURI - Boone County; PALES WEEVIL (Hylobius pales) MISSOURI - St. Charles County; WHITE-PINE WEEVIL (Pissodes strobi) SOUTH CAROLINA - Pickens County (p. 610).

New County Records - AN ARMORED SCALE (Lepidosaphes yanagicola) FLORIDA - Collier (p. 609). BROWN RECLUSE SPIDER (Loxosceles reclusa) MISSOURI - Harrison (p. 611). A CORN ROOTWORM (Diabrotica atripennis) PENNSYLVANIA - Lycoming (p. 605). GYPSY MOTH (Porthetria dispar) PENNSYLVANIA - Montour (p. 612). JAPANESE BEETLE (Popillia japonica) KENTUCKY - Montgomery, Bracken, McCreary (p. 612). MEADOW SPITTLEBUG (Philaenus spumarius) MISSOURI - Saline (p. 606). PALES WEEVIL (Hylobius pales) MISSOURI - Montgomery (p. 610). SATIN MOTH (Stilpnotia salicis) CALIFORNIA - Shasta (p. 610). SOYBEAN CYST NEMATODE (Heterodera glycines) ARKANSAS - Ashley (p. 613). WESTERN CORN ROOTWORM (Diabrotica virgifera) INDIANA - Lake, Kosciusko (p. 605).

TECHNIQUES TO DETERMINE LOSSES

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Part VI

Additional copies of Parts I through VI of this bibliography are available from Economic Insect Survey and Detection.

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2/ Citations for 1909, 1926, 1932 and 1938 are included at the end of this list.

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Weather of the week continued from page 602.

TEMPERATURE: Typical midsummer temperatures continued over most of the Nation with little change. Cool weather persisted along the Pacific coast and the mercury dropped to or near freezing in the northern and central Rocky Mountains on 1 or 2 mornings. Big Piney, Wyoming, registered 27° Monday morning, August 10. Early morning chill also occurred in the Northwest, and across the northern border States to the Northeast. Afternoon temperatures across the South ranged from hot in the southwestern deserts to quite warm in the Southeast. Daggett, California, recorded 113° Monday afternoon. Afternoon readings in the 90's were common over the western Great Plains. Some Texas stations warmed to 100° or higher on several days. East of the Mississippi, the highest temperatures remained mostly in the 80's until the weekend when the Northeast and the Deep South warmed to the 90's. Concord, New Hampshire, registered 96° Sunday afternoon. Higher humidity and increased pollution accompanied the return of hot weather to the East. Weekly mean temperatures were below normal from the central Great Plains to the middle and southern Atlantic coast and above normal over most of the rest of the Nation. (Summary supplied by Environmental Data Service, ESSA.)

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