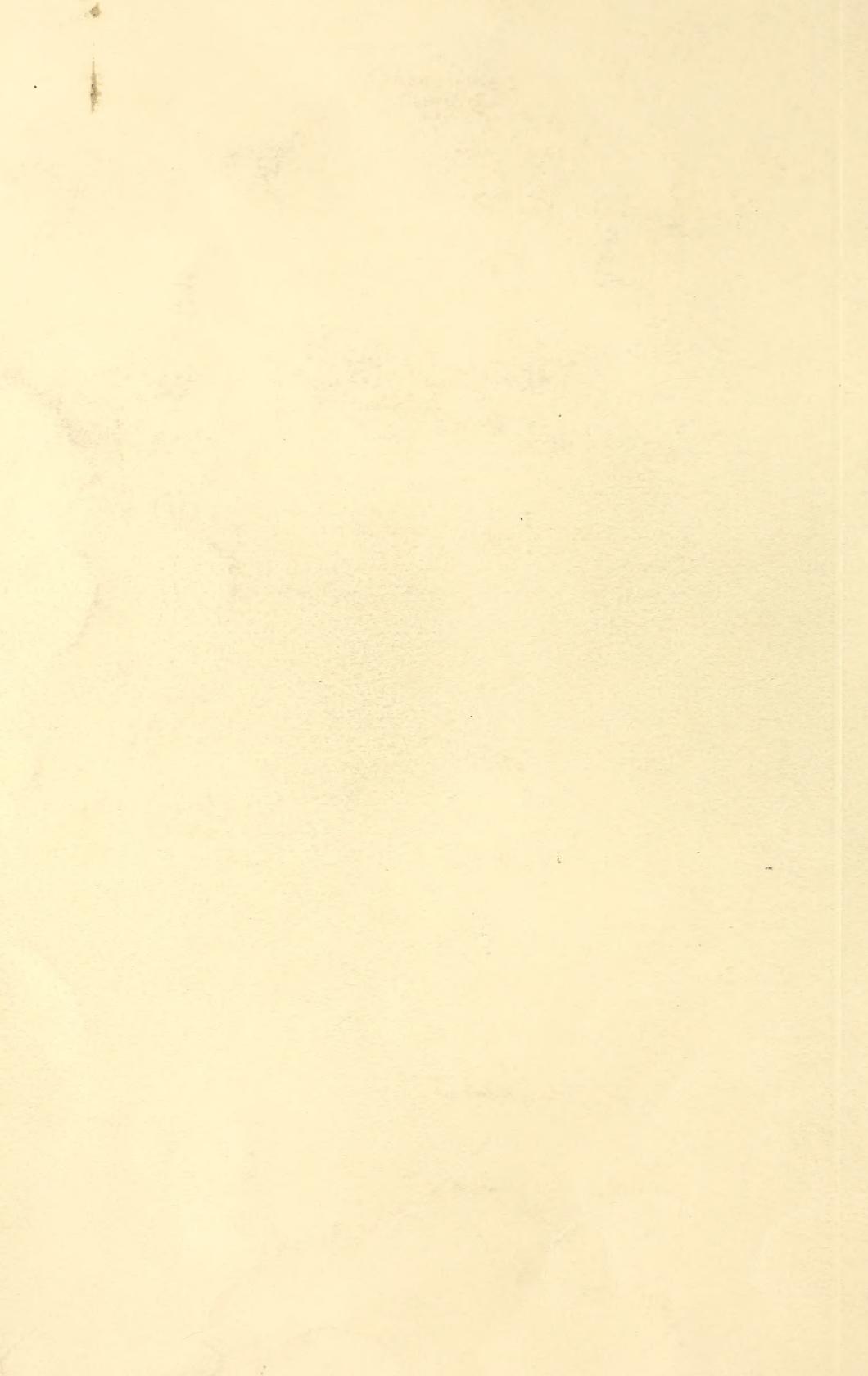


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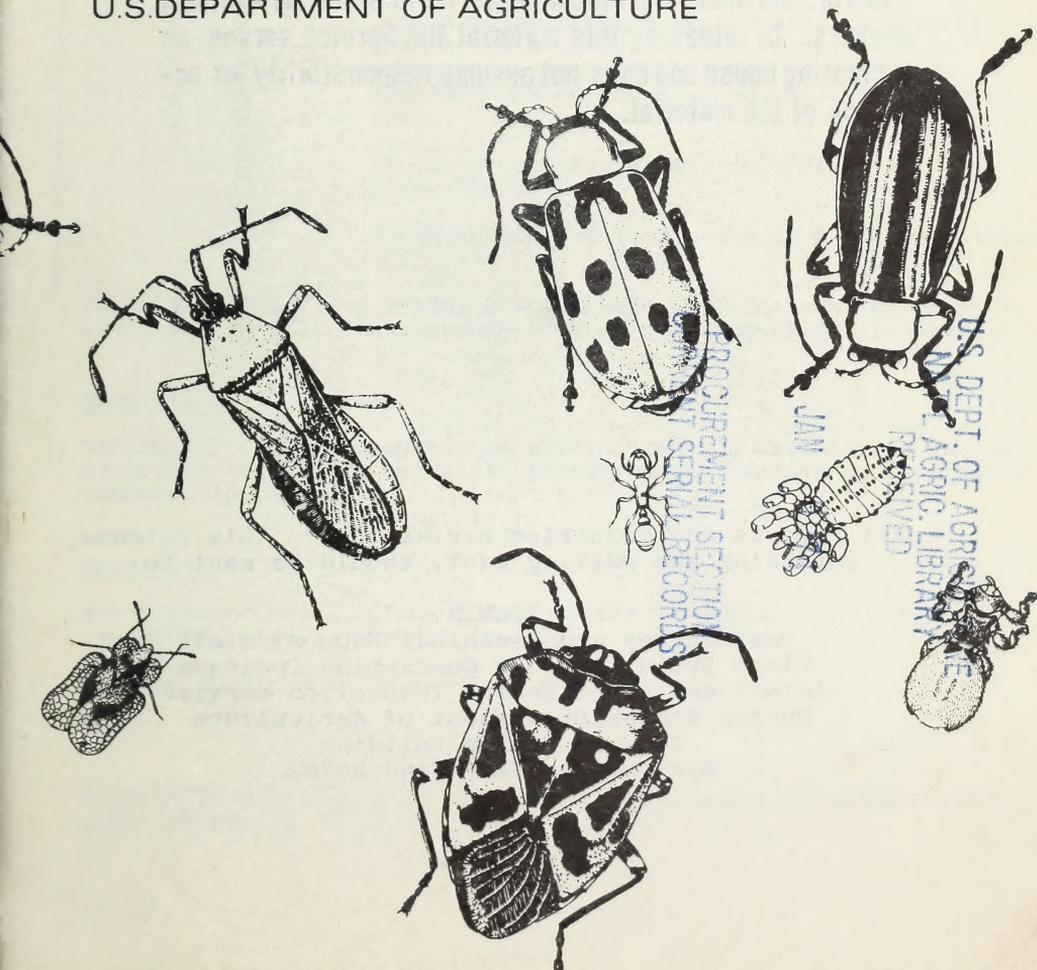
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Cooperative Economic Insect Report

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

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

CORN EARWORM economic in soybeans in Coastal Plain of the Carolinas, approaching economic levels in most of Piedmont area of South Carolina. (p. 591).

EUROPEAN CORN BORER second-generation heavier in corn in north-east Kansas than in 1972; heavy in grain corn in southern Indiana. (p. 593).

FALL ARMYWORM problem on grass crops in Alabama, Mississippi, and Oklahoma. SOUTHERN CHINCH BUG heavily damaged St. Augustine grass lawns in southern Mississippi. (pp. 594, 595).

GREEN CLOVERWORM continued to be problem on soybeans in southern Wisconsin, many thousand acres treated. Severe on soybeans in Northern Neck area of Virginia, moth flights heavy on Eastern Shore of Maryland. BEET ARMYWORM economic on soybeans in southern South Carolina. (p. 596).

BOLLWORM population in cotton-growing areas of California lightest in 15 years. (p. 598).

CABBAGE LOOPER caused concern to potato growers in Red River Valley of Minnesota. (p. 599).

PEACH TWIG BORER and ORIENTAL FRUIT MOTH infestations in peach and prune in California probably worst ever observed. (p. 601).

Prediction

VARIEGATED CUTWORM populations may be heavy in Willamette Valley of Oregon in 1974 if mortality factors do not reduce current heavy numbers. (p. 599).

Detection

New State records include FORAGE LOOPER in Alabama (p. 596) and two HORSE FLIES in Vermont (p. 603).

For new county records see page 600.

Reports in this Issue are for week ending August 24 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING AUGUST 27

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

HIGHLIGHTS: While most of the Great Plains endured a heat wave that set record highs from Texas to South Dakota, the Pacific Northwest, plus large areas east of the Mississippi, averaged 3 degrees or more subnormal. Spotty rain fell. The northwest drought area received some. Only south Florida, the Chesapeake Bay area, and sections of Iowa, Minnesota, and Wisconsin got 2 inches or more.

TEMPERATURE: While most of the Corn Belt enjoyed temperatures within 3 degrees of normal, large sections of the central and western Plains, where temperatures averaged from 3 degrees to 6 degrees above normal, suffered from heat. The coastal areas were 3 degrees or more subnormal. In the West, large inland tracts of California, Washington, and Oregon averaged from 3 to 9 degrees below normal. In the East, the Ohio Valley, central Pennsylvania and south-central New York, and eastern New Jersey averaged 3 degrees or more below normal. Sections of 12 Southern States also averaged from 3 to 6 degrees subnormal. Monday was a day of contrasts in the Nation's western half. The Pacific Northwest was cool with early morning temperatures in the 40's and 50's. It was also cool into North Dakota and across to the Great Lakes because a Canadian High brought cooler air to these areas. To the south and east, the Plains baked. At many points it reached the 90's. Rapid City, South Dakota, had 104 degrees, a new record, and Hutchinson, Kansas, 101 degrees. Tuesday morning, cold air invaded the Ohio Valley and the Great Lakes area. Marquette, Michigan, began the day with 44 degrees, Madison, Wisconsin, 48 degrees. But the Plains heat continued. Pickston, South Dakota, had 101 degrees and Valentine, Nebraska, 102 degrees. Late Tuesday and Wednesday, a High pushed cool air to the gulf which had readings in the 60's early Wednesday. However, temperatures continued very hot over the Plains. Weather of the week continued on page 608.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - OHIO - Larvae (about full grown) severely damaged late-planted corn in Wayne County. Destroyed 25-50 percent of tassels in at least 2 fields; may result in inadequate pollination. (Rings). KENTUCKY - Treatments effective on 1,000 acres of corn at Hardin, Marshall County. (Barnett).

CORN EARWORM (Heliothis zea) - MAINE - One larva found in sweet corn at Caribou, Aroostook County, and one in field corn near Dixmont, Penobscot County. (Gall). NEW HAMPSHIRE - Early instar larvae began to feed on corn at Dover, Stafford County, August 16. (Spencer). DELAWARE - Adults increased significantly in blacklight traps. (Burbatus, Davis). MARYLAND - Heavy moth flights continue on lower Eastern Shore. Small larvae appeared on soybeans in Dorchester County; counts well below one per 10 row feet. (U. Md., Ent. Dept.). VIRGINIA - Larvae present in soybeans in Independent City of Virginia Beach and in Westmoreland and Southampton Counties. Population light but increase expected. Light trap catches indicate heavy flight at Warsaw August 19 and adults readily observed in Virginia Beach area fields. Surveys indicate population may be much heavier than 1972. (Allen). KENTUCKY - Larvae averaged 0.5 (ranged 0-3) per corn ear in Larue County. (Barnett).

NORTH CAROLINA - H. zea larval infestation general in upper Chowan County peanut fields; ranged 1-3 larvae per row foot in scattered fields in Martin, Washington, and Chowan Counties. Foliar damage noted in many unsampled fields. Very heavy in soybeans in many Coastal Plain counties. Economic levels noted in open and closed canopy type fields; more larvae found in open fields which were at peak bloom August 13-17. Most larvae in first, second, and third instar in Jones, Onslow, Duplin, Washington, Hyde, and Tyrrell Counties. Larvae (third instar or younger) averaged 21 per 20 row feet and larvae (fourth instar or older) averaged 12 per 20 row feet in Duplin, Jones, and Onslow Counties. Heaviest in Gum Neck area, Tyrrell County, and Chowan County fields. Averaged 75+ larvae per 5 row feet in Gum Neck area. Individual samples showed 140 young larvae (mostly second instar) per 5-foot sample. Light in many fields; sampling should continue into September; moths still active in all sampled areas. Disease and predators active in most fields. (Van Duyn, Hunt). SOUTH CAROLINA - Larvae economic in 15+ percent of soybean fields from Richland County to the coast. Larvae approaching economic levels in most Piedmont region fields. (Thomas). GEORGIA - Light to moderate across peanut belt. (French).

OHIO - H. zea larvae observed feeding on tips of corn ears sold at 2 of 3 roadside stands in Pickaway County. About 7 and 30 percent of ears examined at these 2 stands infested. (Fox). INDIANA - Where still present in ears of corn grown for grain, larvae slightly less common than Spodoptera frugiperda (fall armyworm) in southern districts. Damage ranged 4-16 percent of ears infested in 8 of 18 fields examined. (Meyer). ILLINOIS - H. zea infested 50 percent of ear tips in one cornfield, averaged 30 percent in 3 other Macoupin County fields. (Ill. Ins. Rpt.). MISSOURI - Heavy on field corn in southwest area. Damaged ears on midseason corn ranged 81-100 percent in this area. Full-grown larvae ranged 27-61 per 100 ears. Pupation well underway. Light in late-planted soybeans in southwest area. Averaged one small larva per 5 row feet. (Munson).

KANSAS - H. zea moderate (1-2 per head) in about 50 percent of sorghum heads in one southeast district field. Damaged 15-90 percent of corn ears checked in Pottawatomie and Shawnee Counties (milk to dent stage); most larvae pupated. Ear infestation near 100 percent noted in Comanche County. Significant flights occurring in Barton, Republic, Riley, and Brown Counties according to blacklight trap catches. None found in soybeans to date. (Bell). OKLAHOMA - Moderate in sorghum in Kay and Johnston Counties. Present in 5-10 percent of sorghum heads checked in Coal and Wagoner Counties. Infested 30-50 percent of ears of field corn checked in Jackson County. Moderate in peanuts in Marshall, Carter, and Johnston Counties. Most larvae seen in first or second instar. (Okla. Coop. Sur.). WASHINGTON - Based on field infestations and blacklight traps, population much lighter than usual for time of year. (Klostermeyer).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Averaged 27.5 adults per plant in 40 acres of sorghum at Coolidge, Pinal County. (Ariz. Coop. Sur.). OKLAHOMA - Ranged 25-100 per leaf on grain sorghum checked in southwest counties. (Okla. Coop. Sur.). NEBRASKA - Pan trap catches light. Total of 10 alates taken in 4 Clay County pan traps August 17-23. (Gary, Keith). WISCONSIN - Heavy in corn in northeastern counties; corn in area somewhat behind in development compared to other areas. Counts elsewhere have been heavy, but declined as corn matured. Syrphid puparia, lacewing larvae, and all stages of lady beetles abundant in corn in southern and western areas. (Wis. Ins. Sur.). MAINE - Populations decreased significantly in all cornfields compared to heavy infestation 14 days ago. Some corn about free of this insect. (Gall).

GREENBUG (Schizaphis graminum) - MISSOURI - Heavy on sorghum beginning to head in southwest area. Infestation at rate of one colony per leaf with 30-50 aphids per colony. Severe damage noted in fields with drought stress and heavy weed growth. (Munson). NEBRASKA - Parasitism by Lysiphlebus sp. 97+ percent in Clay County sorghum fields. Immigration light, one alate total catch of 4 Clay County pan traps August 17-23. (Gary, Keith). KANSAS - No activity on sorghum reported. (Bell). COLORADO - Ranged 100-1,500 per sorghum plant in Otero County. Loss of lower 4-6 leaves in fields with heaviest populations. (Schweissing). ARIZONA - Treatments applied to some sorghum at Sulfur Springs Valley, Cochise County. (Ariz. Coop. Sur.). WASHINGTON - Light on small experimental sorghum planting at Prosser, Benton County. (Klostermeyer).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Counts generally low in legumes but ranged 50-75 per sweep in occasional Calumet County fields. (Wis. Ins. Sur.). VERMONT - Yellowing in margins of clover and alfalfa fields common. (MacCollom).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Light to moderate in droughty 8 to 10-inch alfalfa in Harvey and Barber Counties. (Bell). NORTH DAKOTA - Averaged 80 per 100 sweeps in irrigated alfalfa in McKenzie County. (Brandvik).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - KANSAS - Second-generation larvae (second instar to full grown) heavier in corn in Riley, Pottawatomie, and Jefferson Counties than 1972, generally ranged 2-4 per stalk; 10 per stalk found in one Pottawatomie County field. Trace in sorghum in Pottawatomie and Shawnee Counties; most larvae bored into stalks near bases or at junctures of flag leaves. Infestations suspected to be this species caused sorghum stalks to break below heads in McPherson and Stafford Counties; up to 5 percent broken stalks noted in one McPherson County field. (Bell).

WISCONSIN - O. nubilalis moth activity continued on warmer nights. Peak moth activity difficult to determine due to fluctuating evening temperatures. Moth activity expected to continue for several weeks, although intensity should decrease soon. Larvae scarce in corn in northeastern counties; numerous in west-central and northwestern counties with up to 60 percent of ears in some fields of dent corn infested with second through fifth-instar larvae. Cannons in Sheboygan County reported finding empty pupal cases this season; first-generation larvae usually do not pupate near Lake Michigan because of cooler weather there. (Wis. Ins. Sur.). INDIANA - Larval infestations in corn grown for grain surprisingly heavy in fields observed in southern districts, when related to light first-generation. Larvae per 100 stalks by district averaged as follows: Southwest, 248 in 8 fields; south-central, 116 in 4 fields; southeast, 57 in 7 fields. Corn ranged from milk to dough stage. Larvae mostly fourth instar; 60 percent of infestations included ear infestations. (Meyer).

DELAWARE - O. nubilalis adults still increasing in blacklight trap collections; egg masses averaged 1+ per plant on late-planted Sussex County corn. (Burbutis, Davis). MAINE - More noticeable in developing corn ears in Penobscot County. Infested 60 percent of stalks; 30 percent of larvae dead and 30 percent left stalk after minor tunneling. Disease apparently responsible. Some remaining larvae not as active as would have been expected. (Gall).

FALL ARMYWORM (Spodoptera frugiperda) - WISCONSIN - Larvae variable in late corn; infestations heavy in some fields. Distribution spotty within some fields; late fields of dent and sweet corn most affected. All larval stages present, some pupation noted. Foliage feeding similar to Ostrinia nubilalis (European corn borer) occurred in many fields of late sweet corn. Cannons of sweet corn in eastern counties much concerned; extensive treatment scheduled in area. Larvae in ears minimal. (Wis. Ins. Sur.). MISSOURI - S. frugiperda and Heliothis zea (corn earworm) light in sorghum heads in some southwest area fields. Ranged 1-16 small larvae per 100 heads in infested fields. (Munson). OKLAHOMA - Scattered, heavy infestations of S. frugiperda reported in sorghum in Cotton and Marshall Counties. In Kiowa, Harmon, Greer, Jackson, and Tillman Counties, larvae appeared in terminals of young sorghum and in heads in older fields. (Okla. Coop. Sur.).

NORTH CAROLINA - Damage by S. frugiperda very severe in at least 2 Pasquotank County grain sorghum fields totaling 13 acres. (Van Duyn). ALABAMA - Larvae destroyed 5-acre cornfield in Houston County; ate most of stalks. (Vester et al.).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Adult survey about complete. Very heavy counts found in number of fields, but overall population for State relatively light. Some heavier average counts per plant in individual fields by county: Columbia 4.68 and 6.96, Buffalo 3.84, St. Croix 6.40, Green Lake 4.44, Outagamie 3.12. Counts often very light in other fields in immediate vicinity. D. virgifera (western corn rootworm) dominant in individual fields as far east as Lake Michigan. Heavy counts of D. longicornis (northern corn rootworm) and D. virgifera and some adult damage to corn reported in Waukesha County. (Wis. Ins. Sur.). IOWA - Adults of D. longicornis (northern corn rootworm) and D. virgifera (western corn rootworm) averaged less than one per plant in Worth County cornfield. (Iowa Ins. Sur.). OHIO - D. longicornis adults averaged 1.3 per corn ear in about 10 acres in Tuscarawas County; 90+ percent of ears with clipped silks. No adults found in Pickaway, Ross, and Franklin Counties. (Fox). UTAH - D. virgifera adults damaged silks in ears in Box Elder, Cache, Weber, and Morgan Counties. Apparently just passing peak adult population in cornfields. (Roberts).

SORGHUM MIDGE (Contarinia sorghicola) - MISSISSIPPI - Damaging populations noted in heads of grain sorghum and sorghum grown for silage in Noxubee County. Light in 200 acres of sorghum in Madison County. (Robinson). OKLAHOMA - Moderate damage noted in nearly mature grain sorghum in Love County. Adults light in blooming sorghum in McClain County. (Okla. Coop. Sur.).

BANKS GRASS MITE (Oligonychus pratensis) - COLORADO - Populations erratic but increased rapidly in Otero County corn. Varied from light with little damage to heavy through upper third of plant with severe burning through middle leaves. (Schweissing). OKLAHOMA - Increased rapidly in corn and sorghum in Texas and Cimarron Counties with few fields heavily infested. Few fields treated. (Okla. Coop. Sur.). SOUTH DAKOTA - Infested field of corn near Newell in south-central Butte County. Collected August 14, 1973, and determined by B. McDaniel. This is a new county record. Previously recorded in State in Beadle, Hughes, and Walworth Counties. (Kantack).

GRASSHOPPERS - ILLINOIS - Fed on marginal corn rows in west and northwest districts. Ranged up to 30 per square yard in roadside grass bordering corn. (Ill. Ins. Rpt.).

TURF, PASTURES, RANGELAND

FALL ARMYWORM (Spodoptera frugiperda) - ALABAMA - Infested grass hay and lawns in Dallas, Mobile, Houston, Lee, Jefferson, and Colbert Counties. Conditions favorable for population explosion during next one or two generations before frost. (McQueen). MISSISSIPPI - Still problem in lawns and permanent and temporary pastures in southern area. Unusually heavy in Rankin County lawns. (Robinson). OKLAHOMA - Heavy in Bermuda grass lawns and pastures in Pushmataha, Pottawatomie, Cotton, and Noble Counties. (Okla. Coop. Sur.).

BLUEGRASS WEBWORM (Crambus teterrellus) - MARYLAND - Larvae heavily damaged 300 acres of bluegrass sod near Glenn Dale, Prince Georges County. Treatments needed. (U. Md., Ent. Dept.).

SOUTHERN CHINCH BUG (Blissus insularis) - MISSISSIPPI - Heavily damaged untreated St. Augustine lawns in southern counties. (Robinson).

SAY STINK BUG (Chlorochroa sayi) - UTAH - More common and numerous in range areas throughout State than normal. Some conspicuous migrations and/or flights into towns and fields reported this season. (Knowlton, Davis).

GRASSHOPPERS - KENTUCKY - Adults and nymphs averaged 64 per 100 sweeps in Larue County and 32 per 100 sweeps in Hart County along roadbanks in general grasses, mostly fescue. (Barnett).

FORAGE LEGUMES

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Ranged 2,500-3,000 per 10 sweeps in alfalfa near Folsom, Union County; moderate yellowing observed. (N.M. Coop. Rpt.). NORTH DAKOTA - Ranged up to 2,000 (averaged 1,500) per 100 sweeps in irrigated alfalfa in McKenzie County. (Brandvik). WISCONSIN - Increased in northeast area alfalfa, generally 50-60 per sweep. Counts rarely exceed 5 per sweep in southwest area. (Wis. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - NEVADA - L. hesperus averaged 30 per sweep in green areas of alfalfa seed fields at Orovada, and L. hesperus and L. elisus ranged 25-30 per sweep in green areas of alfalfa seed fields at Jungo, Humboldt County. (Stitt).

ALFALFA WEEVIL (Hypera postica) - NORTH DAKOTA - Larvae ranged up to 20 per 100 sweeps in third-cutting irrigated alfalfa in McKenzie County. (Brandvik). COLORADO - Ranged 100-400 per 100 sweeps of alfalfa in Otero County, (Schweissing). NEW MEXICO - Larvae averaged 13 and adults 3 per 10 sweeps near Folsom, Union County. This is a new county record. (N.M. Coop. Rpt.).

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Heavy in alfalfa in Pawnee and Noble Counties; ranged 1-6 per square yard in Noble County. (Okla. Coop. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Averaged 80 per 100 sweeps of alfalfa at Coolidge, Pinal County. (Ariz. Coop. Sur.).

GRASSHOPPERS - WISCONSIN - Most species adults in northeast area, particularly Melanoplus bivittatus, M. differentialis, and Dissosteira carolina, and generally dispersed throughout alfalfa and soybean fields. Heavy along margins of cornfields but very little feeding noted on crop. M. femurrubrum nymphal development slow, about 50 percent adults in southwest area; development more rapid in Mississippi River areas. (Wis. Ins. Sur.).

ALFALFA LEAF BLOTCH-MINER (Agromyza frontella) - VERMONT - Adults increased in alfalfa; leaf mines apparent in most areas. (MacCollom).

SOYBEANS

GREEN CLOVERWORM (Plathypena scabra) - WISCONSIN - Continued problem in soybeans in southern part of State. Heaviest in southeast area where larval counts exceeded 12 per linear foot in some instances. Several diseased specimens found in Walworth County fields and many older larvae parasitized. Adult counts decreased past few days, may be reflection of cooler nighttime temperatures. Very small larvae still common in fields; will present potential threat for several weeks. Feeding damage by P. scabra difficult to separate from that of some other pests also present. Many growers treating on basis of price of crop; thus, many thousand acres treated in Racine, Walworth, Dane, and possibly Jefferson County. Counts per row foot by county: Jefferson 3-5 with about 10 percent defoliation; Calumet 1, Racine 12, Iowa and Grant 3. Averaged 1 per 4 row feet in Waupaca County, 7-8 in Walworth County. (Wis. Ins. Sur.).

IOWA - P. scabra larvae decreased in southern area soybean fields. (Iowa Ins. Sur.). INDIANA - Larvae about disappeared in southern districts; counts no heavier than one per yard in any field surveyed. (Meyer). KANSAS - Infestations light; decreasing in Riley and Pottawatomie Counties and in southeast district. Some treatment applied in southeast district. (Bell). OKLAHOMA - Ranged 1-3 per foot of row in soybeans checked in Garvin County. (Okla. Coop. Sur.).

VIRGINIA - P. scabra still severe on soybeans in Westmoreland, Richmond, and nearby counties. Treatments applied to 6,000+ acres in Westmoreland County for this species, Epilachna varivestis (Mexican bean beetle), and other foliar feeding insects. Many fields approached treatment threshold August 17 in Westmoreland and Lancaster Counties. P. scabra larvae very light in City of Virginia Beach, caused very little damage. (Allen). MARYLAND - Heavy moth flights continued on Eastern Shore. New brood of larvae expected first week of September. (U. Md., Ent. Dept.).

BEE T ARMYWORM (Spodoptera exigua) - SOUTH CAROLINA - Larvae present in almost all soybean fields in southern part of State, economic in many fields. Infestation most severe in 3 years. (Thomas). GEORGIA - Light to moderate in Dooly County soybeans. (Suber).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - SOUTH CAROLINA - Larvae still increasing in all soybean fields in southern half of State. (Thomas).

CABBAGE LOOPER (Trichoplusia ni) - MISSISSIPPI - Light trap catches indicate very heavy flight underway. Larvae expected to increase in soybeans. (Robinson).

FORAGE LOOPER (Caenurgina erechtea) - ALABAMA - Fourth and fifth-instar larvae collected by J. Henderson and M. Patterson from soybeans in several Limestone County fields August 6, 1973. Determined by D.M. Weisman. This is a new State record. (McQueen).

FALL ARMYWORM (Spodoptera frugiperda) - OKLAHOMA - Ranged 1-3 per plant in soybeans checked in Noble County. (Okla. Coop. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults generally not as heavy as 1972. Egg laying on soybeans occurred in southern sections. (U. Md., Ent. Dept.). VIRGINIA - Treatments required on 2 of 3 Virginia Beach fields. All stages present. Adult field population decreased slightly, many egg masses laid and now hatching. (Allen).

PEANUTS

FALL ARMYWORM (Spodoptera frugiperda) - SOUTH CAROLINA - This species, Heliothis zea (corn earworm), and cutworms light to moderate throughout all peanut-growing areas of State. (Thomas).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Infested plants averaged 48 percent in untreated peanuts in Marshall County. Few large larvae found but pupae common and adults emerging. Infestations of 10-15 percent reported in Johnston County. (Okla. Coop. Sur.).

REDNECKED PEANUTWORM (Stegasta bosqueella) - OKLAHOMA - Moderate in most fields checked in Marshall, Bryan, Love, Carter, and Johnston Counties. Most larvae in final instar and pupae and newly emerged adults found in Marshall County. (Okla. Coop. Sur.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - GEORGIA - Light to heavy across peanut belt. (French).

COTTON

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - Infestation increased in southern area cotton, some migration occurred. (Barry et al.). ALABAMA - Due to good control, infestations ranged 3-20 percent in most fields throughout State. Isolated fields with poor controls ranged 20-50 percent throughout State. (Smith et al.). Exploding young adult populations ranged 1-5 per bloom in some Butler County fields. Feeding and egg-laying punctures occurred on one-fourth to three-fourths grown bolls. This will result in "hard-lock" bolls and entrance for fungi which will cause excessive boll rot. (McQueen). MISSISSIPPI - Still light in Delta area cotton, remains heavy or threatening in "hills" and southern counties. (Robinson). OKLAHOMA - Percent punctured square counts by county ranged as follows: Jackson 0-25; Greer 0-16; Harmon 0-8; Tillman 0-6; Kiowa 0-4; Bryan 10-25; Coal 1-15; Osage 16; Grady light. (Okla. Coop. Sur.).

A SAP BEETLE (Conotellus mexicanus) - CALIFORNIA - Investigation of adult infestations in cotton blossoms at Fresno, Fresno County, revealed first and second-instar larvae in basal tissues of blossoms. Probably explains phenomenal population buildups of this beetle in September and October during past 2 years. Adults feed on pollen and apparently do not damage setting of bolls. This nitidulid has been evident in other crops late in the season and caused damage (see CEIR 22(43):728 for special report in 1972). One explanation of mass occurrence past 2 years is that Heliothis zea (bollworm) has been light and required very little treatment, thus populations of C. mexicanus have become very heavy. (Cal. Coop. Rpt.).

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Larvae of H. zea (bollworm) and H. virescens (tobacco budworm) slightly lighter in cotton fields. Past cycles for State indicate adult activity and egg laying can be expected to increase significantly within next 7 days. Growers alerted, advised to apply appropriate controls (Griffin). GEORGIA - Heliothis spp. oviposition increased in green succulent cotton with larval buildup where treatments delayed. (Barry et al.). ALABAMA - Flights decreased; fewer larval infestations occurred in majority of fields. Larvae heavy in some isolated fields where control efforts poor. (Smith et al.). MISSISSIPPI - Light trap collections increased considerably. Egg counts increased significantly in some areas of Rankin, Coahoma, Sunflower, and Tallahatchie Counties. Square and boll damage still light; change expected soon. Full-grown larvae mainly H. virescens. (Robinson).

OKLAHOMA - H. zea egg counts ranged 0-32 per 100 terminals, larvae ranged 0-30 per 100 terminals, and damaged squares ranged 0-10 percent in Jackson, Tillman, Greer, Kiowa, and Harmon Counties. Percent damaged squares by county ranged 5-20 in Cotton, 10-20 in Marshall, 5-10 in Johnston County; averaged 7 percent in Grady County. Moderate in Bryan, Muskogee, and Wagoner Counties; light in Osage County. (Okla. Coop. Sur.). CALIFORNIA - H. zea populations at very low levels in cotton-growing areas this season, required very little if any treatment. Populations lightest in about 15 years. (Cal. Coop. Rpt.).

BEET ARMYWORM (Spodoptera exiuga) - SOUTH CAROLINA - Larvae present in many cotton fields in middle and southern parts of State, especially in fields where pigweed not controlled. Damage noticed for first time this year in Calhoun County. This is most severe year yet for infestations in cotton. (Sparks). GEORGIA - Light infestations scattered in southern area. (Barry et al.).

TOBACCO

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Adults averaged 30 per plant in Fayette County. Averaged 1.8 per leaf in Hardin County, 4 per leaf in Hart County, 3 per leaf in Larue County; ranged 5-6 per leaf in Washington County. (Barnett, Gregory).

REDLEGGED GRASSHOPPER (Melanoplus femurrubrum) - WISCONSIN - Feeding increased in marginal rows of tobacco in Dane County. Few nymphs or adults remain in grassy edges of fields. (Wis. Ins. Sur.).

SUGAR BEETS

BEET WEBWORM (Loxostege sticticalis) - UTAH - Heavier than for several years. Especially injurious in Bothwell area of Box Elder County and Layton area of Davis County. (Davis).

BEET ARMYWORM (Spodoptera exigua) - UTAH - Damaged sugar beets at West Point, Davis County. (Roberts, Stokes).

MISCELLANEOUS FIELD CROPS

A LYGUS BUG (Lygus hesperus) - NEVADA - Ranged 10-20 per sweep in dill fields in Orovada, Humboldt County. (Stitt).

POTATOES, TOMATOES, PEPPERS

CABBAGE LOOPER (*Trichoplusia ni*) - MINNESOTA - Found in most potato fields in Red River Valley. Many of more heavily infested fields in vicinity of East Grand Forks, Polk County. In few fields, larvae concentrated enough to cause complete defoliation. Some growers very concerned. Survey of situation indicates much unnecessary spraying. Each grower should evaluate situation on field-to-field basis. Normally, most potatoes should be advanced enough now to make treatment unprofitable. However, there has been drought in some areas and there will be fields with small tubers. There has been some shortage of insecticides but supply now sufficient for situation. (Minn. Pest Rpt.). NORTH DAKOTA - Larvae light on Cass County potatoes. Moderate in Traill, Grand Forks, and Walsh Counties. Treatments applied to heavily infested late-maturing varieties. (Schulz).

ALFALFA LOOPER (*Autographa californica*) - IDAHO - General feeding reported on potato plants in eastern area, but damage noneconomic as of August 20. (O'Keefe et al.).

BEE T ARMYWORM (*Spodoptera exigua*) - ALABAMA - Larvae of various stages heavy and fed on leaves in 10 acres of pimento peppers at Albertville, Marshall County. (Martin, Strother).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - KENTUCKY - Damaged 12 acres of peppers in Washington County. (Barnett, Davis).

INDIANA - Larvae infested peppers in southern districts. (Huber).

BEANS AND PEAS

GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) - CALIFORNIA - Infested beans in Fremont, Alameda County, and at many locations in Sacramento and San Joaquin Valleys. Whiteflies have been unusually abundant this season. (Cal. Coop. Rpt.).

COLE CROPS

CABBAGE LOOPER (*Trichoplusia ni*) - OREGON - Adult activity decreased sharply; single adult taken at Dever, Linn County, during period August 16-19. Counts also decreased in Corvallis area, Marion County; 11 taken in pheromone trap at Vegetable Crops Farm during period August 16-22. Averaged four each in blacklight traps at Culver and Metolius, Jefferson County August 9-16. (Berry et al.). ILLINOIS - Populations in central area cole crops and tomatoes decreased rapidly due to fungus disease. (Ill. Ins. Rpt.). MAINE - Adults of this species and *Pieris rapae* (imported cabbageworm) still depositing eggs, reinfesting all cole, crucifer, and many other crops. Larvae will continue to cause severe damage to untreated plantings. (Gall).

VARIEGATED CUTWORM (*Peridroma saucia*) - OREGON - Blacklight trap catches in Willamette Valley show second-generation adults still increasing; indicates peak emergence not yet occurred. This generation appears lighter than first except at Saint Paul, Marion County. Second-generation levels much heavier than those of 1972, however; consequently numbers of larvae overwintering will also be much heavier than in 1971. If mortality factors do not reduce these numbers, heavy populations may also be expected in 1974. (Penrose).

REDBACKED CUTWORM (Euxoa ochrogaster) - OREGON - Population levels apparently decreased in Jefferson County, though much flight activity still noted. For period August 9-16, blacklight trap catches were 146 and 88, respectively, at Culver and Metolius. (Berry).

GLASSY CUTWORM (Crymodes devastator) - OREGON - Heavy flight indicated by 308 moths taken August 9-16 in blacklight trap at Metolius, Jefferson County. Blacklight trap in nearby Culver collected only six specimens. (Berry).

SPOTTED CUTWORM (Amathes c-nigrum) - OREGON - Jefferson County blacklight trap catches totaled 100 and 87, respectively, at Culver and Metolius August 9-16. (Berry).

GENERAL VEGETABLES

SWEETPOTATO HORNWORM (Agrius cingulatus) - NORTH CAROLINA - Severely defoliated about 60 acres of Cumberland County sweet-potatoes. Treatments planned. (Woodward).

DETECTION

New State Records - FORAGE LOOPER (Caenurgia erechtea) - ALABAMA - Limestone County. (p. 596). HORSE FLIES (Tabanus spp.) - VERMONT - T. sackeni - Rutland County. T. superjumentarius - Chittenden County. (p. 603).

New County records - HOLLYHOCK WEEVIL (Apion longirostre) NEW MEXICO - Collected at Silver City, Grant County. (N.M. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) NEW MEXICO - Union (p. 595). BANKS GRASS MITE (Oligonychus pratensis) SOUTH DAKOTA - Butte (p. 594). A MIRID BUG (Campylomma verbasci) WASHINGTON - Yakima (p. 601). A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) OKLAHOMA - Garvin (p. 604).

DECIDUOUS FRUITS AND NUTS

CODLING MOTH (Laspeyresia pomonella) - COLORADO - Moderate in Mesa and Delta Counties. Pheromone traps with 2-12 per trap per week in pear and apple orchards. (Bulla). WASHINGTON - Numerous new entries in homegrown apples at Pullman, Whitman County, and increasing pheromone trap counts in Grant and Adams Counties indicate unusual third brood. Probably due to prolonged hot spell. (Telford, Hunter).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - This pest and Grapholitha molesta (oriental fruit moth) unusually prevalent this year; infestations probably worst ever observed. Repeated generations caused twig and fruit damage to peach and prune in many areas of State. New generations now beginning that will affect late maturing fruit. (Cal. Coop. Rpt.).

A MIRID BUG (Campylomma verbasci) - WASHINGTON - Eggs and nymphs on pears in Yakima County. This is a new host and county record. (Dolumsky).

EUROPEAN RED MITE (Panonychus ulmi) - ALABAMA - Populations and damage rapidly increased in several Tallapoosa County apple orchards. Damage always heavier on Red Delicious varieties. (Ferree). COLORADO - Increased in Delta County; 2-10 per leaf in apple orchards with control needed. (Bulla).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - ALABAMA - Developing infestations more prevalent on Red Delicious apple varieties than on Golden Delicious in several Tallapoosa County orchards. (Ferree).

SMALL FRUITS

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Grape foliage in several vineyards in Lorain, Ashtabula, and Erie Counties bronzed by feeding. These population increases occurred late in season; grapes will be ripe in about 5 weeks. Concord grapes principal variety affected. (Still).

ORNAMENTALS

BAGWORM (Thyridopteryx ephemeraeformis) - GEORGIA - Heavy on Arizona cypress Christmas tree planting in Spalding County. (Tippins).

AN APHID (Prociphilus fraxinifolii) - FLORIDA - Collected from air-potato (Dioscorea bulbifera) at home in Daytona Beach, Volusia County, June 17, 1973, by J. N. Pott. Determined by C. F. Smith. This is a new host record for the State. (Fla. Coop. Sur.).

FOREST AND SHADE TREES

SPRUCE BUDWORM (Choristoneura fumiferana) - PENNSYLVANIA - Defoliation of hemlock heavy over about 300 acres in Mifflin County during early summer; heavy over 200 acres in Snyder County. Defoliation noted over wider area this year, but percent defoliation less than in 1972. Very little tree mortality noted. (Johnson). Surveys showed some browning or dead needles on most all hemlocks in northern half of Clearfield County. However, hemlocks appear to have withstood damage very well. (Richards).

FALL WEBWORM (Hyphantria cunea) - NEW HAMPSHIRE - Webs, 1-15 per tree, observed on every hickory, cherry, and unsprayed apple tree along six-mile stretch of highway from Lee to Durham, Strafford County, on State Routes 155 and 155A. (Blickle). NORTH DAKOTA - Webs and larvae on 10 percent of chokecherry near New Town, Montrail County. Up to 50 percent defoliation noted. (Brandvik). NEW MEXICO - Egg-laying adults heavy in Dona Ana and Otero Counties. All larval stages taken from heavily infested cottonwood tree near Sedan, Union County. Heavily damaged cottonwood and willow trees along upper Rio Grande from Taos, Taos County, to White Rock, Sandoval County. Some medium-sized trees covered with one immense web. (N.M. Coop. Rpt.).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - NORTH DAKOTA - Infestation and defoliation apparently still decreasing. No completely defoliated areas evident in Killdeer Mountains, Dunn County. Scattered defoliated areas noted in 1972. (Brandvik).

ELM LEAF BEETLE (Pyrrhalta luteola) - KANSAS - Some second-generation adults aggregating at overwintering sites in Riley County. No third-generation eggs noted on Siberian elm leaves. (Bell). UTAH - Injury to elm foliage common in parts of Salt Lake, Weber, Davis, Emery, and Washington Counties. Damage about normal. (Knowlton).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - A total of 465 confirmed cases were reported in continental U.S. during period August 12-18 as follows: Texas 160, New Mexico 62, Arizona 231, California 12. Of the areas currently harboring infestations, Arizona and California have surpassed the total number of cases reported in those States in 1972. Texas has apparently recovered from the 1972 outbreak there, as evidenced by the cumulative total of 1,029 cases determined through this period this season as compared with 46,190 cases reported through this date in 1972. Total of 264 cases confirmed from Mexico for period August 12-18, 1973. Number of sterile flies released this period totaled 136,330,800 as follows: Texas 98,530,800; New Mexico 12,870,000; Arizona 22,716,000; California 2,214,000. Total of 36,777,600 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - VERMONT - Very annoying to livestock on hot days. Reports of pinkeye in cattle decreased. (MacCollom). MISSISSIPPI - Averaged 20 per face on treated beef cattle in Monroe County. (Robinson). KENTUCKY - Adults averaged 42 per animal on mixed breed cattle in Nelson County. (Barnett, Miller). ILLINOIS - Noted on untreated beef herds at average of 14 per animal in Madison County and 13 per animal in Adams County. (Ill. Ins. Rpt.). WISCONSIN - Light on livestock in most localities, probably due to treatment. Pinkeye of cattle serious problem in Trempealeau County all summer. (Wis. Ins. Sur.). NEBRASKA - Increased to average of 50 per face on range cattle in canyon and river pastures in Keith, Lincoln, and McPherson Counties. (Campbell).

HORN FLY (Haematobia irritans) - ILLINOIS - Averaged 42 per animal in Madison County and 97 per animal in Adams County on untreated beef herds. (Ill. Ins. Rpt.). NEBRASKA - Averaged 500+ per head on untreated cattle in Keith, Lincoln, and McPherson Counties. (Campbell). OKLAHOMA - Ranged 300-375 per head on cattle in Payne County. Moderate in Hughes County and moderate to heavy in Marshall County. (Okla. Coop. Sur.). UTAH - Heavy on beef herds in Roosevelt and Myton areas of Duchesne County and on some Millard County herds. (Knowlton).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Averaged 12 per animal in Madison County and 22 per animal in Adams County on untreated beef herds. (Ill. Ins. Rpt.). NEBRASKA - Still heavy, ranged 10-15 per leg, on untreated cattle in Keith, Lincoln, and McPherson Counties. (Campbell). COLORADO - Ranged 60-100 per animal on Larimer County cattle. (Hantsbarger).

MOSQUITOES - VERMONT - Unspecified species heavy in pastures at night in Champlain Valley. (MacCollom). OHIO - Adult activity decreased due to cool weather. Total of 230 larvae taken in 4 collections in Avon Lake vicinity, Lorain County, all Aedes vexans. Problem serious in Columbiana County; about 1,000 larvae collected, primarily Culex spp. and Anopheles spp. Adult activity decreased due to cool temperatures; only small number of adults taken in light traps, mainly Culex spp. and Anopheles spp. (Ohio Dept. Health). MINNESOTA - Light trap counts declined in Metropolitan Mosquito Control District week ending August 17; total of 1,476 females taken in 16 traps in 7 days. Aedes vexans accounted for 50 percent of catch. Of 666 larval collections made, A. vexans found in 82 percent. In 25 evening bite collections, 90 mosquitoes taken. A. vexans, A. stimulans, A. excrucians, and A. trivittatus dominant in 44 daytime bite collections. By August 21, frequent rains built up run-off water; heavy brood of A. vexans will result from water accumulation. (Minn. Pest Rpt.). UTAH - Still troublesome near farms and communities in Cache and Box Elder Counties, parts of Skull Valley, Tooele County, and Delta and Topaz areas of Millard County. Very annoying this season in many parts of Uintah and Duchesne Counties. (Knowlton).

HORSE FLIES (Tabanus spp.) - VERMONT - Several females of T. sackeni collected August 5 and August 12, 1973, and single female of T. sagax collected July 8, 1973, at Benson, Rutland County. One female of T. superjumentarius collected at Hinesbury, Chittenden County, July 31, 1973. Collected and determined by G. R. Nielsen. These are new State records. (Benedict). OKLAHOMA - Tabanus spp. heavy and annoyed cattle in Hughes and Bryan Counties. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - ALABAMA - Adults oviposited and caused cattle to run in Dallas County pasture August 17. (Alsobrook).

HORSE FLY (Musca domestica) - NEBRASKA - Heavy in feedlots in Keith, Lincoln, and McPherson Counties; averaged 5 per Scudder grid. (Campbell).

BENEFICIAL INSECTS

AN ICHNEUMON WASP (Hyposoter fugitivus) - OHIO - Emerged from about 6 percent of 240 Hyphantria cunea (fall webworm) larvae collected on redbud August 7 at Tar Hollow State Park. Apanteles spp. (braconid wasps) also present in sample; less than one-sixth as prevalent. Determined by P. R. Fox. (Lynn, Stairs).

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) - OKLAHOMA - Damaged up to 80 percent of puncturevine seed checked in Garvin County. This is first recovery from this county since release of 1965. This is a new county record. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Adult emergence began, less than one percent, at Lynden, Whatcom County; pupation 31 percent. (Jackson).

GRASSHOPPERS - NORTH DAKOTA - Light in western Williams County. Ranged up to 15 (averaged 7) in field margins and up to 6 (averaged less than 2) per square yard in fields. Melanoplus sanguinipes and M. bivittatus dominant species. Noneconomic in western Mountrail and eastern Ward Counties. (Brandvik). KANSAS - Grasshopper populations in central and south-central districts generally much lighter than in 1972. No economic infestations found in these districts. (Bell). NEW MEXICO - Ranged 3-11 per square yard in rangeland areas north of Tatum; Lea County. Moderate hatches (5-10 per square yard) still observed; mortality remains high. (N.M. Coop. Rpt.). ARIZONA - Ranged 0-2 per square yard in scattered locations in Cochise, Santa Cruz, and Pima Counties. Averaged 3.5 per square yard in one southern area. (Ariz. Coop. Sur.).

NEVADA - Camula pellucida ranged up to 40 per square yard in short rangeland grasses in spotted infestations in O'Neil area of Elko County. (Martinelli et al.). Melanoplus sanguinipes ranged 15-20 per square yard on margins of alfalfa, less than one per square yard in fields, in Hualapai Valley, Washoe County. (Barclay). UTAH - Injury to farm crops near rangelands continued in Box Elder, Millard, Davis, and Salt Lake Counties. Raspberry patches sometimes stripped of foliage, home gardens damaged. (Knowlton).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Survey in Dona Ana County showed 9 exit holes from bolls. No larvae recovered. (N.M. Coop. Rpt.). ARIZONA - Infestations in cotton 11 percent in some Avra Valley fields, Pinal County. One-third of fields treated for first time in Pima County. Increased at Safford, Graham County. Most fields on regular treatment schedule, no specimens found in 6 Goodyear area, Maricopa County, fields. (Ariz. Coop. Sur.).

HAWAII INSECT REPORT

Fruits and Nuts - COCONUT SCALE (Aspidiotus destructor) generally light on 100+ coconut trees at Maunaloa Bay State Park, Oahu; small colonies on less than 5 percent of pinnae of younger fronds. Sporadically heavy on few trees with large colonies on up to 80 percent of pinnae. Still generally light to moderate on most of 100+ coconut trees at Hawaii Kai. Larvae and adults of Telsimia nitida and Lindorus lophanthae (lady beetles) moderate on heavily infested pinnae in both situations. PALM MEALYBUG (Palmicoccus palmarum) heavy on few palm trees at Hawaii Kai. Larvae of Cryptolaemus montrouzieri (mealybug destroyer) light amid infestations. A. destructor remains generally light and negligible in commercial papaya and banana plantings on Oahu; however, large colonies present on older leaves of few banana trees in small planting at Waimanalo; predators light. (Kawamura).

Ornamentals - Adults of ORCHID WEEVIL (Orchidophilus aterrimus) remain light in Vanda joaquim at Waimanalo, Oahu, but damage to flowers and buds increased from less than 3 percent in late June to about 15 percent. (Kawamura).

Forest and Shade Trees - Trap collections of a NOCTUID MOTH (Melipotis indomita) on Oahu peaked during June as predicted (see CEIR 23(26):410); total of 783 collected. Counts for July decreased to May level; if collections follow levels established in 1972, further decrease should occur during August. At Punchbowl, Oahu, all of 24 monkeypod trees have recovered completely from damage sustained in their canopies in 1972. Controls applied. (Shimoda).

Beneficial Insects - BRACONID WASPS (Opius phasioli and O. importatus) effectively parasitized Melanagromyza phaseoli (bean fly) that infested cowpea and snap bean material collected from various areas on Kauai during July; parasitism ranged 86-100 (average 97) percent. (Sugawa).

Miscellaneous Pests - GIANT AFRICAN SNAIL (Achatina fulica) activity remained minimal at Poipu, Kauai, under severe drought conditions; light baiting maintained only in residential areas. At Wahiawa, surveillance continued during this period but baiting suspended pending propitious conditions. (Sugawa).

Weather of the week continued from page 590.

Most areas from north Texas to south Nebraska broke 90 degrees, Hutchinson, Kansas had 102 degrees. Thursday, cold air kept eastern temperatures way below average. Philipsburg, Pennsylvania, recorded 34 degrees. However, temperatures climbed into the 70's over most of the East at midday. The Pacific Northwest also recorded the 30's and 40's while the Plains stayed hot. El Paso, Texas, had 100 degrees, a record, while Gila Bend, Arizona, baked at 115 degrees. Friday, the contrast continued. Marquette, Michigan, fell to 39 degrees in the morning. Temperatures from New England to the upper Mississippi Valley and from the northern Rockies to the northern Pacific coast peaked in the 60's and 70's while the Plains baked. El Paso, Texas, set another record, 101 degrees, while winds gusting at 35 m.p.h. blew a 113-degree record temperature through Gila Bend, Arizona. Saturday, the Plains continued hot. Sunday was hot again over the Plains and the rest of the Nation experienced a general warming trend.

PRECIPITATION: Only a few thunderstorms interrupted Monday's fair weather. Spotty storms wet the Rockies, the southwest desert areas, Montana, and southern California. However, the Nation's Capital was deluged. Monday night and Tuesday brought 3.78 inches of rain to Washington, D.C., flooding sewers, covering roads with water, and stalling morning traffic. By late Tuesday, Washington's suburbs recorded heavy rains. Silver Spring, Maryland had 6 inches and Annandale, Virginia, 5 inches. This was the worst storm in the Capital area since Tropical Storm Agnes in June 1972. The same storm dumped varying rains around the Chesapeake Bay area. Norfolk, Virginia, recorded 1.50 inches and Salisbury, Maryland had 1.50 inches. Florida also received some heavy early week rains. Key West 0.96 inch early Tuesday and Gainesville 1.25 inches Tuesday. On Wednesday, the wet weather ended over the East and nationwide a fair day occurred. However, thunderstorms moved into the Nation's midsection late that day. Heavy rains fell in parts of Iowa. Peterson had 9.45 inches, 8 inches of it in 6 hours. Sheldon measured 6.31 inches by midnight. Linn Grove recorded 6 inches. Thunderstorms roamed the northern Plains. Miles City and Billings, Montana, welcomed 0.92 inch and 0.51 inch, respectively. Thursday, the midwestern outburst slowed to a drizzle while fair skies stretched over the rest of the Nation. Some cloudiness occurred over the south Atlantic coast where light rain fell. Parts of the Pacific Northwest also had clouds and rain. Olympia, Washington, had 0.50 inch of rain. Friday began with some thundershowers over the Rockies and over southern Montana and in general, an unsettled day followed. Brunswick, Georgia, got 1.13 inches of morning rain. Scattered showers fell from Arkansas and Missouri up the Ohio Valley. Later Friday, Imperial, Nebraska, got 1 inch hailstones in gusts of wind up to 47 m.p.h. Severe activity also occurred in southern Florida. Miami recorded 1.27 inches of rain. To the north, Charleston, South Carolina, got 0.70 inch spread over 6 hours. Outside of Florida, Key West got 1.74 inches of rain Saturday. Americans enjoyed a generally sunny weekend and only a few thundershowers fell around the Nation.

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