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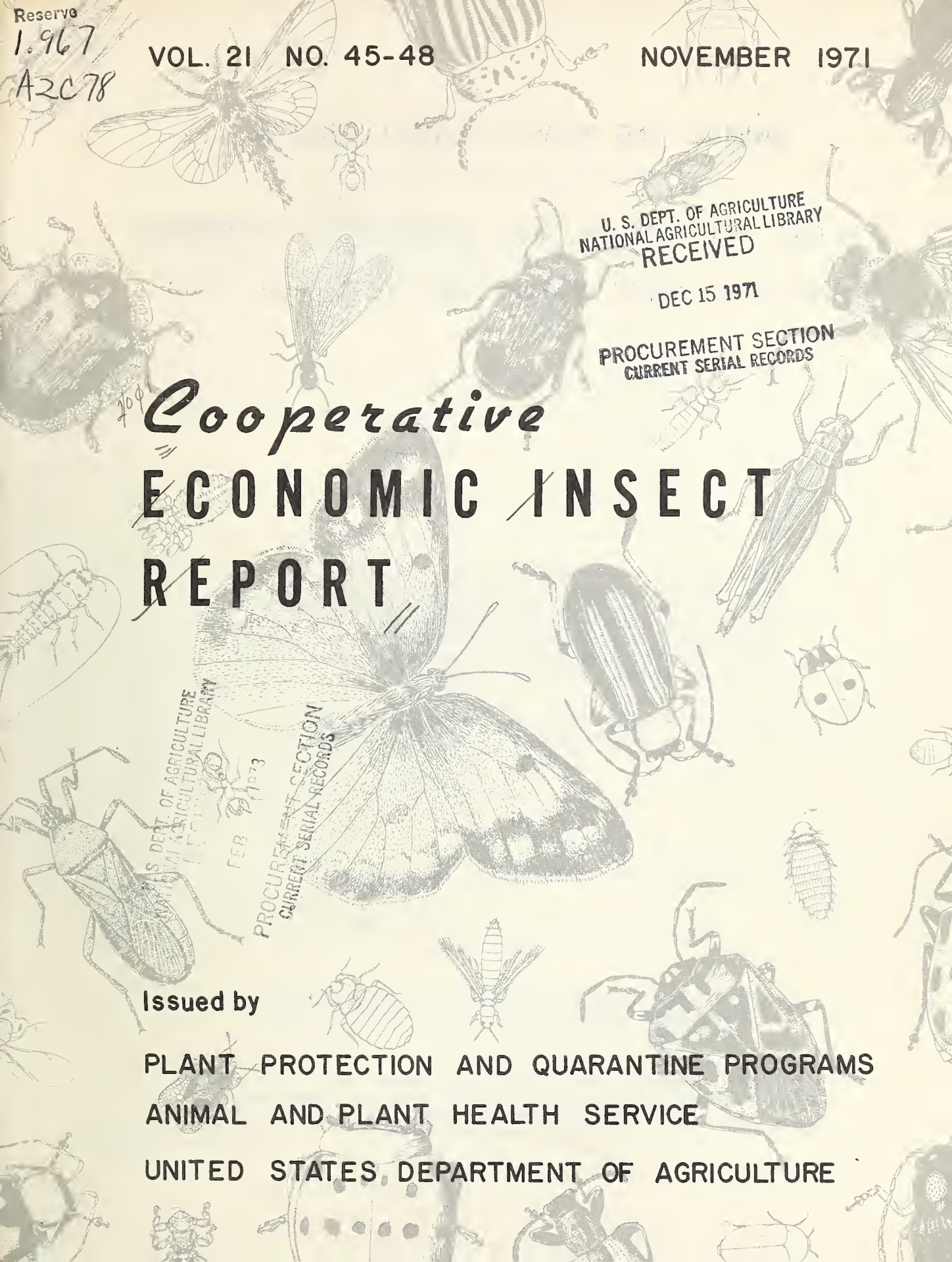
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Cooperative ECONOMIC INSECT REPORT

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PROCUREMENT SECTION
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PLANT PROTECTION AND QUARANTINE PROGRAMS
ANIMAL AND PLANT HEALTH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE



ANIMAL AND PLANT HEALTH SERVICE

PLANT PROTECTION AND QUARANTINE PROGRAMS

ECONOMIC INSECT SURVEY AND DETECTION STAFF

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.

To facilitate mailroom handling, all reports, inquiries, and other matters pertaining to this release, including the mailing list, should be sent to:

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG damaged small grain in Texas, Kansas, and Nebraska. (p. 749).

FALL ARMYWORM damaged small grains in Illinois and Oklahoma. (p. 750).

CABBAGE LOOPER nuisance on vegetables in Tennessee, Oklahoma, and Arizona. (p. 751).

A SCARAB reduced the grade of sweetpotatoes in North Carolina. (p. 752).

PECAN WEEVIL damage is heavy in Alabama, Texas, and Oklahoma. (p. 752).

SMALLER EUROPEAN ELM BARK BEETLE adults and larvae collected for first time west of Cascades in Oregon. (p. 754).

CITRUS BLACKFLY surveys show extensions in Texas and Mexico. PINK BOLLWORM numbers heaviest in 4 years in Texas. (p. 755).

Detection

New State records include PYRALID MOTHS, an OECOPHORID MOTH, a TORTRICID MOTH, and a NOTODONTID MOTH from Alabama (pp. 752-754), JUNIPER SCALE from Wisconsin (p. 753), and a BROWN LACEWING from Pennsylvania. (p. 754).

For new county and Island records see page 757.

Special Reports

Estimated Losses and Production Cost Attributed to Insects and Related Arthropods - 1970. (pp. 759-772).

A New Trap for Capturing Boll Weevils. (pp. 773-774).

Reports in this issue are for weeks ending October 29 through November 19 unless otherwise indicated.

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NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MID-NOVEMBER TO MID-DECEMBER 1971

The National Weather Service's 30-day outlook for mid-November to mid-December is for temperatures to average above seasonal normals over the eastern half of the Nation except for near normal in New England. Below normal temperatures are indicated from the Rockies to the west coast and over western portions of the northern Plains. Elsewhere near normal temperatures are in prospect. Precipitation is expected to exceed normal from the Great Plains through the upper and middle Mississippi Valley to the Great Lakes and also over the south Pacific coast and portions of the central and southern plateau region. Subnormal totals are indicated along the eastern seaboard from the Carolinas to New England and in the interior of the Pacific Northwest. In unspecified areas 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 National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price \$5.00 a year.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Heavy, up to 200 per sweep in Kings County. Heaviest since 1965. Fall treatment ended; total of 164,299 acres of rangeland treated. (Cal. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Moderate to heavy on Sudan grass windbreak around wheatfield in Jackson County. Occasional aphid noted in 2 wheatfields in Payne County. First report in wheat. (Okla. Coop. Sur.). NEW MEXICO - Ranged 25-75+ per square yard in barley near Roswell, Chaves County. (Mathews).

GREENBUG (Schizaphis graminum) - WASHINGTON - Light on wheat in Franklin County from Kahlotus to Pasco. (Klostermeyer). NEW MEXICO - Very light (0-1 per linear foot) in barley in Chaves County. Up to 4 per linear foot of wheat near Clovis, Curry County, and at Portales, Roosevelt County. Up to 3 per linear foot in wheatfields near Clayton, Union County. (Mathews). TEXAS - Damaged some small grains in Cottle and Motley Counties. Some controls applied. Light throughout most of Panhandle on small grains. Scattered reports of damage in Wilbarger and surrounding counties. Heavy in some Motley County fields. Some controls on wheat. (Boring et al.). OKLAHOMA - Averages per linear foot of wheat by county: Payne 10, Jackson 0.1, Custer 8, Major up to 5. (Okla. Coop. Sur.). KANSAS - Ranged 1,000-1,200 per row foot of wheat in portion of Lincoln County. Caused 25 percent stand loss in one field, about 1 percent winged form. Controls planned. Light in other areas of county. (Bell). NEBRASKA - Up to 500 per linear foot damaged wheat in Hamilton County. Damage less in rank growth. (Cranfill). MISSISSIPPI - Light on young wheat in Noxubee, Oktibbeha, Winston, Attala, and Monroe Counties. (Robinson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Averaged 40 per square foot in fall-planted alfalfa field in Payne County. Light (20-30 per 10 sweeps) in 2 established fields. (Okla. Coop. Sur.). ARIZONA - Controls applied to 200 acres of alfalfa in Yuma County early this reporting period. Counts of 500 per 100 sweeps of alfalfa noted at Yuma later in period. (Ariz. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

SORGHUM WEBWORM (Celama sorghiella) - MISSISSIPPI - Larvae 11 per head from 10-head sample of sorghum in Noxubee County. Still heavy on sorghum week ending November 5. (Robinson).

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH CAROLINA - Surveyed 171 cornfields in 32 counties; economic in 20 percent of these fields in 1971 and 1970. (Durant).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - TENNESSEE - New county records: Wilson, Trousdale, Sumner, Macon, Smith, De Kalb, Cannon, Warren, Grundy, Marion, Van Buren, Coffee, and Franklin. Collected and determined by Pless and Gordon this period. (Gordon).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - ILLINOIS - Adults found in De Witt, Macon, Menard, Christian, Morgan, Sangamon, and Shelby for new county records. (Ill. Ins. Rpt.).

SORGHUM MIDGE (Contarinia sorghicola) - NORTH CAROLINA - Damaged 50+ percent of sorghum in random checked fields in Stanley and Harnett Counties. Destroyed 50-acre field in Stanley County. (Hunt).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - ILLINOIS - Heavy; damaged 30 of 36 acres of wheat in St. Clair County. (Ill. Ins. Rpt.). OKLAHOMA - Larvae 25 per linear foot of wheat in Blackwell area, Kay County. Destroyed 50-acre field. Averaged 0.5 per linear foot in Eldorado area, Jackson County. Light to moderate infestations in Payne, Kingfisher, Garvin, and Cotton Counties. Still heavy in early November on small grains in Oklahoma County. Declined in Coal and Murray Counties. Destroyed 20-acre field of small grain in Johnston County. (Okla. Coop. Sur.). TEXAS - Continues to cause moderate damage to small grains in Archer, Cottle, Foard, and Jones Counties. Decreased in Motley County. (Boring).

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Populations declined in 1971. Catches at light traps in southwest and panhandle districts in September and October light, indicating light oviposition. Only light scattered infestations predicted for Kimball, Banner, Morrill, Dundy, and Chase Counties in 1972. (Pruess).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Damaged newly planted small grains in some Wilbarger County fields. (Boring).

HESSIAN FLY (Mayetiola destructor) - ILLINOIS - Infested 50 percent of seedlings in 3 early planted wheatfields in Effingham County; killed 25 percent of plants. Two fields replanted. All fields planted about 2 weeks prior to suggested planting date of October 5-8. Clay County damage noticeable. (Ill. Ins. Rpt.).

WHITE GRUBS (Phyllophaga spp.) - MICHIGAN - Damaged fall-sown wheat in Shiawassee County. Young plants clipped below soil surface and generally chlorotic and dying in several fields. Grubs found down to 8 inches deep in soil. Worst white grub injury noted. (Sauer). KANSAS - Damage severe in Hamilton County wheatfield; damage moderate in Cowley County field. (Bell).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - First of season. Up to 10 per linear foot in 2 wheatfields in Payne County. Light to moderate on wheat in Kingfisher County. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

A SATURNIID MOTH (Hemileuca tricolor) - ARIZONA - Larvae heavy on range plants in portion of Cochise County. Not delimited due to rugged terrain. Feeding on white thorn acacia and mesquite. (Ariz. Coop. Sur.).

SOUTHERN CHINCH BUG (Blissus insularis) - CALIFORNIA - Adults on Bermuda and St. Augustine grass in Riverside, Riverside County. This is a new county record. Collected by A. Deal on October 5. Determined by G. Buxton. (Cal. Coop. Rpt.).

SOUTHERN FIRE ANT (Solenopsis xyloni) - TEXAS - Activity increased throughout central area. Heavy on pastureland in some areas of Brazos and McCulloch County; also detected at Waco, McLennan County. (Green et al.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Adults averaged about 6 per 10 sweeps in uncut alfalfa in western Dane, southern Sauk, and northeastern Iowa Counties. Ranged 8-10 per 10 sweeps in heavier soils north of Madison County. Declined from previous period due to cooler temperatures. Larval counts remained fairly consistent but light. (Wis. Ins. Sur.). VIRGINIA - Adults and larvae light on alfalfa in Lunenburg, Charlotte, Hanover, New Kent, Dinwiddie, Prince George, Powhatan, and Louisa Counties. (Innes, Tate). OKLAHOMA - Adults light on alfalfa in Payne County. Averaged 2 per 100 sweeps in one field and less than 1 per square yard in another. Adults averaged 70 per 25 sweeps of alfalfa in Stephens County; larvae 10 per 25 sweeps. (Okla. Coop. Sur.). TEXAS - Adults and larvae light on alfalfa in Burleson County; adults light in Wharton County. (Latham et al.).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae per 100 sweeps of alfalfa by county: Yuma 200 and Maricopa 8. (Ariz. Coop. Sur.). NEW MEXICO - First and second instar larvae up to 3 per 25 sweeps of alfalfa in Farmington area, San Juan County. (Heninger). Ranged 4-10 per 25 sweeps in Roswell area, Chaves County, and 10-18 in Carlsbad area, Eddy County. (Mathews).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Killed newly seeded alfalfa stands in Wilbarger County. (Boring).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Declined about 50 percent this period. Sexuials continue to increase; 36 percent oviparous forms compared to 11 percent previous period. Parasitism and males still about 10 percent. (Wis. Ins. Sur.). NEW MEXICO - Moderate to heavy, ranged 2-10 per square foot, on alfalfa in Roswell area, Chaves County. (Mathews).

THREECORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County: Parker 135 and Yuma 900 early this period. Counts by county: Yuma 165 and Maricopa 182 as of November 5. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults and nymphs ranged 6-8 per 25 sweeps on Chaves County alfalfa. (Mathews). Ranged 1-8 on alfalfa in Farmington area, San Juan County. (Heninger).

SOYBEANS

A CERAMBYCID BEETLE (Dectes texanus texanus) - NORTH CAROLINA - Larvae girdled stems in southern Washington County and northwest Hyde County. Infestations 30+ percent in 5 fields. (Ogle et al.).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Heavy in cotton throughout Rolling Plains. Infestations in many fields ranged 2,000-16,000 per acre early this period. (Boring). MISSISSIPPI - Continues heavy in some fields in some southern counties. Frost not heavy enough to kill foliage. (Robinson).

BOLLWORM (Heliothis zea) - NEW MEXICO - Infestations scattered in cotton in Artesia area, Eddy County. Damaged up to 4 percent of green bolls. (Mathews).

BANDEDWING WHITEFLY (Trialeurodes abutilonea) - ALABAMA - Specimens collected on cotton in Elmore, Autauga, Montgomery, and Macon are new county records. Determined by L.M. Russell. (McQueen).

SUGAR BEETS

FALSE CELERY LEAFTIER (Udea profundalis) - CALIFORNIA - Larvae of this species and Spodoptera exigua (beet armyworm) 3 per sweep of sugar beets at West Sacramento, and 6 per sweep at Woodland, Yolo County. (Cal. Coop. Rpt.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - First and second instar larvae heavy on 6-inch-tall sugar beets in 80-acre field at Tolleson, Maricopa County. (Ariz. Coop. Sur.).

GENERAL VEGETABLES

NOCTUID MOTHS - TENNESSEE - Mixed larval populations of BEET ARMYWORM (Spodoptera exigua), CORN EARWORM (Heliothis zea), and CABBAGE LOOPER (Trichoplusia ni) moderate on commercial spinach in Dyer County. Controls as of November 5 not effective and spinach rejected at processing plant due to presence of larvae. (Johnson). OKLAHOMA - T. ni heavy in 200 acres of spinach and turnips in east-central area. Fields treated once but control not adequate and will be treated again. (Okla. Coop. Sur.). ARIZONA - T. ni moderate to heavy on cabbage, cauliflower, and lettuce at Yuma, Yuma County. Controls applied. (Ariz. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - CALIFORNIA - Larvae damaged cabbage at Crescent City, Del Norte County. (Cal. Coop. Rpt.).

SALTMARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Larvae migrated into lettuce period ending November 12. Foil barriers erected around fields. (Ariz. Coop. Sur.).

SWEETPOTATO HORNWORM (Agrius cingulatus) - MARYLAND - Single specimen taken at Laurel, Prince Georges County, on October 19. Collected and determined by T.L. Bissell. This is a new county record. (U. Md., Ent. Dept.).

A SCARAB (Strigoderma arboricola) - NORTH CAROLINA - Larvae damaged sweetpotatoes in isolated Johnston and Wilson County fields. Surface damage on all potatoes in 5-acre Wilson County field; potatoes reduced from grade 1 to cannery potatoes. (Hunt).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Ranged 1-4 per row yard in 400 acres of spinach near Vienna, Dorchester County. (U. Md., Ent. Dept.).

DECIDUOUS FRUITS AND NUTS

A TORTRICID MOTH (Acleris minuta) - ALABAMA - Larvae heavy and damaging foliage of young apple trees at nursery in Cullman County on September 16, 1971. Collected by C.A. Kouskolekas. Determined by D.M. Weisman. This is a new State record. (McQueen).

CODLING MOTH (Laspeyresia pomonella) - CALIFORNIA - Infesting apple fruit in Castro Valley, Alameda County. This species and Paramyelois transitella (navel orangeworm) heavy on walnuts at Visalia, Tulare County. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Last generation of larvae in many pecan shucks on and under several hundred unsprayed trees in Lee and Elmore Counties. Larvae 1 per 10 nuts in many trees. Numbers usually fewer on seedlings. (Linder et al.).

PECAN WEEVIL (Curculio caryae) - ALABAMA - Larval damage heavy to nuts in several pecan orchards in Dale County. (Estes). TEXAS - Heavy damage to pecans in Haskell County. (Boring). OKLAHOMA - Larvae infested 40 percent of untreated pecan nuts in orchard in Rogers County. (Okla. Coop. Sur.).

ITALIAN PEAR SCALE (Epidiaspis leperii) - CALIFORNIA - Adults heavy on walnut trees in Gridley and general on walnuts in Biggs, Butte County. (Cal. Coop. Rpt.).

CITRUS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Up to 5 per citrus leaf at Yuma, Yuma County. (Ariz. Coop. Sur.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Adults infested 30 percent of 150 satsuma (Citrus nobilis) plants in nursery at Riverview, Hillsborough County. (Simmons).

COTTONY CUSHION SCALE (Icerya purchasi) - ARIZONA - This species controlled in 60 acres of lemons by vedalia (Rodolia cardinalis) on Yuma Mesa. Heavy infestations in residential areas of Yuma County; predators absent. (Ariz. Coop. Sur.).

BROWN SOFT SCALE (Coccus hesperidum) - ARIZONA - Mostly on residential citrus and at small grove near Yuma City, Yuma County. (Ariz. Coop. Sur.).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Larvae 3 per citrus fruit locally at La Mesa, San Diego County. (Cal. Coop. Rpt.).

ORNAMENTALS

JUNIPER SCALE (Carulaspis juniperi) - WISCONSIN - Specimens collected from juniper at Madison, Dane County, by W.E. Simons on June 29, 1971. Determined by D.R. Miller. This is a new State record. (Wis. Ins. Sur.).

A LACE BUG (Stephanitis takeyai) - PENNSYLVANIA - Adults heavy on Pieris sp. at Schuylkill Haven, Schuylkill County. Collected by Wolf on October 21. Determined by E.E. Simons. Adults on Pieris japonica at Apollo, Armstrong County. These are new county records. (Henry, Garret). Adults collected on P. japonica near Sewickley, Beaver County, by L. Garret November 1. Determined by E.E. Simons. This is a new county record. (Kim).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - KENTUCKY - Nuisance in greenhouses in Jefferson and Franklin Counties and on orchids at commercial orchid producer in Fayette County. (Barnett).

HOLLYHOCK WEEVIL (Apion longirostre) - VIRGINIA - Adults collected from home in Shenandoah County, by R. Manning and J.D. Cutlip November 16. Determined by W.A. Allen. This is a new county record. (Allen).

AZALEA LEAFMINER (Gracillaria azaleella) - NEW HAMPSHIRE - Heavy on potted plant in greenhouse at Concord, Merrimack County. Adults reared from material collected by C. Williams, October 25, 1971. Determined by W.J. Morse. (Blickle).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Surveys indicate populations heavy in 73,000 acres in Nantahala National Forest, Cherokee County, during September. (Hunt).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - SOUTH CAROLINA - Outbreak that started in 1970 on Sand Hills State Forest and Cheraw State Park declined. Parasites, predators, and salvage operations primary factors in decline. (Remign).

LODGEPOLE NEEDLEMINER (Coleotechnites milleri) - CALIFORNIA - Infestation in Waugh Lake in the Rush Creek area of Inyo National Forest. Involved 400 acres of lodgepole pines; damaged about 700 pines. (Smith, USFS).

A CONIFER SAWFLY (Neodiprion fulviceps) - OREGON - Adults emerged in lab in early October from larvae collected in nursery at Portland, Multnomah County, May 19, from needles of Scotch pine (Pinus sylvestris). Determined by D.R. Smith. First record noted from this host. (Larson).

A CECIDOMYIID MIDGE (Cecidomyia piniinopis) - CALIFORNIA - Much damage to ponderosa pines in 10-acre stand in Sierra National Forest in Fresno County. Outbreaks widespread in State past 2 years. Some damage to plantations in Mt. Shasta area, Siskiyou County. (Rutty, USFS).

A PYRALID MOTH (Tetralopha militella) - ALABAMA - Larvae ranged 1-5 per sycamore leaf; folding, webbing, and skeletonizing about 80 percent of leaves at Auburn, Lee County, on September 27, 1971. Collected by L. Wade. Determined by D.M. Weisman. This is a new State record. (McQueen).

A PYRALID MOTH (Tetralopha asperatella) - ALABAMA - Larvae damaged leaves of red oak at Dothan, Houston County, on September 24, 1971. Collected by W.H. Stephenson. Determined by D.M. Weisman. This is a new State record. (McQueen).

AN OECOPHORID MOTH (Psilocorsis faginella) - ALABAMA - Larvae damaged leaves of red oak at Dothan, Houston County, on September 24, 1971. Collected by W.H. Stephenson. Determined by D.M. Weisman. This is a new State record. (McQueen).

A NOTODONTID MOTH (Datana contracta) - ALABAMA - Larvae feeding on post oak at Auburn, Lee County, on September 27, 1971. Collected by L. Wade. Determined by D.M. Weisman. This is a new State record. (McQueen).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - OREGON - Adults and larvae collected from trap elm logs at Hood River County, at Medford, Jackson County, and at Grants Pass, Josephine County. These are new county records. (Goeden). Medford and Grants Pass collections represent first occurrences west of Cascades. Counties from which collections made include Wasco, Umatilla, Malheur, Klamath, and Lake. (Penrose).

A WEEVIL (Sciaphilus asperatus) - WISCONSIN - Invaded home at Park Falls, Price County, period ending October 29. This is a new county record. (Wis. Ins. Sur.).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 49 cases reported in U.S. October 24 to November 19 in TEXAS. Remainder of report is for October 24 to November 13. Total of 1,130 laboratory-confirmed cases reported in Barrier Zone in Republic of Mexico as follows: Sonora 77, Chihuahua 542, Coahuila 181, Nuevo Leon 84, Tamaulipas 246. Total of 247 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screwworm flies released: Arizona 616,000; New Mexico 210,000; Texas 126,194,000; Arkansas 4,710,000; Mexico 274,000,000. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Continues heavy on cattle in Cotton County; light to moderate in Cleveland and Garvin Counties. Averaged 400 per head on steers in Payne County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - TEXAS - Heavy on cattle in Fayette County. (Cole).

HOG LOUSE (Haematopinus suis) - MISSISSIPPI - Heavy on swine in Oktibbeha County. Controls applied. (Robinson).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Early infestation on poultry in Jones County. Control applied. (Robinson).

EAR TICK (Otobius megnini) - OKLAHOMA - Moderate to heavy in ears in several cattle herds in Roger Mills County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

GERMAN COCKROACH (Blattella germanica) - OREGON - Infested residence at Salem, Marion County. This is a new county record. (Penrose).

BENEFICIAL INSECTS

A BROWN LACEWING (Kimminsia schwarzi) - PENNSYLVANIA - One adult specimen swept from Austrian pine near Indiana, Indiana County, by Henry and Garret September 3, 1971. Determined by O.S. Flint. This is a new State record. (Kim).

A WEEVIL (Phrydiuchus tau) - OREGON - Released 175 adults on Mediterranean sage (Salvia aethiopsis) in Lakeview area, Lake County. (Goeden).

HONEY BEE (Apis mellifera) - WEST VIRGINIA - Total of 553 colonies inspected during October. Twelve colonies dead and two diseased with American foulbrood. (W. Va. Ins. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CITRUS BLACKFLY (Aleurocanthus woglumi) - Surveys indicate extensions in Brownsville, TEXAS and Matamoros, MEXICO. All new infestations in Brownsville light and scattered. Surveys continue. Controls in progress. (PP).

EUROPEAN CRANE FLY (Tipula paludosa) - WASHINGTON - Numerous larvae collected from lawns at Blaine, Whatcom County, week of November 1-5. Heavy rains apparently caused larvae to surface. (Rosander).

GIANT AFRICAN SNAIL (Achatina fulica) - FLORIDA - Eggs collected from 4 different lawns in northwest area of Miami, Dade County. (DeHaven, Lawton, Oct. 18).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Light on farm at Whitesburg, Carroll County. Collected by K.R. Parkinson November 1. TEXAS - Heavy in plowed cornfield at Chappell Hill, Washington County. Collected by B.B. Smith November 4. Both county records determined by V.H. Owens; confirmed by D.R. Smith. (PP).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Lint cleaner larval counts per bale in Yuma County cotton gins: Roll 11, Horn 50, Blaisdel 0, Parker Valley 4-40, Texas-Hill 30, Yuma 2-9, Somerton 9, and Gila Valley 1. At San Simon 21+ per bale in Cochise County. Larvae 12.5 per 100 bolls checked in Mohave Valley area of Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Populations increased in cotton in Artesia area, Eddy County. Green boll infestations ranged 8-20 percent. (Mathews). Several fields near Sunland Park, Dona Ana County, had heavy infestations in green bolls. Two fields with 90+ percent of green bolls infested and many had 2+ larvae per boll October 29. (Campbell). No larvae in green bolls in 6 fields in Roswell area, Chaves County. (Mathews). TEXAS - Detected in one field in Wichita County during period ending October 29. (Boring). Larvae moderate to heavy in bolls in most Trans-Pecos area counties. Larvae ranged 2-5 per boll in many fields. Found in unopened bolls in Midland, Martin, Glasscock, Reagan, and Ward Counties and certain areas of Pecos County. Populations in cotton heavier than since fall of 1967. Most larval infestations in this area ranged 5,000 to 30,000 per acre. (Neeb). Light to heavy in Fort Bend, Wharton, and Brazoria Counties. (Poindexter). OKLAHOMA - Percent green bolls infested by county: Caddo 7; McClain 10; McIntosh 20; Greer 10; Harmon 5; Jackson 1; Bryan 35; Garvin 10; Jefferson 54; Marshall 40; Love 46; and Coal 30. Positive lint cleaner inspections from 2 new counties, Coal and McIntosh, but inspections in Jackson and Harmon Counties negative. (Okla. Coop. Sur.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - TEXAS - Heavy and localized near Rosenberg, Fort Bend County, mid-November. Adults 8-10 per plant. Tubers severely perforated and larvae numerous. (Poindexter).

TULIPTREE SCALE (Toumeyella liriodendri) - CALIFORNIA - Found on yellowpoplar and deciduous magnolia; infested 14 properties so far at Sonoma, Sonoma County. Following week's surveys show adults heavy. Known infestation extended a mile north and west of the Sonoma infestation to Boyes Hot Springs, Sonoma County. This infestation is on yellowpoplars and appears to have been active for several years. Delimiting survey will continue. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Corn - CORN EARWORM (Heliothis zea) larvae light, infested 20 percent of mature ears, in 3 acres of field corn at Kaaawa, Oahu. Nymphs and adults of CORN PLANTHOPPER (Peregrinus maidis) moderate to heavy in 3 acres of corn at Kaawa. Nymphs and adults of Cyrtorhinus lividipennis (a predacious mirid bug) trace amid P. maidis. (Kawamura).

General Vegetables - BEAN FLY (Melanagromyza phaseoli) negligible in most commercial snap bean plantings throughout Oahu. (Matayoshi, Kawamura). CHINESE ROSE BEETLE (Adoretus sinicus) damage light to moderate in 0.5 acre planting of ginger (Zingiber officinale) at Kahaluu, Oahu. BEET ARMYWORM (Spodoptera exigua) larvae generally trace to light in 5,000 square feet of soybeans at Waimanalo, Oahu; heavy on some leaves. (Sugawa). Larvae of TOMATO PINWORM (Keiferia lycopersicella) and POTATO TUBERWORM (Phthorimaea operculella) infested about 40 percent of leaves in 5,000 square feet of eggplant at Pearl City, Oahu. Infestation severe 60 days previously with much production loss. Larvae heavy and damaged 0.75 acre of tomato at Omaopio, Maui. (Hori, Kawamura).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) several hundred per tree at base of 10 kiawe (Prosopis pallida) trees at Punahou, Honolulu, Oahu. Light trap collections for October show decline. (Rose). CUBAN LAUREL THRIPS (Gynaikothrips ficorum) nymphs and adults lightly infested 5 percent of young terminal leaves on 30+ trees of Chinese banyan (Ficus retusa) trees at Punchbowl, Oahu; nymphs and adults of Montandoniola moraguesi (an anthocorid bug) light also. Ratio of thrips to predator, 5:1. (Kawamura).

Fruits and Nuts - Four adults of a LEAFHOPPER (Protalebrella brasiliensis) taken in planting of wedelia at Kona, Hawaii; 23 taken from same host at Lihue, Kauai, in April 1971. These are new island records. (Kawamura).

Man and Animals - Trapped 94 VEXANS MOSQUITO (Aedes vexans nocturnus) and 894 SOUTHERN HOUSE MOSQUITO (Culex pipiens quinquefasciatus) in 55 light traps on Oahu during October. Aedes per trap ranged 0-20 at Kahaluu. Culex per trap ranged 0-894 at Waipahu. (Mosq. Cont. Br., Dept. of Health). One adult of a MUSCID FLY (Musca sorbens) taken at large at Hanapepe, Kauai, during August for a new island record. (Howarth).

Beneficial Insects - LANTANA LEAF BEETLE (Octotoma scabripennis) heavy in wasteland lantana at Kona; as many as 5 mines in as much as 70-80 percent of leaves. (Matayoshi). Light emergence of a EULOPHID WASP (Aneristus ceroplastae) and an ENCYRTID WASP (Aphycus mexicanus) from passionfruit vines heavily infested with Ceroplastes cirripediformis (barnacle scale) collected at Kahului, Maui, in early October. (Kawamura). An ICHNEUMON WASP (Diadegma insularis) parasitized larvae and pupae of DIAMONDBACK MOTH (Plutella xylostella) on Hawaii. D. insularis introduced from Kenya in 1953 to control P. xylostella. (Matayoshi). The BRACONIDS (Opius phaseoli and O. importatus) and a PTEROMALID WASP (Halticoptera patellana) completely parasitized Melanagromyza phaseoli (bean fly) in cowpeas and snap beans collected from six field locales on Kauai. On Maui, infested yardlongbean material collected at Waikapu 100 percent parasitized. (Sugawa, Miyahira). A TACHINA FLY (Eucelatoria armigera) and an ICHNEUMON WASP (Casinarina infesta), 23 percent each, parasitized Herpetogramma licarsisalis (grass webworm) larvae collected from lightly infested pangola grass pasture at Hanalei, Kauai, in late September.

Miscellaneous Pests - Collected 245 dead or dying specimens of GIANT AFRICAN SNAIL (Achatina fulica) during October at Poipu, Kauai. Negative at Wahiawa. Poison bait applications continue. On Hawaii, no live snails detected during October. (Sugawa, Yoskioka). Collected 36+ adults of a CADDISFLY (Cheumatopsyche analis) in light trap at Hilo, Hawaii, for a new island record. C. analis previously reported only from Oahu and Molokai Islands. (Shiroma).

DETECTION

New State Records - A BROWN LACEWING (Kimminsia schwarzi) PENNSYLVANIA - Indiana County (p. 754). JUNIPER SCALE (Carulaspis juniperi) WISCONSIN - Dane County (p. 753). A NOTODONTID MOTH (Datana contracta) ALABAMA - Lee County (p. 754). AN OECOPHORID MOTH (Psilocorsis faginella) ALABAMA - Houston County (p. 753). PYRALID MOTHS (Tetralopha spp.) ALABAMA - T. asperatella in Houston County, T. militella in Lee County (p. 753). A TORTRICID MOTH (Acleris minuta) ALABAMA - Cullman County (p. 752).

New County and Island Records - BANDEDWING WHITEFLY (Trialeurodes abutilonea) ALABAMA - Autauga, Elmore, Macon, Montgomery (p. 751). A CADDISFLY (Cheumatopsyche analis) HAWAII - Hawaii (p. 756). GERMAN COCKROACH (Blattella germanica) OREGON - Marion (p. 754). HOLLYHOCK WEEVIL (Apion longirostre) VIRGINIA - Shenandoah (p. 753). IMPORTED FIRE ANT (Solenopsis saevissima richteri) GEORGIA - Carroll; TEXAS - Washington (p. 755). A LACE BUG (Stephanitis takeyai) PENNSYLVANIA - Armstrong, Beaver, Schuylkill (p. 753). A LEAFHOPPER (Protalebrella brasiliensis) HAWAII - Hawaii, Kauai (p. 756). A MUSCID FLY (Musca sorbens) HAWAII - Kauai (p. 756). SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) OREGON - Hood River, Jackson, Josephine (p. 754). SOUTHERN CHINCH BUG (Blissus insularis) CALIFORNIA - Riverside (p. 750). SOUTHWESTERN CORN BORER (Diatraea grandiosella) TENNESSEE - Cannon, Coffee, De Kalb, Franklin, Grundy, Macon, Marion, Smith, Sumner, Trousdale, Van Buren, Warren, Wilson (p. 749). SWEETPOTATO HORNWORM (Agrius cingulatus) MARYLAND - Prince Georges (p. 752). A WEEVIL (Sciaphilus asperatus) WISCONSIN - Price (p. 754). WESTERN CORN ROOTWORM (Diabrotica virgifera) ILLINOIS - Christian, De Witt, Macon, Menard, Morgan, Sangamon, Shelby (p. 749).

CORRECTIONS

CEIR 21(36):632 - Delete COTTON LEAFWORM (Alabama argillacea) note. Larvae misidentified. (Okla. Coop. Sur.).

COOPERATIVE ECONOMIC INSECT REPORT
ESTIMATED LOSSES AND PRODUCTION COST ATTRIBUTED TO
INSECTS AND RELATED ARTHROPODS - 1970

Introduction

Prior to 1966, insect loss estimates were published in the Cooperative Economic Insect Report as individual reports. An attempt has been made for the sixth year to condense loss estimates from various States into a single report. This gives a more meaningful and better overall picture of the crop losses. The data have been compiled from the crop loss estimates submitted from 15 States. The entomologists submitting the 1970 estimates are listed below.

H.F. McQueen	Alabama
W.P. Boyer	Arkansas
W.B. Tappan	Florida
K.F. Kawamura	Hawaii
K.O. Bell	Kansas
J.L. Hellman	Maryland
R.G. Flaskerd	Minnesota
D.L. Keith	Nebraska
W.J. Brandvik	North Dakota
D.C. Arnold	Oklahoma
P.A. Jones	South Dakota
C.D. Gordon	Tennessee
L.R. Green	Texas
W.A. Allen	Virginia
A.E. Parshall	Wyoming

Legend for pest abbreviations appears at end of loss tables.

Separates of this report are available from the Economic Insect Survey and Detection Staff.

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
21(45-48):759-772, 1971

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Sub-total (\$1000)	Cost Per Acre (dollars)	Treated Acres (1000)		Sub-total (\$1000)
CORN (Grain)											
Alabama		SwCB, CLA, CEW, FA, ECB, Ww, SCR, SuB, LCB, MB, StB, SCSB, CB									
		Larvae CR	545.00	2.30	3.63	510.00	-	1.50	35.00	52.50	1,903.80
		Adults CR	1,285.00	9.92*	12.90*	625.00	1,037.40#	2.50	650.00	1,625.00	2,662.40#
		CEW	"	1.24	1.61	145.00	233.74	2.90	182.00	455.00	-
		ECB	"	1.25	162.50	664.00	1,079.00	3.00	40.00	120.00	465.74
		SpM	"	-	-	-	-	3.00	68.00	204.00	1,199.00
		WBC	"	-	-	8.00	-	4.30	16.00	68.00	-
		CLA	"	-	-	-	-	2.29	10.00	22.00	-
Maryland		Aw, CEW, CRw, ECB, FAW, Sw, DSB	484.00	8.30	12.28	42.00	515.93	5.00	8.00	40.00	555.93
Minnesota		ECB	4,594.00	-	-	-	28,627.58	2.63	28.00	73.64	28,627.58
		CR, Cws, Ww	-	9.00	12.42	11,340.00	14,084.28	2.66	1,116.00	2,968.56	17,052.84
Nebraska		CR, ECB, CEW	4,897.00	11.25	14.29	-	**	3.50	3,300.00	11,550.00	77,750.00
North Dakota		Gh, ECB, Ww, CLA, CR	130.00	3.50	4.03	10.00	40.30	2.25	20.00	45.00	85.30
South Dakota		ECB, CR, Gh, Ww, Cws	3,425.00	10.25	12.92	753.50	9,735.22	6.00	1,130.25	6,781.50	16,516.72
Tennessee		CEW	569.00	0.40	0.61	150.00	91.50	4.00	100.00	400.00	491.50
Virginia		Aw, Cws, CEW, CR, JB	458.00	13.60	20.13	25.00	503.25	2.50	90.00	225.00	828.25
Wyoming		WCR, BGM, Ww	27.00	3.72	5.06	22.50	11.38	3.25	2.10	6.82	18.21
						Subtotal	55,959.58			24,869.02	148,157.27

* Loss on acreage not treated that should have been.

Loss, combined for treated and non-treated.

** Increase in losses due to heavier European corn borer populations.

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Subtotal (\$1000)	Cost Per Acre (dollars)	Treated Acres (1000)		Subtotal (\$1000)
CORN (Silage)											
North Dakota		Gh, ECB, Ww, CLA, CR	335.00	0.40	2.80	10.00	28.00	2.25	15.00	33.75	61.75
Wyoming		WCR, BGM, Ww	34.00	0.52	4.30	3.35	14.40	3.25	3.15	10.24	24.64
SWEET CORN						Subtotal	42.40			43.99	86.39
Alabama		CEW, FA, Ww, SCR, CLA, StB	2.80	-	-	-	-	30.00	2.80	84.00	84.00
Hawaii		CEW, M, CP	0.03	498.00	64.00	-	21.12	72.00	0.03	23.76	44.89
Minnesota		ECB, CEW, Cws	105.90	-	-	-	-	9.50	90.81	862.68	862.68
POPCORN						Subtotal	21.12			970.44	991.57
Nebraska		CR, ECB, CEW, SCB, Cws, M, Gh, CLA, Ww, FA, WBC, SCM, SB, Aw	19.00	325.30	87.83	5.00	439.15	2.85	12.00	34.20	473.35
SORGHUM (Grain)						Subtotal	439.15			34.20	473.35
Arkansas		SM, SWw, CEW	190.00	1,890.00	37.42	5.70	213.29	2.00	4.30	8.60	221.89
Kansas		Gb, CLA	3,560.00	16.00	17.44	-	1,744.00	2.10	400.00	840.00	2,584.00
Nebraska		CLA, Cws, Gh, Ww, PB, RA, CB, SCM, SCB, Gb	1,499.00	10.20	10.81	160.00	1,729.60	2.75	210.00	577.50	2,307.10
Oklahoma		Gb, CEW, FA, SM	542.00	10.30	11.64	154.58	1,799.29	2.21	94.74	209.38	2,008.67
South Dakota		Gb, Cws, Ww	282.00	8.50	7.82	109.98	860.04	2.75	101.52	279.18	1,139.22
Texas		CB, CEW, ScBo, SM, SWw, CB, SwCB, SCR	5,886.00	5.60	6.33	-	3,725.84	5.82	1,765.40	10,274.62	16,599.56
Subtotal						Subtotal	10,072.06			12,336.23	24,860.44

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Subtotal (\$1000)	Cost Per Acre (dollars)	Treated Acres (1000)		Subtotal (\$1000)
SUGARCANE											
Hawaii	NGSW		113.80	0.36	57.66	-	605.00*	-	-	-	605.00
							Subtotal				605.00
BARLEY											
North Dakota	T, A, Ww, Gh, AL, Aw		1,963.00	2.80	2.35	10.00	23.50	2.25	30.00	67.50	91.00
Wyoming	A, PWC		126.00	1.18	1.05	1.90	2.00	2.50	0.03	.07	2.74
							Subtotal				93.74
OATS											
Nebraska	Ww, EGA, WG, CB, L, Aw, Cws, Gh		578.00	2.52	1.59	25.00	39.75	2.70	5.00	13.50	53.25
North Dakota	Gh, Ww, A, Aws		2,687.00	3.90	2.07	10.00	20.70	2.25	10.00	22.50	43.20
South Dakota	Gh		2,569.00	3.70	2.33	-	239.43	2.75	-	-	239.43
Wyoming	A, Cws		95.00	1.44	0.92	0.09	0.09	2.50	0.05	12.50	21.06
							Subtotal				48.50
WHEAT											
Kansas	HF Gh Gb		8,963.00**	0.34	0.44	-	1,003.46	-	-	-	1,003.46
			9,061.00	1.32	1.69	43.00	72.65	2.00	50.00	10.00	82.65
			-	1.98	2.53	3.22	8.16	2.50	1.17	2.94	11.10
Nebraska	BWM, WG, WSM, Cws, HF, Gb, Gh, Ww, EGA, CB, Aw, WCM		2,588.00	5.32	6.54	55.00	359.70	2.75	95.00	261.25	-
North Dakota	WSSF, Ww, Gh, A, AL, Aw		6,486.00	1.40	2.16	250.00	540.00	2.25	250.00	562.50	1,102.50
Oklahoma	Gb, FA, M		3,777.00	6.00	7.86	764.84	6,011.66	2.12	179.41	380.34	6,392.00
South Dakota	Cws, WSM, Aw, HF, Gh, M		1,811.00	2.60	3.95	51.07	201.73	2.75	3.26	8.97	210.69
Texas	Gb, FA, M		2,267.00	3.60	4.68	240.41	1,125.10	2.72	759.59	2,072.16	3,197.26

* All loss estimates based on yield plus quality.

** Acres.

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Subtotal	Subtotal	Cost Per Acre (dollars)		Treated Acres (1000)
WHEAT (Cont.)											
Wyoming		PWC, Gh	215.00	1.34	1.58	1.25	1.97	2.50	1.35	3.37	5.35
				Bu.							
				Cwt.		Subtotal	9,324.43			3,301.53	12,005.01
Arkansas		RWW RSB	438.00	-	-	-	-	0.35	438.00	153.30	153.30
								2.00	35.00	70.00	70.00
				Tons		Subtotal				223.30	223.30
RANGE GRASS											
South Dakota		WG, Gh	26,000.00	0.14	2.66	7.64	20.33	2.50	0.02	0.04	20.72
						Subtotal	20.33			0.04	20.72
ALFALFA (Hay)											
Arkansas		AIW, VC	55.00	-	-	-	-	2.00	30.00	60.00	60.00
Maryland		PA, AIW, LB, MS PB, PLL, GEH	70.00	0.66	26.40	7.00	184.80	6.00	28.00	168.00	352.80
North Dakota		Gh, A, AIW	1,344.00	0.10	1.80	35.00	63.00	2.25	25.00	56.25	119.25
Oklahoma		SAA, PA, AIW, Gh	575.00	0.35	12.12	131.73	1,596.60	3.00	35.02	105.05	1,701.65
South Dakota		Gh, PA, AIW, FB, Aw, Wbw, Cr	2,339.00	0.49	11.27	467.80	5,272.11	2.75	116.95	321.61	5,593.71
Tennessee		AIW	58.00	0.61	27.45	10.00	274.50	6.00	40.00	240.00	514.50
Virginia		AIW, PA, Slb	91.00	1.50	0.01	5.00	300.00	7.00	45.00	315.00	740.00
Wyoming		AIW, PA, LB	490.00	0.17	4.08	90.00	367.20	3.50	90.00	315.00	682.20
						Subtotal	8,058.21			1,580.91	9,764.11

Crop State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
			Loss Per Acres (Units)	Loss Per Acres (dollars)	Non- treated Acres (1000)	Sub- total (\$1000)	Cost Per Acres (dollars)	Treated Acres (1000)		Sub- total (\$1000)
ALFALFA (Seed)										
Nebraska	W, Ww, BB, Bbw, C PB, L, Gh, A, Cws	33.00	7.00	2.03	2.00	4.06	2.75	8.00	22.00	26.06
Wyoming	AlW, LB, PA	5.50	7.00	2.56	0.06	1.47	8.00	0.09	7.56	9.03
					Subtotal	5.53			29.56	35.09
CLOVER - TIMOTHY										
Maryland	CoA, FB, GL, LB, MS, PB, W	205.00	0.21	6.15	4.00	24.60	3.50	6.00	21.00	45.60
					Subtotal	24.60			21.00	45.60
HAY										
Alabama	FA, AlW, Gh, A, CLW, WG, Ww, WFB, CEW, TB, T, L, Cr, W, Slb	791.00	0.24	6.84	190.00	1,299.60	6.00	10.00	60.00	1,359.60
Minnesota	Gh, PA, PL	3,231.00	0.05	0.98	404.60	397.64	2.00	1.00	2.00	399.64
Nebraska	Gh, GW, Cws, SAA, PB, PA, CoA, L, AlW, AC, Wbw, CR, Aws, W	4,418.00	0.11	2.31	375.00	866.25	2.75	75.00	206.25	1,072.50
					Subtotal	2,563.49			268.25	2,831.74
SOYBEANS										
Alabama	TB, VbC, CL, BLB, CEW, LCB, MBB, GCW, StB, SL	609.00	2.35	6.58	70.00	460.00	3.80	230.00	874.00	1,334.00
Arkansas	CEW, SL	4,313.00	6.75	18.56	104.00	1,930.24	2.25	646.00	1,453.50	3,383.74
Minnesota	BLB, GCW, Gh	3,129.00	-	-	-	-	1.50	17.00	25.50	25.50
Maryland	BLB, CEW, MBB, GCW, T, Gh, JB	213.00	2.40	6.96	15.00	104.40	3.00	10.00	30.00	134.40
Nebraska	BLB, WG, MBB, Wbw, GCW, Gh, CR, Cws, Ww	812.00	0.66	1.82	20.00	36.40	3.00	5.00	15.00	51.40

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Cost Per Acre (dollars)	Treated Acres (1000)	Sub-total (\$1000)		
SOYBEANS (Cont.)											
North Dakota	Gh		176.00	0.90	2.39	2.00	4.78	2.25	8.00	18.00	22.78
South Dakota	Cws, BLB, GCw		255.00	5.30	14.20	3.57	50.69	2.75	1.53	4.21	54.90
Tennessee	CEW		1,229.00	0.02	0.06	-	-	6.00	15.00	90.00	90.00
Virginia	MBB, CEW		339.00	0.19	0.55	75.00	41.25	2.50	50.00	125.00	203.75
						Subtotal	<u>2,627.76</u>			<u>2,635.21</u>	<u>5,300.47</u>
PEANUTS											
Alabama	LCB, T, SCR, WFB, SpM, L, BA, FA, Aw		190.00	498.00	58.70	25.00	1,469.00	3.40	165.00	561.00	3,646.01*
Oklahoma	LCB, CEW, T		118.00	298.00	36.36	29.59	1,076.04	7.17	22.33	169.08	1,236.11
Texas	LCB, TSM		306.00	421.00	47.50	30.00	1,414.50	10.00**	200.00***	-	3,834.50
Virginia	SCR, CEW, T, M		102.00	90.00	12.24	1.00	12.24	7.75	101.00	782.75	800.00
						Subtotal	<u>3,971.78</u>			<u>1,503.83</u>	<u>9,516.62</u>
COTTON											
Arkansas	BW, Blw, PB, M		1,080.00	95.60	21.13	250.00	5,282.50	7.00	73.00	5,110.00	10,392.50
Oklahoma	BW, Blw, T, F		450.00	41.40	8.49	134.46	1,141.57	7.42	27.54	204.34	1,345.91
Tennessee	BW, CEW		390.00	24.00	5.52	20.00	165.60	15.00	10.00	1,500.00	1,665.20
			-	48.00	11.00	25.00	275.00	15.00	150.00	2,250.00	2,525.50
Texas	SpM, T, TBw, Blw, BW, Cws, BA, CLP, Gh, F		4,870.00	78.75	16.07	313.19	5,032.93	16.07	2,121.81	13,261.32	18,607.44
						Subtotal	<u>11,622.60</u>			<u>20,075.66</u>	<u>34,537.55</u>

* Includes 5 percent loss to treated acres due to inadequate controls on acres treated.

** Application cost plus insecticide estimated @ \$2.50 acre application.

*** Estimate.

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Cost Per Acre (dollars)	Treated Acres (1000)	Sub-total (\$1000)	
COTTON (Lint)										
Alabama	SpM, TbB, F, A, BW, BLw, TB, T, TSM		509.00	91.00	19.93	10.00	8.00	460.00	3,680.00	3,909.30XX
				Ton		Subtotal			<u>3,680.00</u>	<u>3,909.30</u>
COTTON (Seed)										
Alabama	BW, BLw, TB, T, TSM, SpM, TpB, F, A		509.00	0.08	4.13	10.00	#	460.00	#	21.03##
				Lbs.		Subtotal				<u>21.03</u>
TOBACCO										
Florida (Flue-cured)	TB, CL, Cws, TFB, Ww, GPA, TH		11.10	242.00	183.00	-	21.00	11.10*	233.10	2,497.50
(Shade-grown)	TB, CL, Cws, GPA, TFB		2.50	69.00	193.00	-	193.00	2.50	217.50	1,182.50
Maryland	GPA, TH, TFB, TB		27.50	106.00	84.48	7.00	15.00	20.00	300.00	933.60
Tennessee	TH		53.90	0.22	0.15	-	4.00	53.90	215.60	215.60
						Subtotal			<u>966.20</u>	<u>4,829.20</u>
SUGAR BEETS										
Minnesota	Wbw		146.80	-	-	-	4.00	0.07	2.80	2.80
Nebraska	Wbw, L, Gh, Ww, FB, SpM		78.60	1.40	16.24	12.00	3.50	7.00	24.50	154.42
North Dakota	SBRM, Ww, FB, Cws		92.00	0.30	5.40	10.00	4.25	20.00	85.00	247.00
Wyoming	SBRM, BWw, Ww		59.00	1.83	27.27	71.50	4.50	21.40	96.30	291.28
	# Charged to lint.					Subtotal			<u>208.60</u>	<u>695.50</u>

Add 10% loss to treated acres because of inadequate controls on acres treated: .4066 tons x 10% x \$50.80 x 460,000 = \$949,530.00. Therefore, combined loss (line Q) = \$970,561.00.

* All acreage needed control numbers.

XX Add 10% loss to treated acres because of inadequate controls on acres treated: 453 lbs. x 10% x .219 x 460,000 Acres = 4,563,000.00. Therefore, combined loss (line Q) = \$8,472,500.00.

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Subtotal	Subtotal (\$1000)	Cost Per Acre (dollars)		Treated Acres (1000)
FLAX											
North Dakota		Gh, AL, Ww, Cr	1,644.00	0.90	2.12	10.00	21.20	2.25	20.00	45.00	66.20
South Dakota		Cws	704.00	1.30	3.09	5.02	15.50	2.75	0.03	0.07	16.22
						Subtotal	<u>36.70</u>			<u>45.07</u>	<u>82.42</u>
SUNFLOWERS											
North Dakota		Ww, SuM, SfM, SfB	126.00	74.00	3.60	1.00	3.60	3.00	5.00	15.00	18.60
				Lbs.		Subtotal	<u>3.60</u>			<u>15.00</u>	<u>18.60</u>
POTATOES											
Alabama		Ww, A, PFB, PL, CPB, Cws	16.80	-	-	-	-	6.00	16.80	100.80	100.80
Minnesota		L, FB, CPB, A, Cws, Ww	95.80	14.00	24.64	1.80	44.35	10.00	94.00	940.00	984.35
Nebraska		CPB, L, PB, BB, PP, FB, Ww, Gh	9.50	22.80	26.22	0.09	23.60	6.20	5.10	31.62	55.22
North Dakota		L, Ww, FB, CPB	116.00	4.50	6.75	6.00	40.50	6.20	39.00	241.80	282.30
Wyoming		PP, Ww, FB	3.60	7.31	15.35	0.01	0.09	6.50	3.54	23.01	23.93
						Subtotal	<u>108.54</u>			<u>1,337.23</u>	<u>1,446.60</u>
SWEETPOTATOES											
Alabama		Ww, FB, SpW, WG, WFB	398.00	7.47	44.07	1.30	57.29	8.00	3.50	28.00	95.69
						Subtotal	<u>57.29</u>			<u>28.00</u>	<u>95.69</u>
TOMATOES											
Alabama		TFw, FB, A, CL, LMF, SpM, TPw, WFB, L	437.00	-	-	-	-	46.00	9.50	437.00	437.00
Hawaii		GHwf, LMF, CSpM, MF	0.02	2.47	421.00		84.20	0.02	0.02	34.00	118.20

Crop	State	Pest Complex	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)	
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Subtotal (\$1000)	Cost Per Acre (dollars)	Treated Acres (1000)		Subtotal (\$1000)
TOMATOES (Cont.)											
Maryland		A, CPB, L, TF, UF, ECB, TmHw	4.40	2.72	108.80	-	44.61	10.00	4.00	40.00	84.61
						Subtotal	128.81			511.00	639.81
BEANS (Field)											
Nebraska		WBC, MBB, Gh, BLB, L, A	86.00	2.16	16.20	15.00	243.00	3.50	35.00	122.50	365.50
Wyoming		MBB, FB	30.00	0.33	2.47	0.05	1.28	3.50	2.28	7.98	9.26
						Subtotal	244.28			130.48	374.76
BEANS (Snap)											
Alabama		MBB, BLB, CEW, TSM, SpM, LCB, T, SCR	1.30	-	-	-	-	13.00	1.30	16.90	16.90
Hawaii		CSpM, LMF, GHwf, BF, CRB	0.01	421.00	147.00	-	15.44	184.00	0.01	19.32	34.76
						Subtotal	15.44			36.22	51.66
PEAS											
Minnesota		PA, GCw	66.20	-	-	-	-	4.00	35.30	141.18	141.18
						Subtotal				141.18	141.18
WATERMELON											
Hawaii		CSpM, LMF, MF	14.90	1.64	164.00	-	31.16	199.00	0.02	37.81	68.97
						Subtotal	31.16			37.81	68.97
ONIONS (Green)											
Hawaii		LMF, BA, OT	0.01	3.00	0.07	-	54.08	39.00	0.01	2.92	57.00
						Subtotal	54.08			2.92	57.00

Crop	State	Pest	Total Acres Produced (1000)	Yield Loss			Control Cost			Total Loss (\$1000)
				Loss Per Acre (Units)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Cost Per Acre (dollars)	Treated Acres (1000)	Subtotal (\$1000)	
APPLES										
Maryland		A, AM, CdM, LR, M SpM	6,900.00	-	-	-	0.01	6,900.00	-	690.00
Minnesota		AM, CdM	3.00	-	-	-	0.02	3.00	480.00	480.00
Virginia		Cdm, A, M, LR	465.00	-	-	-	0.01	-	2,232.00	2,232.00
				Subtotal						
PEACHES										
Alabama		PTB, LPTB, TSM, OFM, SJS, WPS	650.00	-	-	-	0.30	650.00	195.00	195.00**
Arkansas		OFM, SB, PTB, Sc	3.50	-	-	-	40.00	3.50	140.00	560.00
				Subtotal						<u>755.00</u>
PECANS										
Alabama		HS, PNC, StB, SpM, P, w, A, Sc	925.00	5.20	1.97	600.00	9.00	150.00	1,350.00	3,732.00
				Subtotal						<u>3,732.00</u>
BITTER MELONS										
Hawaii		GHwf, MF, CSpM	0.01	2.14	450.00	-	213.00	0.01	1.70	5.30
				Subtotal						<u>5.30</u>
CUCUMBERS										
Hawaii		MF, LMF, GHwf	0.02	2.47	345.00	-	130.00	0.02	19.50	71.25
				Subtotal						<u>71.25</u>
PASSION FRUIT (Processed)										
Hawaii		BSc, CSpM, Mb, BM	0.02	2.18	87.00	-	42.00	0.01	3.36	10.32
				Subtotal						<u>10.32</u>

** Add 8% loss to total treated acres because of inadequate controls on acres treated: 61 tree x 8% x 650,000 trees x \$.0965 = \$306,098.00. Therefore, combined loss (line Q) = \$501,098.00.

Crop	State	Pest Complex	Total Acres Produced (Units)		Yield Loss			Control Cost			Total Loss (\$1000)
			Loss Per Acre (dollars)	Loss Per Acre (dollars)	Non-treated Acres (1000)	Treated Acres (1000)	Cost Per Acre (dollars)	Subtotal (\$1000)	Subtotal (\$1000)		
BROILERS											
Alabama	Hp, DB, M, Li		-	-	-	-	-	0.03	375.42	11,262.69	11,262.69
					Subtotal					11,262.69	11,262.69
HOGS											
Alabama	Hf, HL		18.00	3.60	100.00	360.00	1.25	1,600.00	2,000.00	2,360.00	2,360.00
					Subtotal	360.00				2,000.00	2,360.00
					Total	111,822.35				92,833.25	315,947.24

LEGEND

A	- Aphids	Cic	- Cicadas	HS	- Hickory Shuckworm
AC	- Alfalfa Caterpillar	CL	- Cabbage Looper	IC	- Imported Cabbageworm
ACW	- Army Cutworm	CLA	- Corn Leaf Aphid	JB	- Japanese Beetle
AL	- Aster Leafhopper	CLP	- Cotton Leaf Perforator	K	- Katydid
ALW	- Alfalfa Weevil	CLW	- Clover Leaf Weevil	L	- Leafhoppers
AM	- Apple Maggot	CoA	- Clover Aphid	LB	- Lygus Bugs
Aw	- Armyworm	CP	- Corn Planthopper	LCB	- Lesser Cornstalk Borer
AWS	- Armyworms	CPB	- Colorado Potato Beetle	LFB	- Leaf-footed Bug
BA	- Beet Armyworm	Cr	- Crickets	LMF	- Leaf Miner Flies
BB	- Blister Beetles	CR	- Corn Rootworms	LPTB	- Lesser Peach Tree Borer
BF	- Bean Fly	CRB	- Chinese Rose Beetle	LR	- Leaf Rollers
BGM	- Banks Grass Mite	CSPM	- Carmine Spider Mite	Li	- Lice
BC	- Black Cutworm	Cws	- Cutworms	M	- Mites
BHF	- Blackheaded Fireworm	CWw	- Cabbage Webworm	MA	- Melon Aphid
BL	- Beet Leafhopper	DB	- Darkling Beetles	Mb	- Mealybug
BLB	- Bean Leaf Beetle	DM	- Diamondback Moth	MB	- Maize Billbug
BLM	- Beet Leaf Miner	EAW	- Egyptian Alfalfa Weevil	MBB	- Mexican Bean Beetle
Blw	- Bollworm	ECB	- European Corn Borer	MF	- Melon Fly
BM	- Broad Mite	EGA	- English Grain Aphid	MS	- Meadow Spittlebug
BSC	- Barnacle Scale	F	- Fleahoppers	NGSW	- New Guinea Sugarcane Weevil
BW	- Boll Weevil	FA	- Fall Armyworm	OD	- Orangedog
BWM	- Brown Wheat Mite	FB	- Flea Beetles	OFF	- Oriental Fruit Fly
BWw	- Beet Webworm	G	- Grassbugs	OFM	- Oriental Fruit Moth
C	- Chalcids	Gb	- Greenbug	OM	- Onion Maggot
CB	- Chinch Bugs	GCw	- Green Cloverworm	OT	- Onion Thrips
CEW	- Citrus Bud Mite	Gh	- Grasshoppers	P	- Phylloxera
CdM	- Codling Moth	GHwf	- Greenhouse Whitefly	PA	- Pea Aphid
CEW	- Corn Earworm	GM	- Ginger Maggots	PB	- Plant Bugs
CF	- Cranberry Fruitworm	GPA	- Green Peach Aphid	PFB	- Potato Flea Beetle
CFB	- Corn Flea Beetle	GW	- Garden Peach Aphid	PL	- Potato Leafhopper
CFf	- Caribbean Fruit Fly	Hf	- House Fly	PP	- Potato Psyllid
CG	- Cranberry Girdler	HF	- Hessian Fly	PNC	- Pecan Nut Casebearer
CRM	- Citrus Rust Mite	HL	- Hog Louse	PT	- Potato Tuberworm

LEGEND
(Cont.)

PTB	- Peach Tree Borer	SJS	- San Jose Scale	TCAH	- Threecornered Alfalfa Hopper
PW	- Pepper Weevil	SI	- Soil Insects	TCM	- Texas Citrus Mite
PWC	- Pale Western Cutworm	SLb	- Spittle Bugs	TFB	- Tobacco Flea Beetle
RA	- Root Aphids	SLM	- Spinach Leaf Miner	TFW	- Tomato Fruitworm
RAA	- Rosy Apple Aphid	SL	- Soybean Looper	TH	- Tomato Hornworm
RFM	- Red Flat Mite	SM	- Sorghum Midge	TpB	- Tarnished Plant Bug
RSB	- Rice Stink Bug	SMC	- Saltmarsh Caterpillar	TPw	- Tomato Pinworm
RW	- Root Weevils	SN	- Snail	Tsm	- Tumid Spider Mite
RWW	- Rice Water Weevil	SpM	- Spider Mites	TSM	- Twospotted Spider Mite
S	- Slugs	SpW	- Sweetpotato Weevil	VbC	- Velvetbean Caterpillar
SAA	- Spotted Alfalfa Aphid	StB	- Stink Bugs	VC	- Variegated Cutworm
SB	- Stalk Borer	StCB	- Striped Cucumber Beetle	W	- Weevils
SBRM	- Sugarbeet Root Maggot	SuB	- Sugarcane Beetle	WCM	- Wheat Curl Mite
Sc	- Scales	SuM	- Sunflower Moth	WCR	- Western Corn Rootworm
SCB	- Seedcorn Beetle	SVB	- Squash Vine Borer	WBC	- Western Bean Cutworm
ScBo	- Sugarcane Borer	SW	- Sod Webworms	Wbw	- Webworms
SCM	- Seedcorn Maggot	SwCB	- Southwestern Corn Borer	Wf	- Whitefly
SCR	- Southern Corn Rootworm	SWw	- Sorghum Webworm	WFB	- Whitefringed Beetles
SCSB	- Southern Corn Stalk Borer	T	- Thrips	WG	- White Grubs
SfB	- Sunflower Beetle	Tb	- Tomato Bug	WPS	- White Peach Scale
SfM	- Sunflower Maggots	TB	- Tobacco Budworm	WSM	- Wheat Stem Maggot
SHW	- Sweetpotato Hornworm	TC	- Thistle Caterpillar	WSSF	- Wheat Stem Sawfly
				Ww	- Wireworms

2001
A New Trap for Capturing Boll Weevils //

J. E. Leggett and W. H. Cross 1/

Recently, a summary of the most efficient trap designs for capturing boll weevils (*Anthonomus grandis* Boheman) was published in USDA Coop. Econ. Ins. Rpt. 21(21): 367-368, 1971. Since then a new nonsticky trap, called the Leggett trap after its principal designer, has generally captured more boll weevils than any other trap design tested. The design of the new trap (Fig. 1) was based on a trap designed and previously tested by the senior author at Tallulah, Louisiana, following the suggestion by C. F. Rainwater (Entomology Research Division, Beltsville, Maryland) that a nonsticky trap was badly needed to replace the standard sticky wing trap. Similar trap designs had, also, been suggested earlier by E. B. Mitchell of this laboratory and by D. G. Bottrell (Tex. Agr. Expt. Sta., Lubbock).

The trap is constructed from a floral liner (papier-machè material) 11.5 in. high originally suggested by D. Whittam (Plant Protection, Hyattsville, Maryland) for constructing a sticky trap. In the nonsticky version the inverted floral liner is painted first with a white undercoat, then with daylight fluorescent Saturn Yellow (Day-Glo® 2/ Color Corporation), and finally with a clear acrylic lacquer for waterproofing and to prevent fading of the Saturn Yellow.

The floral liner is capped with a screen cone held just off the liner with glass beads or other spacers with a small hole in the apex of the cone which opens into a 2-in.³ plastic box (or similar device) (Fig. 2). A grandlure wick (Hardee, et al. J. Econ. Ent., in press, 1971) is pinned to the top of the floral liner inside the screened cone.

The complete trap is mounted on a stake 3 to 4 ft. above the ground by inserting a nail through the top of the liner into a predrilled hole in the stake.

Boll weevils attracted by the grandlure land on the Saturn Yellow floral liner and crawl up under the lip of the screen cone. In their urgency to continue crawling upward they bypass the grandlure wick and become trapped in the box at the top of the screen cone. Weevils may be captured and kept alive or they may be killed with a small cube of Vapona® No-Pest strip placed in the box. In servicing large numbers of such traps the box and cone assembly at the top can be exchanged quickly and weevils counted in the laboratory. One trap should last one season. An obvious advantage of this trap over sticky traps is its high degree of selectivity for boll weevils. Often less than 1% of the total catch consists of other insects while the sticky traps soon are covered with all kinds of insects, necessitating periodic cleaning of the trap so that boll weevils may be captured and noted.

See illustrations on next page.

1/ Entomology Research Division, ARS, U.S. Dept. Agr. Assistance of F. J. Benci in preparation of the figures is acknowledged.

2/ Trade names used in this article are solely for the purpose of providing specific information. This does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture over other products not mentioned.

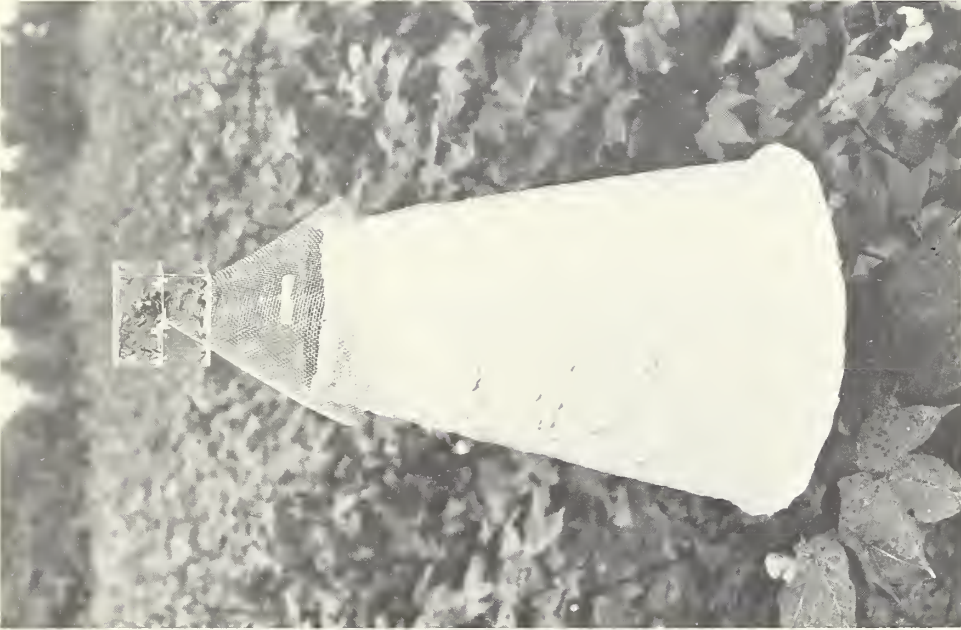


Fig. 1 The Leggett trap located in a cotton field.

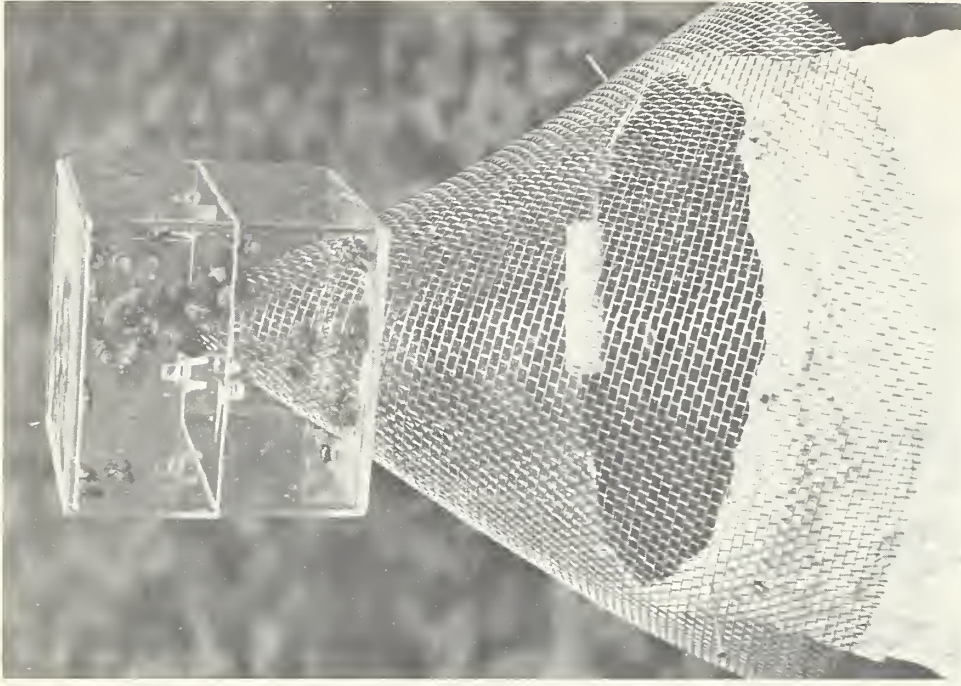


Fig. 2 Screened cone and plastic box assembly on top of the Leggett trap.

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