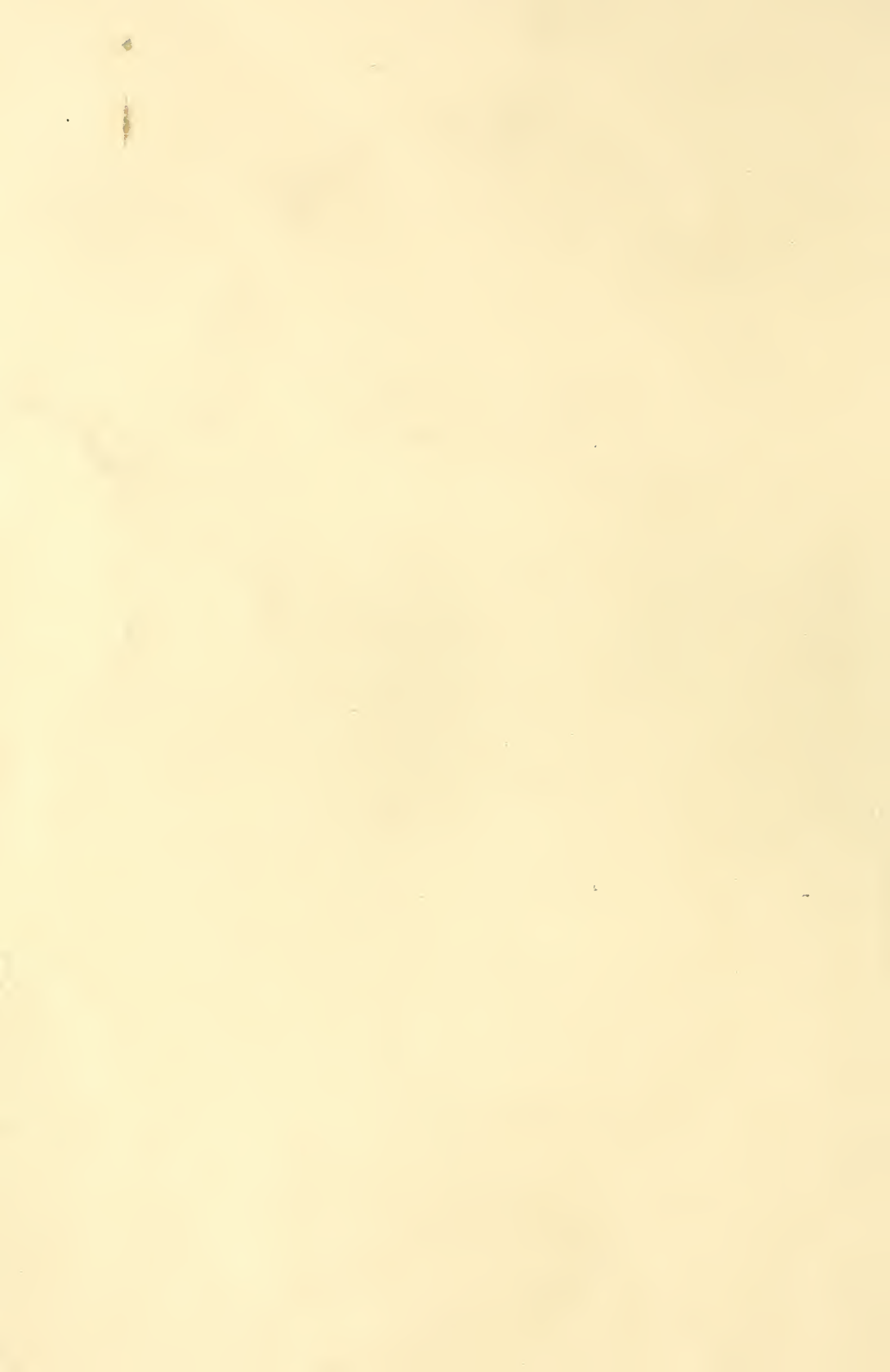


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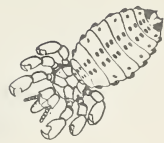


# Cooperative Economic Insect Report

Issued by  
PLANT PROTECTION AND QUARANTINE PROGRAMS  
ANIMAL AND PLANT HEALTH SERVICE  
U.S. DEPARTMENT OF AGRICULTURE



U. S. DEPT. OF  
NATIONAL AGRICULTURE  
RECEIVED  
APR 14 1972  
PROCUREMENT SECTION  
CURRENT SERIAL RECORDS



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.

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Economic Insect Survey and Detection  
Plant Protection and Quarantine Programs  
Animal and Plant Health Service  
United States Department of Agriculture  
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Hyattsville, Maryland 20782

**COOPERATIVE ECONOMIC INSECT REPORT****HIGHLIGHTS**Current Conditions

BROWN WHEAT MITE heavy in wheat in Nevada, Colorado, and Oklahoma. (p. 211).

ALFALFA WEEVIL heavy in southern Piedmont and Coastal Plain of Virginia and in west Tennessee. (p. 212).

SCREWORM cases continue to increase in U.S. (p. 214).

Detection

For new county records see page 215.

Special Reports

Banks Grass Mite Situation in U.S. - 1971 (pp. 218-223).

Spread of Golden Nematode Since 1949. Map. (p. 224).

Japanese Beetle Quarantines. Map. Centerfold.

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Reports in this issue are for week ending April 7 unless otherwise indicated.

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### WEATHER OF THE WEEK ENDING APRIL 10

Reprinted from weekly Weather and Crop Bulletin supplied by environmental Data Service, NOAA.

**PRECIPITATION:** Winter refused to quit. Snow flurries occurred from the central Great Plains to the upper Mississippi River Valley and the Great Lakes region early in the week, due to a cold air mass spreading southward. Thundershowers occurred along the leading edge of a cold air mass along a Quasi Stationary Front that stretched eastward from Oklahoma to the Southeast. Some thundershowers produced large hail. Funnel clouds were seen in northeastern Arkansas and western Tennessee. About midweek, a storm center off the Oregon coast produced showers and a few thunderstorms from western Washington to northern California. Rains in the Northwest were accompanied by gusty gales. Gusts peaked at 63 m.p.h. at Portland, Oregon, Wednesday afternoon. Snow flurries occurred in the northern Cascades and central Rocky Mountains at midweek and portions of New York and New England the latter half of the week. Several inches of snow fell in western New York Thursday afternoon. A number of tornadoes struck northern Illinois late Thursday. A tornado at Joliet damaged more than a score of aircraft. A cold air mass pushed southward over the eastern half of the Nation over the weekend, bringing snow over the Northeast, rain over the southeast, and a bank of sleet or freezing rain between snow and rain. Most of the area north of the Ohio River received precipitation Thursday afternoon or evening. Precipitation Friday covered most of the area from Illinois to Pennsylvania and southward to Alabama and Georgia. Snow flurries or sprinkles occurred from Maine to Florida Saturday. Rains in the Northwest continued. Weekly totals in the Northwest exceeded 6 inches along the coast of Washington, but decreased inland to less than 1 inch about 200 miles from the coast. Sunny rainless skies continued over the southwest from southern California to Oklahoma.

Weather of the week continued on page 216.



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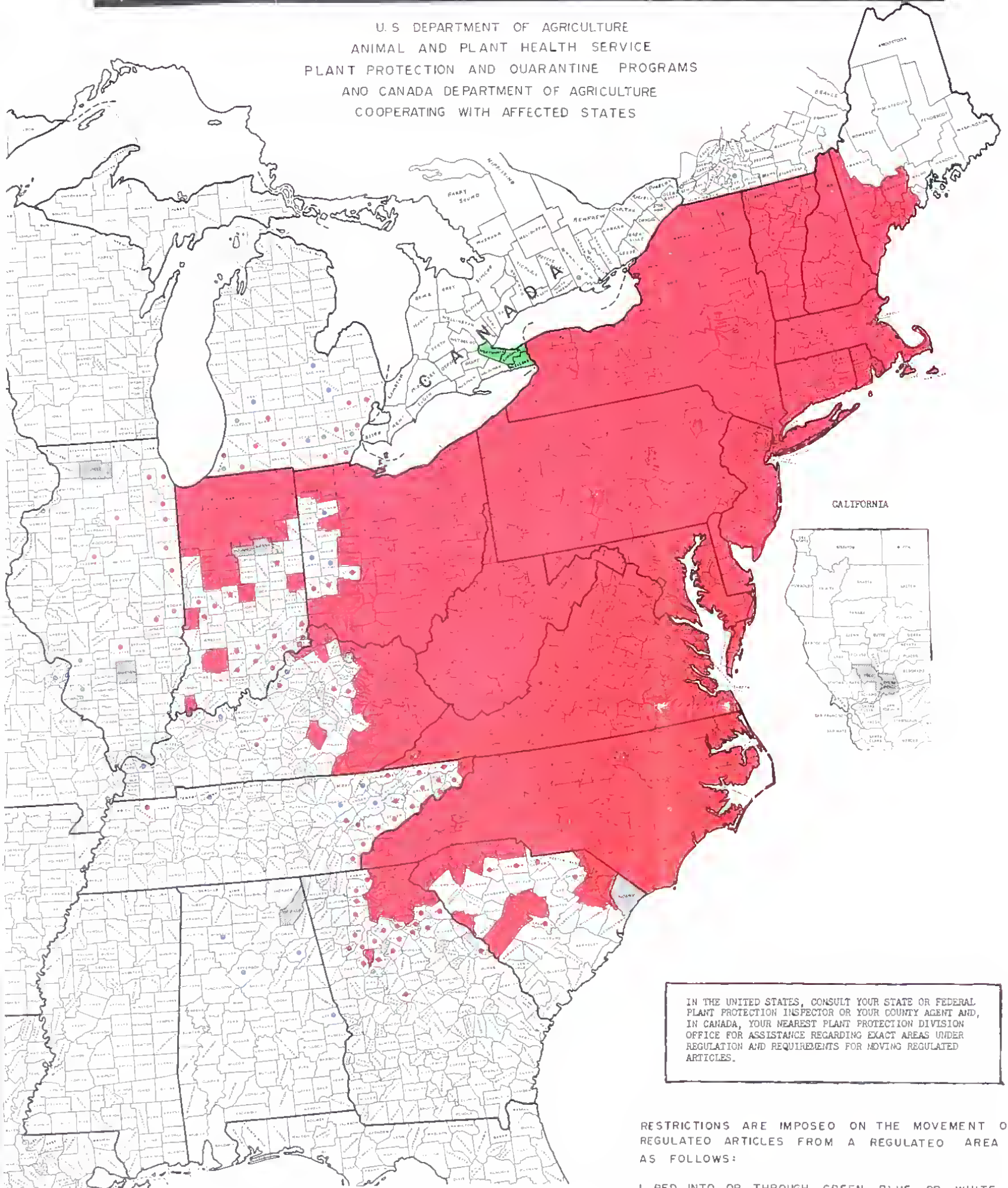
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# JAPANESE BEETLE QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH SERVICE  
PLANT PROTECTION AND QUARANTINE PROGRAMS  
AND CANADA DEPARTMENT OF AGRICULTURE  
COOPERATING WITH AFFECTED STATES



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

- GENERALLY INFESTED AREA--STATE AND FEDERAL REGULATIONS.  
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED.)
- SUPPRESSIVE AREA--STATE, FEDERAL, AND CANADIAN REGULATIONS.  
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)
- STATE REGULATIONS ONLY  
(ERADICATION TREATMENTS APPLIED OR IN PROGRESS.)
- ERADICATED--REGULATIONS REMOVED.

IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION INSPECTOR OR YOUR COUNTY AGENT AND, IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING EXACT AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

RESTRICTIONS ARE IMPOSED ON THE MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. GREEN INTO OR THROUGH BLUE OR WHITE.
3. GREEN INTO GREEN.
4. GREEN WITHIN GREEN<sup>\*</sup>.
5. BLUE INTO ANY OTHER AREA<sup>\*\*</sup>.

<sup>\*</sup> WHEN IT IS DETERMINED BY THE INSPECTOR THAT A HAZARD OF SPREAD EXISTS.

<sup>\*\*</sup> ONLY WHEN REQUIRED BY STATE QUARANTINE REGULATIONS OR BY AN AUTHORIZED INSPECTOR.

SEE REVERSE SIDE FOR LIST OF REGULATED ARTICLES.

REVISED January 24, 1972

THE FOLLOWING REGULATED ARTICLES MOVED FROM GENERALLY INFESTED AREAS (RED) REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED: \*

1. Soil, compost, decomposed manure, humus, muck, and peat, separately or with other things.

Soil samples shipped to approved laboratories do not require attachment of certificate or permit.\*\*

Compost, decomposed manure, humus, and peat are exempt\*\*\*if dehydrated, ground, pulverized, or compressed.

2. Plants with roots, except soil-free aquatic plants, moss, and Lycopodium (clubmoss or ground-pine or running pine).

3. Grass sod.

4. Plant crowns and roots for propagation.

5. True bulbs, corms, rhizomes, and tubers of ornamental plants when freshly harvested or uncured.

True bulbs, corms, rhizomes, and tubers (other than clumps of dahlia tubers) of ornamental plants are exempt\*\*\*if free of soil.

6. Used mechanized soil-moving equipment.

Used mechanized soil-moving equipment is exempt\*\*\*if cleaned and repainted.

7. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the Japanese beetle and the person in possession thereof has been so notified.

THE FOLLOWING REGULATED ARTICLES MOVED FROM SUPPRESSIVE (GREEN) AND STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED: \*

1. Bulk soil.

2. Used mechanized soil-moving equipment.

Used mechanized soil-moving equipment is exempt\*\*\*if cleaned and repainted.

3. Any other products, articles, or means of conveyance of any character whatsoever, not covered by the above, when it is determined by an inspector that they present a hazard of spread of the Japanese beetle and the person in possession thereof has been so notified.

\* See "Restrictions Imposed on Movement of Regulated Articles" on the reverse side.

\*\* Information as to approved laboratories may be obtained from an inspector.

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



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 the reverse side.  
 \*\* Information as to approved laboratories may  
 an inspector.  
 \*\*\*Exempt if not exposed to infestation after c  
 prescribed handling.

1. Bulk soil.
2. Used mechanized soil-moving equipment.
3. Any other products, articles, or means  
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STATE REGULATED (BLUE) AREAS REQUIRE A CERTIFIC  
BOUND EXCEPT AS INDICATED:\*

4. Plant crowns and roots for propagation,  
 5. True bulbs, corms, rhizomes, and tubers  
 plants when freshly harvested or uncured.  
 True bulbs, corms, rhizomes, and tu  
 (other than clumps of dahlia tubere  
 ornamental plants are exempt\*\*\*If i  
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6. Used mechanized soil-moving equipment.
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## SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Euxoa auxiliaris) - WYOMING - Trace in few wheat-fields near Pine Bluffs, Laramie County. (Burkhardt). NEBRASKA - Very light, averaged less than 1 per 25 row foot in 20 Cheyenne and Morrill County fields (Hagen, Sakurada). KANSAS - Generally light in wheat and alfalfa in western areas past 21 days. Larval counts of 2 per square foot in seedling alfalfa with some damage in Norton County. (Bell).

ASTER LEAFHOPPER (Macrostoteles fascifrons) - FLORIDA - Adults 9 per 100 sweeps of oats in green seedhead stage at Gainesville, Alachua County. (Mead).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Total of 15,626 acres treated in Kern, Kings, and Fresno Counties. Much Russian thistle emergence at this time and will serve as "catch crop" for beet leafhoppers as they migrate from rangeland breeding areas to croplands. Expect earlier than usual migration to crop areas due to drying of west side breeding grounds. (Cal. Coop. Rpt.). IDAHO - Surveys show overwintering adult populations light throughout most areas on Snake River Plain. Host plant development slow due to unusually cold winter. (Portman).

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae 5 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Still scattered and heavy in Cotton County; predators and parasites increased to level to control infestations. Light to moderate in Kingfisher County. Averaged 25 per linear foot in Payne County wheatfield; parasitism light. (Okla. Coop. Sur.). MISSOURI - Counts light, ranged 1-4 per linear foot of wheat in southeast area. (Craig).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Declined; nymphs and adults 100 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

### SMALL GRAINS

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Controls applied to 100 acres of wheat at Lovelock, Pershing County. Brown wheat mite generally light except in fields where small grains planted in 1971 or in fields with considerable debris. These fields being irrigated. (Stitt). COLORADO - Heavy on winter wheat in southeastern areas. Some damage appearing in extremely dry areas. (Hogan, Kesterson). OKLAHOMA - Heavy in Seminole County wheat; controls planned. (Okla. Coop. Sur.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - NEBRASKA - Very light, averaged less than 1 per 50 row foot in 20 fields in Cheyenne and Morrill Counties. No larvae in several Scottsbluff County fields. (Hagen, Sakurada).

### FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - WYOMING - Adults appearing in alfalfa at Worland, Washakie County. (Spackman). KANSAS - Percent tip feeding ranged as follows by county (number fields per county

in parentheses): Greenwood 1-10 (2); Elk 10-50 (4); Labette 75 (1); Cherokee 50 (1); Crawford 30-40 (3); Bourbon 5-20 (3); Anderson trace (1); and Osage none (1). About 25 percent of larvae dead or dying in fields surveyed in Greenwood and Elk Counties, apparently related to heavy frost in area on nights of April 3 and 4. (Bell). OKLAHOMA - Still heavy in southeastern area; light in southeastern Marshall County. Pupation increased in Payne County. (Okla. Coop. Sur.). TEXAS - Larvae and adults noted in Collingsworth, Donley, Wheeler, Gray, and Childress Counties. (Clymer et al.). ARKANSAS - Continues statewide and controls general. Egg hatch continues. Larvae up to 1,200 per sweeps in Washington County field where last period larvae ranged 800-900 per 100 sweeps. (Boyer). MISSOURI - Larval hatch slowed by cool weather. Damage extensive to some southwest area fields. Controls applied in selected fields. (Craig).

ILLINOIS - H. postica found throughout southern third of State in alfalfa. Hatch occurred as far north as Lawrence County in east and Madison County in west. Development behind prediction due to period of cool, wet weather. Heaviest infested field surveyed, averaged 68 percent tip feeding, 148 larvae per 100 stems, and 156 larvae per 100 sweeps in Johnson County. Feeding damage heavy. (Ill. Ins. Sur.). DELAWARE - Some first and second instar larvae on alfalfa in New Castle County, feeding injury light. (Burbutis). MARYLAND - First larvae of season on alfalfa at Beltsville, Prince Georges County and at Gaithersburg, Montgomery County. Survival doubtful due to freeze April 7 and 8 in these areas. (U. Md. Ent. Dept.). VIRGINIA - Surveys indicated about 68 percent of fields above economic threshold. Most larvae first and second instars. Controls recommended when 50 percent of alfalfa tips show damage. (Allen, Mar. 31). Currently, 50 percent of fields sampled above economic threshold. Heaviest populations in southern Piedmont and Coastal Plain. (Allen). TENNESSEE - Populations near or above control levels in most older alfalfa in west areas. Damage light. Increase expected. (Gordon). FLORIDA - Increased; larvae 149 per 100 sweeps of alfalfa (in bloom) at Gainesville, Alachua County. (Mead).

CLOVER LEAF WEEVIL (Hypera punctata) ILLINOIS - Ranged 2-30 per square foot of red clover throughout southeastern and southwestern areas. Feeding damage light to moderate in all fields surveyed. (Ill. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) CALIFORNIA - Populations variable in alfalfa in Imperial County. Some treatment necessary. (Cal. Coop. Rpt.). ARIZONA - Counts per 100 sweeps of alfalfa in Yuma County as follows: Yuma Valley 1,300; Gila Valley 8,200; Dome Valley 3,200; and Wellton 1,200. (Ariz. Coop. Sur.). OKLAHOMA - Still in alfalfa statewide; averaged 800 square feet in Payne County field. (Okla. Coop. Sur.). FLORIDA - Nymphs and adults 1,100 per 100 sweeps of alfalfa at Gainesville, Alachua County. (Mead).

ALFALFA LOOPER (Autographa californica) OREGON - Recovered 2 newly emerged adults in pheromone trap northwest of Salem, Marion County, April 4. First adults collected March 30 at Macleay and West Salem. (Penrose).

## COTTON

BOLL WEEVIL (Anthonomus grandis) MISSISSIPPI - Few weevils noted in several southern counties. (Mitchell). Recovered 2 weevils in Legget trap in Bolivar County. (Moore).

## DECIDUOUS FRUITS AND NUTS

PLUM CURCULIO (Conotrachelus nenuphar) TEXAS - Heavy on peach trees in Caldwell County. (Cole).

CODLING MOTH (Laspeyresia pomonella) NEW MEXICO - Collected 48 moths in pheromone trap in apple orchard at Las Cruces, Dona Ana County, April 3-5. (Durkin).

McDANIEL SPIDER MITE (Tetranychus mcdanieli) OREGON - Appearing on apple at Hood River, Hood River County. Typhlodromus sp. (a predator mite) also active. (Zwick).

## CITRUS

Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 68 (norm 64) percent of groves; economic in 40 (norm 43) percent. Population dropped below average for first time in 24 months and now at moderate level on leaves and fruit. Little change expected. Highest districts south, west, and central. CITRUS RED MITE (Panonychus citri) infested 17 (norm 42) percent of groves; economic in 2 (norm 16) percent. Population at lowest March level in 21 years of record. Will remain in very low range through April. Highest district west. TEXAS CITRUS MITE (Eutetranychus banksi) infested 26 (norm 34) percent of groves; economic in 7 (norm 4) percent. Below normal abundance, at low level. Increase expected in most districts. Highest district central. SIXSPOTTED MITE (Eotetranychus sexmaculatus) infested 5 (norm 7) percent of groves; none economic. Population will remain low and below normal; increase expected in scattered groves. GLOVER SCALE (Lepidosaphes gloverii) infested 80 (norm 79) percent of groves; economic in 2 (norm 15) percent. Population below normal and in moderate range; will gradually increase. Highest district west. PURPLE SCALE (L. beckii) infested 80 (norm 76) percent of groves; economic in 4 (norm 9) percent. Population near normal and moderate. Little change predicted. Highest district west. CHAFF SCALE (Parlatoria pergandii) infested 48 (norm 59) percent of groves; none economic (norm 8 percent). YELLOW SCALE (Aonidiella citrina) infested 38 (norm 63) percent; none economic (norm 9 percent). These scales will remain below normal and at low level in all districts. BLACK SCALE (Saissetia oleae) infested 41 (norm 24) percent of groves economic in 20 (norm 9) percent. Population above normal, but in low range. Further decrease expected in April followed by increase in May. Highest districts east and central. AN ARMORED SCALE (Unaspis citri) infested 31 percent of groves and 21 percent economic. Population highest on record for March. Will remain near current level. WHITEFLIES infested 63 (norm 64) percent of groves; economic in 13 (norm 16) percent. Population near normal and low. Increase to moderate level predicted. Highest district east. APHIDS infested 19 (norm 21) percent of groves; none economic (norm 1 percent). Population expected to be smaller than average and peak about mid-April. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).



COTTONY CUSHION SCALE (Icerya purchasi) ARIZONA - Moderate on lemon twigs and leaves at Yuma, Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) ARIZONA - Buildup noted at Chandler heights, Maricopa County, with 1 per 20 blooms in one grove. Heavy in groves at Yuma, Yuma County. (Ariz. Coop. Sur.).

#### SMALL FRUITS

GRAPE LEAFHOPPER (Erythroneura variabilis) ARIZONA - Egg laying noted in 3 vineyards on west side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

#### FOREST AND SHADE TREES

OAK LEAFTIER (Croesia albicomana) WEST VIRGINIA - Egg survey for 1972 showed decrease since previous years. Expect 300,000 acres will sustain negligible to moderate defoliation in Pocahontas and Greenbrier County area. (S. Va. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) WEST VIRGINIA - Egg mass surveys indicate complete collapse of populations in northern panhandle counties. (W. Va. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) KENTUCKY - First hatch, April 1, Lake Cumberland State Park, McCreary County. (Nordin, Barnett).

AN ARMORED SCALE (Lecanodiaspis pruinosa) NEBRASKA - Survey of 5 Lincoln area (Lancaster County) parks indicated light to severe infestations on honey locust, hackberry, and American elm. (Keith, Berogan).

#### MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 107 cases reported in U.S. April 2-8 as follows: TEXAS: Atascosa 4, Bandera 1, Brewster 1, Dimmit 5, Duval 7, Frio 2, Hidalgo 3, Jim Hogg 6, Kenedy 1, LaSalle 2, Live Oak 4, Maverick 3, McMullen 1, Medina 7, Starr 1, Sutton 1, Terrell 1, Uvalde 1, Webb 5, Zapata 10, Zavala 1, Bee 6, De Witt 5, Goliad 3, Gonzales 1, Hamilton 1, Jim Wells 5, Karnes 5, Kendall 2, Kleberg 3, Lavaca 1, Mason 1, Nueces 1, Refugio 4, Wilson 1. ARIZONA: Cochise 1. Total of 281 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 128, Chihuahua 20, Coahuila 13, Nuevo Leon 59, Tamaulipas 61. Total of 31 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: Texas 77,428,000; Arizona 6,600,000; Mexico 24,654,000. (Anim. Health).

CATTLE GRUBS (Hypoderma spp.) NORTH DAKOTA - Examination of 1,989 head of cattle at 6 livestock auction markets March 13-24 showed 15 percent infested with 1-15 (averaged 6.7) grubs per animal. (Brandvik). WYOMING - H. bovis (northern cattle grub) emerging from backs of Campbell County cattle. (Lloyd, Spackman). H. lineatum (common cattle grub) emergence about complete in Albany County. (Spackman).

HORN FLY (Haematobia irritans) OKLAHOMA - Ranged 200-400 per head on cattle in Major and Payne Counties. Moderate in Cotton County, heavy in Marshall County, light in Craig and Garvin Counties. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) OKLAHOMA - Averaged 3 per head on untreated dairy cattle in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - OHIO - Eggs hatched in southern and northern areas. Collected 3,000 Aedes canadensis, second instar larvae, in Hocking County; 101 late third instar larvae in Ashland County consisting of A. canadensis and A. triseriatus. (Ohio Dept. of Health).

#### BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) SOUTH CAROLINA - Colonies at critical stage. Most winter stores about depleted due to increased rate of brood rearing. (Howard). OHIO - Honey supply reservoirs in 8 Morrow County colonies low. Supplemental feeding started. (Lyon, Fox).

CONVERGENT LADY BEETLE (Hippodamia convergens) ARKANSAS - Ranged 150-200 per 100 sweeps in alfalfa in Northwest area. No reproduction to date. (Boyer).

#### FEDERAL AND STATE PLANT PROTECTION PROGRAMS

A RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - Specimens collected in San Patricio County on February 15 by C. L. Edgar and in Washington County by B. B. Smith on February 24.

FLORIDA - Specimens recovered in Lafayette County on February 22 by T. E. Gilliland. GEORGIA - Specimens taken in Emanuel County on February 9 by F. R. Woodard. SOUTH CAROLINA - Specimens collected in Fairfield County by J. L. King on February 24. Determinations by V. H. Owens, confirmed by D. R. Smith. These are new county records. (PP).

A GRASS BUG (Labops hesperius) NEBRASKA - First instar nymphs observed March 17, in wheatgrass pasture in Dawes County. First indication of damage to 3-inch tall wheatgrass noted on March 30. (Hagen). UTAH - Nymphs up to 1,000 per square foot of rangeland south of Panquitch, Garfield County. (Haws).

#### DETECTION

New County Records - A RED IMPORTED FIRE ANT (Solenopsis invicta) - TEXAS - San Patricio, Washington. GEORGIA - Emanuel. SOUTH CAROLINA - Fairfield. (p. 215).

#### CORRECTIONS

CEIR 22(10):105 - DETECTION - A PHYTOSEIID MITE ... delete note. See CEIR 22(14):187, 193, 194. (PP).

CEIR 22(10):108, 111 - A PHYTOSEIID MITE (Ricoseius lococheles) - FLORIDA - Delete entire note. (PP).

## HAWAII INSECT REPORT

Fruits and Nuts - LARGE MANGO TIP BORER (Bombotelia jocosatrix) damage spotty and sporadic to mango trees at Foster Village and throughout Ewa, Oahu. First reported in April 1968; incidence dropped to negligible levels past 2 years. Adults of a vespid wasp, Polistes sp. observed preying on B. jocosatrix larvae in field. (Kumashiro et al.). A NOCTUID MOTH (Phlegetonia delatrix) damage moderate to heavy to young foliage of roadside and wasteland Java plum (Eugenia cuminii) trees at Haiku, Maui and at Halawa and Ewa, Oahu. Larvae still elusive and only few specimens collected from heavily damaged trees at Ewa. (Miyahira, Kawamura). FLORIDA RED SCALE (Chrysomphalus aonidum) infestation light on 100 coconut trees at Lahaina, Maui; 25 percent of leaves show 5-10 scales per leaflet. (Miyahira).

Forest and Shade Trees - Larvae of a NOCTUID MOTH (Melipotis indomita) moderate under loose bark of kiawe trees at Mana, Kekaha, and Waimea, Kauai and at Kawaihae and Puako, Hawaii. On Oahu, light to moderate early instar larvae under loose, scaly bark of severely defoliated monkey pod trees at Punchbowl. About one-third of 36 trees void of foliage, one-third semi-denuded and canopies of remaining trees appear unaffected. (Sugawa et al.).

Man and Animals - Mosquito collections during March from 56 light traps on Oahu totaled: 279 Aedes vexans nocturnus (vexans mosquito), 7,811 Culex pipiens quinquefasciatus (southern house mosquito). Aedes catches ranged 0-74 at Ewa. Culex catches ranged 0 to 1,218 at Kailua. (Mosq. Contr. Br., State Dept. of Health).

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Weather of the week continued from page 210.

TEMPERATURE: Winter lagged. Artic high plunged southward across mid-America dropping temperatures to 32 degrees or lower as far south as Oklahoma by Tuesday morning. Ponca City, Oklahoma, registered 19 degrees Tuesday morning. Colder temperatures occurred farther north. Hibbing, Minnesota, temperature Tuesday morning was 5 degrees. Cold air spread eastward. Chattanooga, Tennessee, Birmingham, Alabama, recorded 32 degrees Wednesday. A quick warming occurred on the back side of a high as it moved eastward. Afternoon temperatures in southeastern Nebraska warmed from the 40's Monday to the 60's Tuesday, 70's Wednesday, and the 90's Thursday. Over the weekend a large arctic air mass brought unseasonally cold air from the Dakotas to Maine and southward as far as the Carolinas. Temperature at Waterloo, Iowa, dropped to 9 degrees Saturday morning, the coldest temperature of record for the month of April. On Sunday morning, Raleigh, North Carolina, set a new minimum temperature record for April when the mercury plunged to 23 degrees. Temperature continued near or above normal over the western half of the Nation. Weekly mean temperatures averaged above normal over the West and below normal over the East, except near normal along the Gulf of Mexico. Central and southern Rocky Mountains averaged 6-10 degrees warmer than normal. The Great Lakes region, northeast and south as far as Kentucky and Virginia averaged 6-12 degrees warmer than normal.





## Banks Grass Mite Situation in U.S. - 1971

Banks grass mite (Oligonychus pratensis) has been a serious pest in the Trans-Pecos area of Texas since 1967. Although present in the area prior to that time, this mite could be controlled with most miticides cleared for use on grain sorghum. During 1968, control became more difficult in Hudspeth and Pecos Counties. Most materials were ineffective by 1969, and mite damage was heavy on grain sorghum in all parts of the Trans-Pecos area except in the El Paso Valley. During 1970, this mite damaged grain sorghum and ensilage corn throughout the Trans-Pecos area.

Banks grass mite was first observed in scattered fields of grain sorghum in several High Plains Counties, especially Hale, Castro, Parmer, and Deaf Smith, in August 1967. Infestations reoccurred in 1968 and 1969, but were confined mostly to older plants in the dough or later stages. Infestations were again spotty in 1970, but more severe than previously. Infestations were heavy in some localized areas, with extensive leaf damage which may have contributed to reduced grain yields.

The situation was again severe, especially on corn, in the El Paso Valley during 1971. Corn was damaged in the pretassel stage, whereas in past years heavy populations did not normally develop until posttassel and after the boot stage on grain sorghum. Most grain sorghum in the El Paso Valley was planted late, thus Banks grass mite moved from corn into grain sorghum. Although present, this mite was not serious in Hudspeth, Pecos, or Reeves Counties in 1971 as rain and cool, cloudy weather apparently slowed population development.

Banks grass mite began to increase on corn and grain sorghum during early August 1971 in several High Plains counties. Heaviest infestations were reported from Parmer, Castro, Lamb, and Bailey Counties. Cold, wet weather during midsummer reduced infestation. This possibly prevented a heavy mite buildup in this area.

The most important, single factor contributing to the development of Banks grass mite as a serious pest of corn and grain sorghum in the Trans-Pecos area of Texas is the extensive use of insecticides to control insects on grain sorghum and cotton. Chemical control for this mite was initiated in the early 1960's and has continued through the 1971 season. In the Pecos Valley, chemical controls against cotton pests also contributed, to a degree, to the development of resistance by Banks grass mite to various insecticides. Heavy infestations have occurred in some localized areas of the High Plains of Texas since 1970. During 1970 and 1971, observation indicated infestations were most severe in those localized areas where spray programs to control greenbug on grain sorghum were extensive. There was much evidence during the 1970 and 1971 seasons that indicated localized mite populations were resistant to several of the insecticides that had afforded satisfactory control in the past.

Parasites and predators exerted some control of Banks grass mite infestation in the Trans-Pecos area of Texas while cool, wet weather prevailed during 1971. During previous crop seasons and during the 1971 season, predators and parasites did not exert

sufficient control to prevent a rapid Banks grass mite population buildup when dry, hot weather prevailed. Unidentified predaceous thrips were observed in several sections of the High Plains area and appeared to have some definite effect on mite development. Several other predators, including a lady beetle, Stethorus sp., brown lacewing larvae, and others, were also observed.

Banks grass mite has not been observed moving into fall-planted small grains from sorghum or corn in the Trans-Pecos area, but has been observed on volunteer barley where sorghum was planted as a second crop following barley. By the time fall-planted small grains emerge in the Trans-Pecos area, daily temperatures have dropped, slowing mite activity. Heavy mite populations showed no evidence of moving into bordering small grain fields. In the High Plains, no movement of mites into fall-planted, small grain from sorghum or corn was observed.

Controls for Banks grass mite were applied one or more times to approximately 10,000 of the 30,000 acres of grain sorghum in the Trans-Pecos area during 1971. In the High Plains, about 50,000 of the 3,000,000 total acres of grain sorghum were sprayed to control this pest. In the El Paso Valley, nearly 100 percent of the 1,000 acres of corn was treated, while an estimated 60,000 acres of the 325,000 acres of corn in the High Plains was treated for this mite.

Control costs for Banks grass mite on grain sorghum in 1971 averaged 8-10 dollars per acre in the Trans-Pecos area. The estimated cost for control of infestations on corn in the El Paso Valley was about 25 dollars per acre. Control costs per acre in the High Plains were variable, ranging from \$1.90 to \$5.00 per acre, depending on the chemical used.

The loss from Banks grass mite to the 1971 grain sorghum crop in the Trans-Pecos area of Texas is estimated at a 35 percent reduction in yield. Much of the late-planted grain sorghum in the El Paso and Pecos Valleys escaped severe damages. Late grain sorghum was planted in June following the harvest of small grains. Corn yields in the area were reduced about 50 percent. Very little corn in the El Paso area graded number 2 or higher during 1971. Heavy mite infestations resulted in a 30 percent loss in harvest weight in the cleaning process due to small kernels of low test weight. Banks grass mite caused little, if any, economic loss in the High Plains area, where midsummer infestations were reduced by cold, wet weather which possibly prevented a heavy mite population buildup. Many growers in this area feel that much of the lodging during 1971 was an indirect result of mite infestations earlier in the year. Most entomologists, however, feel that much of the lodging of grain sorghum is being caused by charcoal rot.

Due to the difficulty in controlling Banks grass mite in the Pecos and El Paso Valleys of Texas (Pecos, Reeves, and El Paso Counties), corn production appears to be noneconomical and non-practical in the area until the mite can be controlled by cultural methods or by chemical measures. Grain sorghum production in these valleys is in jeopardy until the control of Banks grass mite is developed.

To determine the extent of the Banks grass mite problem on sorghum and corn, inquiries were submitted to entomologists in 22 other States. Responses were received from 17 of these States.

Banks grass mite was first noticed as a problem in the Oklahoma Panhandle during 1969, possibly due to the increase in corn and sorghum acreages in the area over the past few years. This mite was a problem on corn and sorghum in the panhandle area during 1971. During the week ending July 17 this pest was found in scattered cornfields in Beaver and Texas Counties and in a few fields of sorghum in northeastern Cimarron County and northwestern Texas County. Populations ranged light to moderate on both hosts. Populations were heavy on corn and still increasing by August 14, and continued to build up on corn until August 21. Mite populations were decreasing by August 28, due to excess moisture on corn and sorghum, were still moderate to heavy on sorghum on September 4. Infestations were decreasing rapidly on corn by September 11 due to plant maturity, but were still heavy in scattered fields on September 18. About 20,000 acres of corn and 15,000 acres of sorghum were affected by Banks grass mite in Oklahoma during 1971. A predaceous thrips was observed in infested corn and sorghum, but numbers were light and scattered. There was no evidence of movement by Banks grass mite from corn or sorghum to small grains in the area.

Controls were applied to about 3,000 acres of sorghum and about 6,000 acres of corn in the Oklahoma Panhandle during 1971 at a cost of \$2.75 per acre. Damage was estimated at \$75,000 to unsprayed corn and \$48,000 to unsprayed sorghum. Adding control costs of \$16,500 for corn and \$8,250 for sorghum, total losses were \$91,500 to corn and \$56,250 to sorghum in extreme western Oklahoma during 1971.

Banks grass mite was first reported damaging corn in southwest Kansas in 1965. Chemical treatments were made at the time. Increased corn acreage as a result of an increase in irrigation, and/or hot, dry weather have contributed to the development of this problem in Kansas, as well as a possible upset of the natural predator-prey relationship through the use of insecticides. Many predaceous arthropods occur in some fields.

Banks grass mite was noticed on corn and sorghum about the second week of July in 1971. The problem was more intensified on corn than sorghum. Mite populations appeared to develop on the lower leaves of plants with the advent of hot, dry weather, then gradually moved upward on the plants. Mites were apparently present on all corn and much of the sorghum in western Kansas during 1971. Corn was lodged in heavily infested fields. It is unknown what affect parasites and predators had in controlling mite infestations in Kansas. Mites were observed being infected by a fungus in south-central Kansas, and predaceous thrips, mites and dipterous larvae were observed feeding on mites infesting corn at various times during the 1971 growing season. Banks grass mite was observed moving from corn or sorghum into fall-planted wheat, and has been observed in past years in Kansas. A reliable estimate of the sorghum acreage treated for mite control in Kansas cannot be made. However, 180,000 acres of corn were treated at an estimated cost of about \$3.00 per acre. Some growers spent from \$12.00 to \$15.00 per acre in attempts to control mites on this crop.



An estimated dollar loss to sorghum and corn cannot be made for Kansas, as there is no information available on the economic impact of this pest on yield or plant quality. There are at least three species of mites involved in the problem in Kansas, and the distribution and degree of infestation by each species in the State are unknown. The effectiveness of chemical controls has been erratic and often discouraging. The mite problem now appears to be a definite threat to the production of about 77,980 acres of corn and about 1,904,100 acres of sorghum in eastern Kansas.

Banks grass mite first caused economic losses in Nebraska in 1964, although it was known in the State earlier. This mite was a problem on corn in a few spots in the North Platte Valley during 1971. The problem developed as a result of hot, dry weather during June and became a problem on corn about August 1. Buildup was rapid in areas where control was needed. Mites were present in other areas but populations did not increase for some reason. Climate conditions were similar in areas of buildup and nonbuildup. In fact, in adjacent fields, a buildup would occur in one field but not the other, although corn varieties were the same in both fields. Populations appeared to increase in those fields with more grassy weeds. About 1,500 acres were affected in the North Platte Valley.

Parasites and predators appeared to have very little effect in controlling mite infestations on corn in this area. Very little movement of Banks grass mite from corn to fall-planted small grain was observed in the North Platte Valley of Nebraska in 1971. About 900 acres of corn were treated for mites only, although some combined controls for corn rootworms and mites were applied to about 500 acres. The average cost of controls on corn alone averaged about \$4.25 per acre. Banks grass mite caused no yield loss to corn in Nebraska during 1971 as controls were applied early enough to prevent loss. The only loss was the need to apply controls which added to the production costs of corn in the affected area of the State.

Banks grass mite infested corn in the Arkansas Valley of Colorado as early as the 1930's, but was not reported to have damaged that crop until about 1955. Hot, arid weather in the valley, along with intensive corn production, have probably been the principal factors contributing to the problem in southeastern Colorado.

Banks grass mite was severe on corn in the Arkansas Valley during 1971. Sorghum was infested to some extent but damage was negligible.

The problem on corn was first noted the first week of July, although populations began building up on lower leaves during June. By late July, "burning" was severe through the middle third of the leaves in untreated fields. By mid-August, "firing" top leaves had occurred. Controls were inadequate in several instances. Infestations of this mite infested all planted corn acreage, approximately 125,000 acres, to some extent in southeastern Colorado. No problem developed on the approximately 350,000 acres of sorghum in the area, although mites could be found in all fields. The problem occurred on corn primarily in

Pueblo, Crowley, Otero, Bent, Prowers, and Baca Counties. Sorghum was infested in these counties as well as in Kiowa County.

It is not known if parasites were present in southeastern Colorado, but several predators were observed where Banks grass mite occurred. However, populations of these predators did not develop until the mite was well established and damage was extensive. No movement of Banks grass mite to fall-planted small grains had been observed by the end of October.

Less than one percent of the 350,000 acres of sorghum in southeastern Colorado was treated specifically for mite infestation, although many of the treatments for greenbug would affect mite infestations. Controls were applied to 50-80 percent of the corn in several counties, probably to about 60,000 to 70,000 acres. Losses, not including control costs, were negligible on sorghum but totalled \$800,000 on corn only in the southeastern area of Colorado.

Banks grass mite was a pest of various Gramineae in Nevada prior to 1957. It has developed into a problem in the State primarily due to monoculture of suitable hosts. During 1971, the population began to increase on corn in Churchill County by mid-July. Populations on this host had been fairly constant until that time. Major, rapid increases began in late July and early August, affecting 2,400 to 2,500 acres of corn in the county. Most controls were applied in August. The effect of parasites and predators on mite populations was very minor. Banks grass mite was not a problem on fall-planted small grains in Nevada during 1971.

Controls were applied to 1,800-2,000 acres of corn at a cost of \$6.00 to \$7.00 per acre. No treatments were made on the sorghum acreage grown in 1971. Yield losses to corn were negligible as most growers in Churchill County, where 99 percent of the corn currently is grown in Nevada, treat before damage occurs. The only loss was the cost of treatment. No appreciable corn acreage has been grown in Pershing County since 1968, but when it is grown Banks grass mite is a yearly pest. This mite is also a perennial pest of timothy hay and grasses in Nevada.

Banks grass mite was first noticed as a pest in California during June 1961 where it infested wheatgrass in the Susanville area of Lassen County. Conditions in this area of the State are similar to those that exist in the Great Basin. This mite was not a problem on corn or sorghum in the State as no infestations were observed. Damage has been reported only on scattered wheatgrass plantings prior to 1971, and controls have not been applied for this pest since 1964. Parasites and predators have had very little effect on infestations of this mite. Banks grass mite infestations have occurred only on small grain but not on sorghum. No infestations were known to occur in fall 1971.

Banks grass mite has been a problem in commercial grass seed fields since before 1952. The first publication of its being a pest in the State was in 1955. Very little sorghum is grown in Washington and no mite problems have developed on the crop. Banks grass mite has never been observed as a problem on fall-planted small grains in Washington, although it has been observed

occasionally on wheat in the spring but never in damaging numbers.

Banks grass mite was first noticed in Idaho on dryland cereal crops in the Power County area about 1953. It was considered to be mostly incidental and not a primary problem. In Idaho, this mite develops largely on small grain and grass plantings as they mature or when drought conditions prevail. The mite was not a problem on corn in the State during 1971. Sorghums are not grown in Idaho. Banks grass mite causes damage throughout the State but it is mostly incidental. No infestations have been noted on corn in Idaho.

Banks grass mite is of no economic importance in Montana, South Dakota, or Missouri. Although surveys were conducted for this mite during 1970 and 1971 in Arkansas, no infestations have been detected in that State. Banks grass mite has not developed to pest status on any crop in Louisiana. Although it has been collected from sugarcane, populations have not been sufficiently heavy on this or any other crop to have attracted attention. There has been no evidence of the appearance of Banks grass mite in Mississippi or Alabama. In Florida, there are only 10 reports of Banks grass mite infestations from 1955 through 1967. These were from the lower east coast to the central part of the State on various grasses. This mite apparently does not cause the widespread damage in Florida that is reported from some of the other southern States. The only record of Banks grass mite reported from Georgia was on Johnson grass collected in Clarke County. As far as known, this mite has never been a serious pest in Georgia.

U.S. Dept. Agr.  
Coop. Econ. Ins. Rpt.  
22(15):218-223, 1972

# GOLDEN NEMATODE<sup>☆</sup>



- INFESTED 1949
- INFESTED 1967
- ▲ INFESTED 1969
- ERADICATED 1970
- ☆ SPREAD SINCE 1949

U.S. Dept. Agr.  
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