

Pest Thrips of the United States: Field Identification Guide

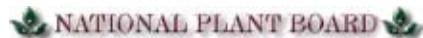




Publication Information

July 2009

- This publication was produced and distributed by USDA-CSREES Integrated Pest Management Centers in cooperation with the National Plant Diagnostic Network, APHIS, the National Plant Board, and the Land Grant Universities. USDA-CSREES National Extension grant 2007-41530-03984 'Partnering to Promote the Early Detection of Exotic Pests Through Extension Education', by A. Hodges, L. Osborne, and S. Ludwig, funded graphic design and printing for this publication. Content development was funded by the SPDN, University of Florida, IFAS Extension, Texas AgriLife Extension Service, and the Florida Department of Agriculture & Consumer Services, Division of Plant Industry.
- For further information regarding the development of this document, contact Amanda Hodges at achodges@ufl.edu or by phone at (352) 273-3957
- **Susan Ratcliffe**, University of Illinois, NCIPMC, Project Coordinator
- **Scott Martin**, University of Illinois, NCIPMC, Graphic Design



Authors

- **Amanda Hodges**, SPDN, University of Florida, Institute of Food & Agricultural Sciences, Entomology & Nematology Department
- **Scott Ludwig**, Texas IPM Program, Texas AgriLife Extension Service
- **Lance Osborne**, University of Florida, Institute of Food & Agricultural Sciences, Mid-Florida Research & Education Center
- **G.B. Edwards**, Florida Department of Agriculture & Consumer Services, Division of Plant Industry

Photo Credits

- **Paul M. Choate, University of Florida, Institute of Food & Agricultural Sciences, Entomology & Nematology Department - 001a, 001b**
- **Lyle Buss, University of Florida, Institute of Food & Agricultural Sciences, Entomology & Nematology Department - 002a, 002b, 002c, 002d, 003a, 003b, 004a, 005a, 005b, 006a, 010, 014a, 014b, 020a, 020b, 021a, 021b, 021c, 024**
- **G.B. Edwards, Florida Department of Agriculture & Consumer Services, Division of Plant Industry - 003c, 003d**
- **Stan Diffie, University of Georgia - 007**
- **James Castner, University of Florida, Institute of Food & Agricultural Sciences, Entomology & Nematology Department - 008, 021d**
- **Holly Glenn, University of Florida, Institute of Food & Agricultural Sciences, Tropical Research and Education Center - 010a, 014c, 014d, 016a, 016b, 020c**

Photo Credits continued

- **Lance Osborne, University of Florida, Institute of Food & Agricultural Sciences, Mid-Florida Research & Education Center** - sampling photos, 014e, 017a, 017b, 025a, 025b, 027
- **Bugwood Network Images, Center for Invasive Species & Ecosystem Health** - www.bugwood.org
 - M. E. Bartola, Colorado State University - 004b
 - R. J. Reynolds Tobacco Company Slide Set - 005c, 005d
 - Paul Bachi, University of Kentucky Research & Education Center - 006b
 - Whitney Cranshaw, Colorado State University - 006c, 006d, 011, 025, 028b
 - Steven Katovitch, USDA Forest Service - 009
 - University of California Regents Archive - 015a, 015b
 - Pennsylvania Department of Conservation & Natural Resources, Forestry Archive - 018a, 018b
 - Ronald S. Kelley, Vermont Department of Forests, Parks, & Recreation - 018c
 - Frank Peairs, Colorado State University - 019, 028a
 - William H. Brown Jr., Colorado State University - 022b
 - R. K. Jones, North Carolina State University - 023a, 023b
 - Department of Plant Pathology Archive, North Carolina State University - 023c
 - Mary Ann Hansen, Virginia Polytechnic Institute and State University - 023d

Pest Thrips of the United States: Field Identification Guide

What are thrips?

- Thrips are small plant pests in the insect order Thysanoptera. Pest thrips use their asymmetrical paired mouthparts to puncture cells on the leaf surface, and then to drink or suck plant juices. Of the more than 7,000 species described worldwide, many are not considered plant pests. Non-pest species may feed on fungi, leaf litter, debris, or other small arthropods. Beneficial thrips species may feed on other thrips, aphids, mites, and whiteflies. Many predatory thrips species mimic ants in appearance.

How do Pest Thrips establish?

- Most thrips species that are considered pests of concern have an extremely wide host range, although some exceptions occur. The small, cryptic size and reproductive potential of pest species have made them particularly successful. Thrips have the potential to hitchhike on plant material being shipped between states and countries. As difficult as the immature and adult thrips can be to detect, eggs laid on plant material can be hidden, even from the well-trained eye. Some species of thrips also have a resting stage in the soil. If a suitable host and habitat is available, a thrips species may not have difficulty establishing due to short life cycles and the ability for females to reproduce with mating, a characteristic known as parthenogenesis.

The following characteristics are useful for field identification:

- Body size and color
- Presence of wings in adult form
- Damage symptoms
- Known geographical distribution
- Host preference and feeding location

Plant damage

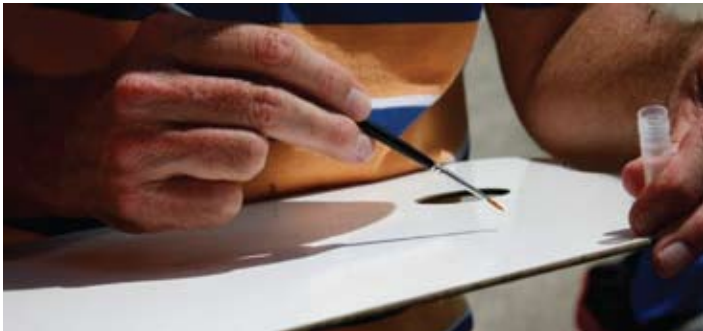
- Thrips damage can be quite variable depending upon the pest species and host or cultivar. Some thrips may prefer feeding on the flowers, while others will be more readily attracted to the foliage. Typical flower damage includes browning and early flower drop. Thrips feeding damage on foliage can resemble other plant feeders with symptoms such as bronzing, flecking, silvering, and curling. Fruit damaged by thrips may be scarred, deformed or aborted.
- Direct physical damage by thrips feeding can reduce crop yields or result in lost market value for an ornamental plant. Depending upon the host, some levels of thrips populations may be tolerable. Even if direct thrips damage can be sustained by the host, the ability of thrips to transmit tospoviruses must be considered. The major tospoviruses vectored by thrips include: Tomato Spotted Wilt Virus and Impatiens Necrotic Spot Virus. Virus symptoms may resemble other plant disease symptoms or nutritional issues. Wilting, black streaking, necrotic black spots, chevrons, or concentric circles of light and dark coloration are symptoms of viral infection.

General thrips integrated pest management

- Thrips IPM may be necessary both for controlling the direct damage caused by thrips species as well as the viruses they transmit. Once virus is present in a region, culling infected plant material and thrips management is the only option for virus control. If you suspect you have a thrips and/or thrips vectored pest problem, remember that it is important to have the thrips species and the virus identified. Thrips species can be difficult to differentiate in the field, and virus symptoms may resemble other problems. If you plan to use chemical control methods to manage your thrips populations, remember to rotate applications by modes of action. If you do not rotate your modes of action, you may develop a pesticide resistant population of thrips. Remember to scout for the presence of natural enemies. In some cases, natural enemy populations may be sufficient to manage thrips populations at acceptable levels. In some cropping systems, western flower thrips are considered an important predator of spider mites.

General thrips integrated pest management continued

- Monitoring for thrips and their natural enemies is best accomplished by tapping foliage or flowers over a small, white artist palette. Thrips can then be collected by picking them up lightly with a small paintbrush and placing them in a vial or container with alcohol. Keep samples collected from foliage separate from flowers. Plants may be also directly inspected with a hand lens. Larger species and those present on the flowers may be evident, but more unseen thrips will be collected with the flower and foliage shaking method.
- For greenhouse-grown commodities, sanitation and exclusion may effectively control thrips outbreaks. Check doorframes and air vents for potential entry of microarthropods. Enclose or place a fine mesh over potential entry points. Try to keep areas around greenhouses as weed-free as possible, as weeds can serve as alternative hosts for thrips. Inspect plant material prior to introducing into your greenhouse. Monitor for thrips and other microarthropods, such as aphids and whiteflies, with yellow sticky cards.
- It is a good idea to remember that plant material grown from cuttings may be virus-infected. As a result, only a few thrips introduced into a greenhouse can then transfer the virus to the majority of your crop. If you have crops grown from cuttings and seed-grown plants, it may be best to not maintain both types of plant material in one greenhouse
- Although the above general information may be helpful, you should always consult with your local cooperative extension service for recommendations specific to your area or commodity.



Warning

- Warning! This deck is not a comprehensive listing of all thrips. Although useful as a field-screening tool, field identification is not definitive for new county, host, state, or continental records. Slide mounting of specimens and identification by a specialist is necessary for species-level thrips confirmation. Available literature was used for host information. This deck should not be considered a definitive list for reproductive host information. Initial diagnosis of the presence of a tospovirus should be confirmed by a plant disease clinic. Local cooperative extension service personnel should be contacted for IPM recommendations specific to your state, host, or habitat situation.**

Key Website Resources

- National Plant Diagnostic Network, Links to Available Diagnostic Clinics
<http://www.npdn.org/>
- National Plant Diagnostic Network Training and Education
<http://cbc.at.ufl.edu/>
- Regional Integrated Pest Management Centers
<http://www.ipmcenters.org/>
- Find Your Local Cooperative Extension Office
<http://www.csrees.usda.gov/Extension/>
- National Plant Board, Link to Your State Department of Agriculture
<http://nationalplantboard.org/member/index.html>
- U.S. Forest Service
<http://www.fs.fed.us/>
- Center for Invasive Species and Ecosystem Health
<http://www.bugwood.org/>
- University of Florida Thrips IPM Website
<http://ipm.ifas.ufl.edu/agriculture/vegetables/thrips/index.shtml>
- Tospovirus Resource Page
<http://www.oznet.ksu.edu/tospovirus>

Key Website Resources continued

- Thrips KnowledgeBase, Glades Crop Care
<http://www.gladescrocare.com/pg1.html>
- University of California-Davis, Thrips Information Website
<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7429.html>
- University of California-Davis, Natural Enemy Guide
<http://www.ipm.ucdavis.edu/PMG/NE/index.html>
- University of Florida, IFAS Chilli Thrips Website
<http://mrec.ifas.ufl.edu/LSO/thripslinks.htm>
- Texas AgriLife Extension Chilli Thrips Website
<http://chillithrips.tamu.edu>
- American Phytopathological Society (APS) Plant Disease Diagnostic Compendia
<http://www.shopapspress.org/disease-diagnostic-series.html>

Pest Thrips of the United States: Field Identification Guide

Page 001

Last Abdominal Segment Tube-Shaped (Family Phlaeothripidae, Genus *Gynaikothrips* & *Holopothrips*)

Page 004

Last Abdominal Segment not Tube-Shaped (Family Thripidae, Genus *Frankliniella*, *Thrips*, *Scirtothrips*, & others)

Page 022

Thrips Vected Viruses

Page 024

Thrips Predators

Cuban Laurel Thrips

Field Recognition

Adult body size approximately 2.6 to 3.6 mm; dark yellow-brown to black; Females have a tube-like structure at the end of the abdomen for laying eggs.

May be Confused with

Weeping fig thrips, *Gynaikothrips uzeli*. Host preference difference is the only useful field characteristic.

Damage Symptoms

Characteristic leaf galls or rolls form. Older galls may provide shelter for natural enemies or other pest microarthropods.

Known U.S. Distribution

Although the *Gynaikothrips* genera originates from Asia, species in this genus have been described from Africa. *G. ficorum* is pantropical, appearing wherever *Ficus retusa* is planted. It is recorded from Algeria, Canary Islands, Colombia, Cuba, Dominican Republic, Guam, Taiwan, Ecuador, India, Java, Mexico, Nassau (Bahamas), Nicaragua, Israel, Palestine, Panama, Puerto Rico, Salvador, Thailand, Spain, Sicily, and the U.S. It has been present in the U.S. since the late 1800's and is recorded from California, Florida, Hawaii, and Texas.

Common Hosts

Ficus microcarpa is preferred, but *F. retusa*, *viburnum*, and citrus are also hosts.

Cuban Laurel Thrips
Gynaikothrips ficorum

Last Abdominal Segment Tube-Shaped



Cuban Laurel Thrips

Field Recognition

Adult body size approximately 2.6 to 3.6 mm; dark yellow-brown to black; Females have a tube-like structure at the end of the abdomen for laying eggs.

May be Confused with

Weeping fig thrips, *Gynaikothrips uzeli*. Host preference difference is the only useful field characteristic.

Damage Symptoms

Characteristic leaf galls or rolls form. Older galls may provide shelter for natural enemies or other pest microarthropods.

Known U.S. Distribution

Although the *Gynaikothrips* genera originates from Asia, species in this genus have been described from Africa. *G. ficorum* is pantropical, appearing wherever *Ficus retusa* is planted. It is recorded from Algeria, Canary Islands, Colombia, Cuba, Dominican Republic, Guam, Taiwan, Ecuador, India, Java, Mexico, Nassau (Bahamas), Nicaragua, Israel, Palestine, Panama, Puerto Rico, Salvador, Thailand, Spain, Sicily, and the U.S. It has been present in the U.S. since the late 1800's and is recorded from California, Florida, Hawaii, and Texas.

Common Hosts

Ficus microcarpa is preferred, but *F. retusa*, *viburnum*, and citrus are also hosts.

Cuban Laurel Thrips
Gynaikothrips ficorum

Gynaikothrips Characteristic Leaf Galls



002

E X O T I C

Gynaikothrips uzeli

Weeping Fig Thrips

Field Recognition

Adult body size approximately 2.5 to 3.6 mm; dark brown to black; Females have a tube-like structure at the end of the abdomen for laying eggs.

May be Confused with

Cuban laurel thrips, *Gynaikothrips ficorum*. Host preference difference is the only useful field characteristic.

Damage Symptoms

Characteristic leaf galls or rolls form; premature leaf drop and purplish-red spots on the underside of leave; older galls may provide shelter for natural enemies or other pest microarthropods.

Known U.S. Distribution

Detected in Florida in 2003; subsequently reported in Mississippi, Louisiana, Alabama, and Tennessee.

Common Hosts

Only completes its life cycle in the weeping fig, *Ficus benjamina*, but also reported from *F. obtusa*, *F. pilosa*, *F. microcarpa*, and *Macaranga* sp.

Weeping Fig Thrips
Gynaikothrips uzeli



Weeping Fig Thrips

Field Recognition

Adult body size approximately 2.5 to 3.6 mm; dark brown to black; Females have a tube-like structure at the end of the abdomen for laying eggs.

May be Confused with

Cuban laurel thrips, *Gynaikothrips ficorum*. Host preference difference is the only useful field characteristic.

Damage Symptoms

Characteristic leaf galls or rolls form; premature leaf drop and purplish-red spots on the underside of leave; older galls may provide shelter for natural enemies or other pest microarthropods.

Known U.S. Distribution

Detected in Florida in 2003; subsequently reported in Mississippi, Louisiana, Alabama, and Tennessee.

Common Hosts

Only completes its life cycle in the weeping fig, *Ficus benjamina*, but also reported from *F. obtusa*, *F. pilosa*, *F. microcarpa*, and *Macaranga* sp.

Weeping Fig Thrips
Gynaikothrips uzeli



002

E X O T I C

Gynaikothrips uzeli

Weeping Fig Thrips

Field Recognition

Adult body size approximately 2.5 to 3.6 mm; dark brown to black; Females have a tube-like structure at the end of the abdomen for laying eggs.

May be Confused with

Cuban laurel thrips, *Gynaikothrips ficorum*. Host preference difference is the only useful field characteristic.

Damage Symptoms

Characteristic leaf galls or rolls form; premature leaf drop and purplish-red spots on the underside of leave; older galls may provide shelter for natural enemies or other pest microarthropods.

Known U.S. Distribution

Detected in Florida in 2003; subsequently reported in Mississippi, Louisiana, Alabama, and Tennessee.

Common Hosts

Only completes its life cycle in the weeping fig, *Ficus benjamina*, but also reported from *F. obtusa*, *F. pilosa*, *F. microcarpa*, and *Macaranga* sp.

Weeping Fig Thrips
Gynaikothrips uzeli

Pupal Stage



002

E X O T I C

Gynaikothrips uzeli

Weeping Fig Thrips

Field Recognition

Adult body size approximately 2.5 to 3.6 mm; dark brown to black; Females have a tube-like structure at the end of the abdomen for laying eggs.

May be Confused with

Cuban laurel thrips, *Gynaikothrips ficorum*. Host preference difference is the only useful field characteristic.

Damage Symptoms

Characteristic leaf galls or rolls form; premature leaf drop and purplish-red spots on the underside of leave; older galls may provide shelter for natural enemies or other pest microarthropods.

Known U.S. Distribution

Detected in Florida in 2003; subsequently reported in Mississippi, Louisiana, Alabama, and Tennessee.

Common Hosts

Only completes its life cycle in the weeping fig, *Ficus benjamina*, but also reported from *F. obtusa*, *F. pilosa*, *F. microcarpa*, and *Macaranga* sp.

Weeping Fig Thrips
Gynaikothrips uzeli



Eggs

003

E X O T I C

Holopothrips tabebuia

Tabebuia Thrips

Field Recognition

Adult body size approximately 1.5 to 2.2 mm; yellow body with last few abdominal segments dark brown; long brown tube at posterior for laying eggs. Immatures: wingless and pale yellow.

May be Confused with

Lighter in coloration than other species with a tube-like structure at the end of the abdomen for laying eggs. Could be confused with the predatory thrips *Aleurodothrips fasciapennis*, but this species has dark segments in middle of abdomen, not at posterior end.

Damage Symptoms

Edges of leaves curl inward and form galls; immature and adult thrips found inside the galls. Damage is fairly host-specific.

Known U.S. Distribution

Florida, Puerto Rico

Common Hosts

Trumpet trees (*Tabebuia* spp.)

Tabebuia Thrips

Holopothrips tabebuia



003

E X O T I C

Holopothrips tabebuia

Tabebuia Thrips

Field Recognition

Adult body size approximately 1.5 to 2.2 mm; yellow body with last few abdominal segments dark brown; long brown tube at posterior for laying eggs. Immatures: wingless and pale yellow.

May be Confused with

Lighter in coloration than other species with a tube-like structure at the end of the abdomen for laying eggs. Could be confused with the predatory thrips *Aleurodothrips fasciapennis*, but this species has dark segments in middle of abdomen, not at posterior end.

Damage Symptoms

Edges of leaves curl inward and form galls; immature and adult thrips found inside the galls. Damage is fairly host-specific.

Known U.S. Distribution

Florida, Puerto Rico

Common Hosts

Trumpet trees (*Tabebuia* spp.)

Tabebuia Thrips
Holopothrips tabebuia



003

E X O T I C

Holopothrips tabebuia

Tabebuia Thrips

Field Recognition

Adult body size approximately 1.5 to 2.2 mm; yellow body with last few abdominal segments dark brown; long brown tube at posterior for laying eggs. Immatures: wingless and pale yellow.

May be Confused with

Lighter in coloration than other species with a tube-like structure at the end of the abdomen for laying eggs. Could be confused with the predatory thrips *Aleurodothrips fasciapennis*, but this species has dark segments in middle of abdomen, not at posterior end.

Damage Symptoms

Edges of leaves curl inward and form galls; immature and adult thrips found inside the galls. Damage is fairly host-specific.

Known U.S. Distribution

Florida, Puerto Rico

Common Hosts

Trumpet trees (*Tabebuia* spp.)

Tabebuia Thrips
Holopothrips tabebuia



003

E X O T I C

Holopothrips tabebuia

Tabebuia Thrips

Field Recognition

Adult body size approximately 1.5 to 2.2 mm; yellow body with last few abdominal segments dark brown; long brown tube at posterior for laying eggs. Immatures: wingless and pale yellow.

May be Confused with

Lighter in coloration than other species with a tube-like structure at the end of the abdomen for laying eggs. Could be confused with the predatory thrips *Aleurodothrips fasciapennis*, but this species has dark segments in middle of abdomen, not at posterior end.

Damage Symptoms

Edges of leaves curl inward and form galls; immature and adult thrips found inside the galls. Damage is fairly host-specific.

Known U.S. Distribution

Florida, Puerto Rico

Common Hosts

Trumpet trees (*Tabebuia* spp.)

Tabebuia Thrips
Holopothrips tabebuia



Florida Flower Thrips

Field Recognition

Adult female: 1 mm, pale yellow with gray bands or spots on abdominal segments. Adult male: smaller than female, white to pale yellow. Florida flower thrips are typically found at the base of flower petals. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Onion thrips and other *Frankliniella* species, especially western flower thrips and eastern flower thrips.

Damage Symptoms

Prefers feeding on flowers, but will also infest foliage and damage fruit when population densities are high. Damage similar to western flower thrips. Distorted, corky tissue may occur on fruits of certain varieties of grapefruit and orange. Pollination reduction may also occur. Known as a secondary vector for TSWV.

Known U.S. Distribution

Southeastern U.S.

Common Hosts

Wide host range, including flowers of a multitude of native plants, and several vegetable crops such as tomatoes, peppers, potatoes, and beans. Citrus, landscape roses, and ornamental cut flowers, such as yellow and white chrysanthemums, are a favorite host. In Florida, it is suspected that Florida flower thrips moves to vegetables following blooming of other hosts, such as citrus, pine, and oak.

Florida Flower Thrips
Frankliniella bispinosa



Florida Flower Thrips

Field Recognition

Adult female: 1 mm, pale yellow with gray bands or spots on abdominal segments. Adult male: smaller than female, white to pale yellow. Florida flower thrips are typically found at the base of flower petals. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Onion thrips and other *Frankliniella* species, especially western flower thrips and eastern flower thrips.

Damage Symptoms

Prefers feeding on flowers, but will also infest foliage and damage fruit when population densities are high. Damage similar to western flower thrips. Distorted, corky tissue may occur on fruits of certain varieties of grapefruit and orange. Pollination reduction may also occur. Known as a secondary vector for TSWV.

Known U.S. Distribution

Southeastern U.S.

Common Hosts

Wide host range, including flowers of a multitude of native plants, and several vegetable crops such as tomatoes, peppers, potatoes, and beans. Citrus, landscape roses, and ornamental cut flowers, such as yellow and white chrysanthemums, are a favorite host. In Florida, it is suspected that Florida flower thrips moves to vegetables following blooming of other hosts, such as citrus, pine, and oak.

Florida Flower Thrips
Frankliniella bispinosa



005

NATIVE

Frankliniella fusca

Tobacco Thrips

Field Recognition

1 to 1.5 mm body size; yellow-brown to dark brown or black body; winged or wingless forms. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Gladiolus thrips, onion thrips and common blossom thrips or tomato thrips in subtropical to tropical climates. Tobacco thrips is smaller in size and has lighter antennae than *gladiolus thrips*. Common blossom thrips or tomato thrips only have winged forms.

Damage Symptoms

Small black spots may be evident on the underside of leaves where thrips are feeding. Leaf veins have a silvery outline. Known as a secondary vector of TSWV.

Known U.S. Distribution

Occurs through the continental U.S.

Common Hosts

Wide host range, including tobacco, cotton, peanuts, beans, tomatoes, peppers, and several ornamental hosts. This is the most important pest thrips species for peanut.

Tobacco Thrips
Frankliniella fusca



Adult Female

A close-up photograph of an adult female Tobacco Thrips (Frankliniella fusca) on a green leaf. The insect is small, elongated, and dark brown with a lighter, almost translucent head and thorax. It has long, thin antennae and wings that are folded against its body. The leaf surface is a vibrant green with visible veins and a fine, granular texture. The insect is positioned diagonally, facing towards the upper left of the frame.

005

NATIVE

Frankliniella fusca

Tobacco Thrips

Field Recognition

1 to 1.5 mm body size; yellow-brown to dark brown or black body; winged or wingless forms. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Gladiolus thrips, onion thrips and common blossom thrips or tomato thrips in subtropical to tropical climates. Tobacco thrips is smaller in size and has lighter antennae than gladiolus thrips. Common blossom thrips or tomato thrips only have winged forms.

Damage Symptoms

Small black spots may be evident on the underside of leaves where thrips are feeding. Leaf veins have a silvery outline. Known as a secondary vector of TSWV.

Known U.S. Distribution

Occurs through the continental U.S.

Common Hosts

Wide host range, including tobacco, cotton, peanuts, beans, tomatoes, peppers, and several ornamental hosts. This is the most important pest thrips species for peanut.

Tobacco Thrips
Frankliniella fusca



Adult Male

A close-up photograph of an adult male Tobacco Thrips (Frankliniella fusca) on a green leaf. The insect is small, elongated, and light brown with a darker head. It is positioned in the lower center of the frame, facing left. The leaf's intricate vein pattern is clearly visible in the background.

005

NATIVE

Frankliniella fusca

Tobacco Thrips

Field Recognition

1 to 1.5 mm body size; yellow-brown to dark brown or black body; winged or wingless forms. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Gladiolus thrips, onion thrips and common blossom thrips or tomato thrips in subtropical to tropical climates. Tobacco thrips is smaller in size and has lighter antennae than gladiolus thrips. Common blossom thrips or tomato thrips only have winged forms.

Damage Symptoms

Small black spots may be evident on the underside of leaves where thrips are feeding. Leaf veins have a silvery outline. Known as a secondary vector of TSWV.

Known U.S. Distribution

Occurs through the continental U.S.

Common Hosts

Wide host range, including tobacco, cotton, peanuts, beans, tomatoes, peppers, and several ornamental hosts. This is the most important pest thrips species for peanut.

Tobacco Thrips
Frankliniella fusca

Feeding Damage



005

NATIVE

Frankliniella fusca

Tobacco Thrips

Field Recognition

1 to 1.5 mm body size; yellow-brown to dark brown or black body; winged or wingless forms. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Gladiolus thrips, onion thrips and common blossom thrips or tomato thrips in subtropical to tropical climates. Tobacco thrips is smaller in size and has lighter antennae than *gladiolus thrips*. Common blossom thrips or tomato thrips only have winged forms.

Damage Symptoms

Small black spots may be evident on the underside of leaves where thrips are feeding. Leaf veins have a silvery outline. Known as a secondary vector of TSWV.

Known U.S. Distribution

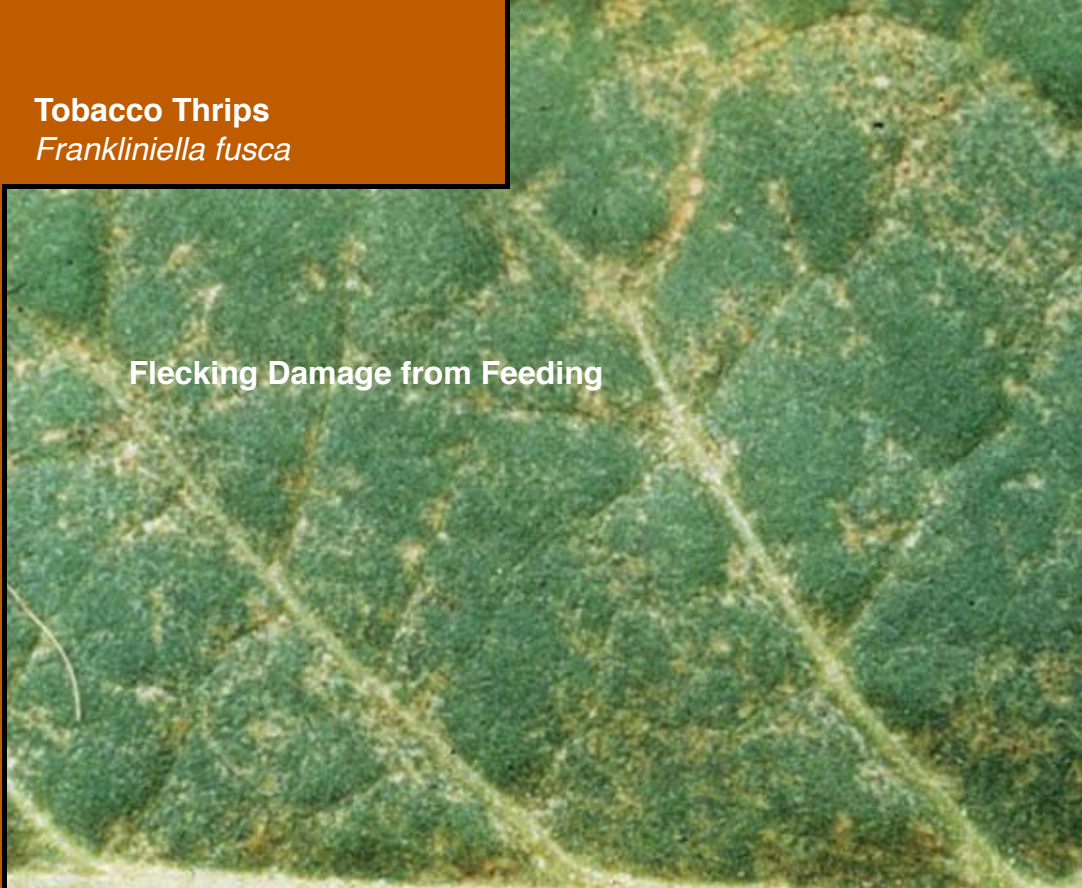
Occurs through the continental U.S.

Common Hosts

Wide host range, including tobacco, cotton, peanuts, beans, tomatoes, peppers, and several ornamental hosts. This is the most important pest thrips species for peanut.

Tobacco Thrips
Frankliniella fusca

Flecking Damage from Feeding



Western Flower Thrips

Field Recognition

Adult female: 1.5 mm, color morphs ranging from pale to dark, gray bands on abdominal segments of yellow morphs, wings fringed with two complete rows of setae, appears to have a dark strip along its dorsum or top surface when wings are folded, and 8-segmented antennae. Adult male: 1.1 mm, and pale color. Mixed populations of western flower thrips, eastern flower thrips, and Florida flower thrips are common. Mature onion thrips are slightly smaller than western flower thrips, have gray eyes, and 7-segmented antennae. Mature western flower thrips have wings fringed with two complete rows of setae, five pair of long setae on dorsum of prothorax, red eyes and 8-segmented antennae. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Other *Frankliniella* species, especially eastern flower thrips, *F. tritici*, and Florida flower thrips, *F. bispinosa*. Also may be confused with onion thrips, *Thrips tabaci* or melon thrips, *Thrips palmi*. Damage in onion, garlic, and some crucifer crops may be onion thrips or melon thrips (tropical to subtropical climates only). Microscopic viewing may be necessary to differentiate western flower thrips from onion and melon thrips. Mature melon thrips at approximately 1 mm in size are significantly smaller than western flower thrips.

Western Flower Thrips
Frankliniella occidentalis



Western Flower Thrips (continued)

Damage Symptoms

Prefers feeding on flowers, but will also feed on leaves, fruits, stems, and spider mites. Flowers damaged have a flecked or speckled appearance prior to premature browning and dying. Damaged foliage may appear silvery and/or have a twisted appearance. Tomatoes, grapes, blueberries, and green beans may have halo spots on leaves. Distorted or corky tissue appearance may occur on either green beans or fruits of pepper, nectarines, peaches, strawberries, and blueberries. Damage in onion, garlic, and some crucifer crops may be easily confused with onion thrips. Western flower thrips is known as a primary vector for TSWV and INSV. Also serves as a vector for the following tospoviruses not known to occur in the U.S.: chrysanthemum stem necrosis virus, groundnut ringspot virus, and tomato chlorotic spot virus.

Known U.S. Distribution

Greenhouse pest throughout the U.S., and capable of overwintering in the Mid-Atlantic, Southern, and Western U.S. Native to the western U.S.

Common Hosts

Wide host range, but most damaging on tomatoes, peppers, cotton, lettuce, other leafy vegetables, cucurbits, and flowering greenhouse floriculture commodities. Cut flowers, especially roses and chrysanthemums, and Gerber daisies are preferred.

Western Flower Thrips
Frankliniella occidentalis



Western Flower Thrips

Field Recognition

Adult female: 1.5 mm, color morphs ranging from pale to dark, gray bands on abdominal segments of yellow morphs, wings fringed with two complete rows of setae, appears to have a dark strip along its dorsum or top surface when wings are folded, and 8-segmented antennae. Adult male: 1.1 mm, and pale color. Mixed populations of western flower thrips, eastern flower thrips, and Florida flower thrips are common. Mature onion thrips are slightly smaller than western flower thrips, have gray eyes, and 7-segmented antennae. Mature western flower thrips have wings fringed with two complete rows of setae, five pair of long setae on dorsum of prothorax, red eyes and 8-segmented antennae. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Other *Frankliniella* species, especially eastern flower thrips, *F. tritici*, and Florida flower thrips, *F. bispinosa*. Also may be confused with onion thrips, *Thrips tabaci* or melon thrips, *Thrips palmi*. Damage in onion, garlic, and some crucifer crops may be onion thrips or melon thrips (tropical to subtropical climates only). Microscopic viewing may be necessary to differentiate western flower thrips from onion and melon thrips. Mature melon thrips at approximately 1 mm in size are significantly smaller than western flower thrips.

Western Flower Thrips
Frankliniella occidentalis



Western Flower Thrips (continued)

Damage Symptoms

Prefers feeding on flowers, but will also feed on leaves, fruits, stems, and spider mites. Flowers damaged have a flecked or speckled appearance prior to premature browning and dying. Damaged foliage may appear silvery and/or have a twisted appearance. Tomatoes, grapes, blueberries, and green beans may have halo spots on leaves. Distorted or corky tissue appearance may occur on either green beans or fruits of pepper, nectarines, peaches, strawberries, and blueberries. Damage in onion, garlic, and some crucifer crops may easily confused with onion thrips. Western flower thrips is known as a primary vector for TSWV and INSV. Also serves as a vector for the following tospoviruses not known to occur in the U.S.: chrysanthemum stem necrosis virus, groundnut ringspot virus, and tomato chlorotic spot virus.

Known U.S. Distribution

Greenhouse pest throughout the U.S., and capable of overwintering in the Mid-Atlantic, Southern, and Western U.S. Native to the western U.S.

Common Hosts

Wide host range, but most damaging on tomatoes, peppers, cotton, lettuce, other leafy vegetables, cucurbits, and flowering greenhouse floriculture commodities. Cut flowers, especially roses and chrysanthemums, and Gerber daisies are preferred.

Western Flower Thrips
Frankliniella occidentalis



007

E X O T I C

Frankliniella schultzei

Tomato Thrips (Common Blossom)

Field Recognition

Approximately 1 mm in size and may occur in lighter or darker forms; wings fully developed. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

South American flower thrips, *Frankliniella insularis*, tobacco thrips, or onion thrips. A microscope can be used to view the position of a pair of setae, or hairs, on the edge of the hind simple eyes, or ocelli. The position of these setae between the posterior ocelli separates common blossom thrips from similar species.

Damage Symptoms

Typical damage of other *Frankliniella* species. It is considered a primary vector of TSWV. Also a vector for INSV, capsicum chlorosis virus, groundnut ringspot virus, and tomato chlorotic spot virus.

Known U.S. Distribution

Distribution limited to tropical and subtropical areas, such as central and south Florida.

Common Hosts

Visits flowers of many crops and wild plants. Wide host range, including major vegetable and row crops, as well as ornamentals.

Tomato Thrips (Common)

Frankliniella schultzei



008

NATIVE

Frankliniella tritici

Eastern Flower Thrips

Field Recognition

Adult female: 1 mm, yellow with gray bands or spots on abdominal segments.

Adult male: smaller than female, white to pale yellow. Well-developed hairs or setae are present on the anterior part of the thorax for all *Frankliniella* species and absent in *Thrips* species, including onion thrips.

May be Confused with

Onion thrips and other *Frankliniella* species, especially western flower thrips and Florida flower thrips.

Damage Symptoms

Prefers feeding on flowers, but will also feed on leaves, fruits, and stems. Flowers damaged have a flecked or speckled appearance prior to premature browning and dying. Damaged foliage may appear silvery and/or have a twisted appearance. Tomatoes, grapes, blueberries, and green beans may have halo spots on leaves. Distorted or corky tissue appearance may occur on either green beans or fruits of pepper, nectarines, peaches, strawberries, and blueberries. Mixed populations of western flower thrips, eastern flower thrips, and Florida flower thrips are common.

Known U.S. Distribution

Native to the Eastern U.S., but also reported in the Western U.S.

Common Hosts

Wide host range, including various vegetable, fruit, and floriculture crops.

Eastern Flower Thrips
Frankliniella tritici



Introduced Basswood Thrips

Field Recognition

Adults 1.2-1.5 mm in size; yellowish brown to brown body; four fringed wings. Well-developed hairs or setae present on the anterior part of the thorax for *Frankliniella* species are absent in *Thrips* species.

May be Confused with

Not easily confused with other thrips in basswood. Native basswood thrips is white or light colored with red eyes. Pear thrips and predatory thrips have darker bodies.

Damage Symptoms

Early bud drop; leaf silvering; branch dieback; reduction in growth with a thinner crown; tree death rare.

Known U.S. Distribution

Most problematic in forests within the northern U.S. in association with American basswood. Responsible for much of the decline of forests in the Great Lakes region.

Common Hosts

Basswood (*Tilia* spp.), but particularly damaging on American basswood (*Tilia americana*).

Introduced Basswood Thrips
Thrips calcaratus



Melon or Palm Thrips

Field Recognition

Adult body size approximately 1 mm; pale yellow to white; dark hairs on body; 7 antennal segments. Well-developed hairs or setae present on the anterior part of the thorax for *Frankliniella* species are absent in *Thrips* species.

May be Confused with

Other yellow forms of *Frankliniella* species, such as western flower thrips, eastern flower thrips, and Florida flower thrips; *Frankliniella* antennae are 8-segmented in comparison to the 7-segmented antennae of melon thrips; fruit or foliage damage more common for melon thrips.

Damage Symptoms

Leaf crinkling and discoloration, and heavily infested fields may have a bronze color or fruit scarring. Known as a vector of capsicum chlorosis virus, groundnut bud necrosis virus, melon yellow spot virus, watermelon bud necrosis virus, watermelon silver necrosis virus, and TSWV.

Known U.S. Distribution

Landscape distribution is limited to tropical climates, but has the potential to be a greenhouse pest through the U.S. Currently occurs in the south Florida landscape.

Common Hosts

Wide host range, including several agronomic crops such as tomatoes, eggplant, peppers, melons, onion, and bean. Potential ornamental hosts include: chrysanthemums, carnations, and hibiscus.

Melon or Palm Thrips
Thrips palmi



Melon or Palm Thrips

Field Recognition

Adult body size approximately 1 mm; pale yellow to white; dark hairs on body; 7 antennal segments. Well-developed hairs or setae present on the anterior part of the thorax for *Frankliniella* species are absent in *Thrips* species.

May be Confused with

Other yellow forms of *Frankliniella* species, such as western flower thrips, eastern flower thrips, and Florida flower thrips; *Frankliniella* antennae are 8-segmented in comparison to the 7-segmented antennae of melon thrips; fruit or foliage damage more common for melon thrips.

Damage Symptoms

Leaf crinkling and discoloration, and heavily infested fields may have a bronze color or fruit scarring. Known as a vector of capsicum chlorosis virus, groundnut bud necrosis virus, melon yellow spot virus, watermelon bud necrosis virus, watermelon silver necrosis virus, and TSWV.

Known U.S. Distribution

Landscape distribution is limited to tropical climates, but has the potential to be a greenhouse pest through the U.S. Currently occurs in the south Florida landscape.

Common Hosts

Wide host range, including several agronomic crops such as tomatoes, eggplant, peppers, melons, onion, and bean. Potential ornamental hosts include: chrysanthemums, carnations, and hibiscus.

Melon or Palm Thrips
Thrips palmi



Gladiolus Thrips

Field Recognition

Adult female brown with dark antennae and approximately 1.7 mm long; wings have a light band near base; larval stages are light yellow and may be found underneath leaves or bracts. Well-developed hairs or setae present on the anterior part of the thorax for *Frankliniella* species are absent in *Thrips* species.

May be Confused with

Tobacco thrips, *Frankliniella fusca*, or in tropical to subtropical climates, common blossom thrips, *F. schultzei*. Tobacco thrips is smaller in size and has lighter colored antennae than gladiolus thrips. Tobacco thrips may also occur in wingless and yellow-brown forms. Common blossom thrips is much smaller than gladiolus thrips, and may occur in lighter or darker forms.

Damage Symptoms

Deformities and flecking on flowers.

Known U.S. Distribution

Occurs throughout the U.S., but unable to overwinter in northern North America. It is believed to have originated from Africa, but is widely found wherever gladiolus is grown, even if the overwintering climate is not suitable.

Common Hosts

Only known to feed and reproduce on gladiolus flowers and corms, but other ornamental plants have been listed as possible (but unconfirmed) host plants.

Gladiolus Thrips
Thrips simplex



012

NATIVE

Thrips tabaci

Onion Thrips

Field Recognition

Adults are approximately 1.3 mm in size; body color, yellow to dark brown; 4 wings with long hairs. Damage in onion, garlic, and some crucifer crops may be more likely to be onion thrips, particularly if potential overwintering sites such as small grains, clover, or alfalfa fields are nearby. Onion thrips population outbreaks are more likely to occur during hot, dry conditions. Well-developed hairs or setae present on the anterior part of the thorax for *Frankliniella* species are absent in *Thrips* species.

May be Confused with

Frankliniella species, particularly western flower thrips, and melon thrips, *Thrips palmi*. Melon thrips is slightly smaller than onion thrips, only has the yellow to white colored form, and only occurs in tropical to subtropical climates. Microscopic viewing may be necessary to differentiate *Frankliniella* species from onion thrips. Well-developed hairs or setae are absent on the anterior part of the thorax for all *Thrips* species and present in *Frankliniella* species, including western flower thrips. Mature onion thrips are slightly smaller than western flower thrips, have gray eyes, and 7-segmented antennae. Mature western flower thrips have red eyes and 8-segmented antennae.

Damage Symptoms

Silencing and flecking on leaves; leaf curling may resemble aphid damage; primarily feeding occurs on new plant growth, but dense populations may feed on fruit and cause scarring, dieback of terminal buds and/or death of plant. Early bulbing stage damage is most economically devastating. Known as a vector for iris yellow spot virus and TSWV.

Known U.S. Distribution

Throughout vegetable production regions in the U.S.

Common Hosts

Wide host range that includes, but is not limited to onion, garlic, tomatoes, potatoes, cabbage, cucumber, melons, squash, and strawberries. Several ornamental plants are also susceptible. Weeds and grassy areas around fields serve as possible sources for reintroduction of pest populations to fields.

Onion Thrips
Thrips tabaci



012

NATIVE

Thrips tabaci

Onion Thrips

Field Recognition

Adults are approximately 1.3 mm in size; body color, yellow to dark brown; 4 wings with long hairs. Damage in onion, garlic, and some crucifer crops may be more likely to be onion thrips, particularly if potential overwintering sites such as small grains, clover, or alfalfa fields are nearby. Onion thrips population outbreaks are more likely to occur during hot, dry conditions. Well-developed hairs or setae present on the anterior part of the thorax for *Frankliniella* species are absent in *Thrips* species.

May be Confused with

Frankliniella species, particularly western flower thrips, and melon thrips, *Thrips palmi*. Melon thrips is slightly smaller than onion thrips, only has the yellow to white colored form, and only occurs in tropical to subtropical climates. Microscopic viewing may be necessary to differentiate *Frankliniella* species from onion thrips. Well-developed hairs or setae are absent on the anterior part of the thorax for all *Thrips* species and present in *Frankliniella* species, including western flower thrips. Mature onion thrips are slightly smaller than western flower thrips, have gray eyes, and 7-segmented antennae. Mature western flower thrips have red eyes and 8-segmented antennae.

Damage Symptoms

Silvery and flecking on leaves; leaf curling may resemble aphid damage; primarily feeding occurs on new plant growth, but dense populations may feed on fruit and cause scarring, dieback of terminal buds and/or death of plant. Early bulbing stage damage is most economically devastating. Known as a vector for iris yellow spot virus and TSWV.

Known U.S. Distribution

Throughout vegetable production regions in the U.S.

Common Hosts

Wide host range that includes, but is not limited to onion, garlic, tomatoes, potatoes, cabbage, cucumber, melons, squash, and strawberries. Several ornamental plants are also susceptible. Weeds and grassy areas around fields serve as possible sources for reintroduction of pest populations to fields.

Onion Thrips
Thrips tabaci



012

NATIVE

Thrips tabaci

Onion Thrips

Field Recognition

Adults are approximately 1.3 mm in size; body color, yellow to dark brown; 4 wings with long hairs. Damage in onion, garlic, and some crucifer crops may be more likely to be onion thrips, particularly if potential overwintering sites such as small grains, clover, or alfalfa fields are nearby. Onion thrips population outbreaks are more likely to occur during hot, dry conditions.

May be Confused with

Frankliniella species, particularly western flower thrips, and melon thrips, *Thrips palmi*. Melon thrips is slightly smaller than onion thrips, only has the yellow to white colored form, and only occurs in tropical to subtropical climates. Microscopic viewing may be necessary to differentiate *Frankliniella* species from onion thrips. Well-developed hairs or setae are absent on the anterior part of the thorax for all *Thrips* species and present in *Frankliniella* species, including western flower thrips. Mature onion thrips are slightly smaller than western flower thrips, have gray eyes, and 7-segmented antennae. Mature western flower thrips have red eyes and 8-segmented antennae.

Damage Symptoms

Silvery and flecking on leaves; leaf curling may resemble aphid damage; primarily feeding occurs on new plant growth, but dense populations may feed on fruit and cause scarring, dieback of terminal buds and/or death of plant. Early bulbing stage damage is most economically devastating. Known as a vector for iris yellow spot virus and TSWV.

Known U.S. Distribution

Throughout vegetable production regions in the U.S.

Common Hosts

Wide host range that includes, but is not limited to onion, garlic, tomatoes, potatoes, cabbage, cucumber, melons, squash, and strawberries. Several ornamental plants are also susceptible. Weeds and grassy areas around fields serve as possible sources for reintroduction of pest populations to fields.

Onion Thrips
Thrips tabaci



013

E X O T I C

Scirtothrips citri

Citrus Thrips

Field Recognition

Adult Females: 0.6 to 0.9 mm; orange-yellow body; four fringed wings. Adult Males: slightly smaller than females.

May be Confused with

Chilli thrips and lighter colored forms of western flower thrips; immatures of citrus are more oval than cigar shaped; adults and larvae more easily seen on the upper surface of leaves than other species. Western flower thrips is more likely to be in flowers or new plant growth. Citrus thrips may be seen on the foliage. Citrus thrips is usually smaller and coloration may appear more orange than the pale yellow body color of chilli thrips.

Damage Symptoms

Characteristic gray or silver scars on the fruit rind. It is the primary pest thrips species of citrus (Citrus).

Known U.S. Distribution

California, Arizona, Florida, and potentially elsewhere citrus is grown.

Common Hosts

Extremely wide host range, but considered a pest of citrus, and specifically naval oranges. Also, a reported as an occasional pest of blueberries (Vaccinium) in California. Other potential hosts include hickory (Carya), cotton (Gossypium), rose (Rosa), and grape (Vitis).

Citrus Thrips
Scirtothrips citri



ITGA1263058

014

E X O T I C

Scirtothrips dorsalis

Chilli Thrips

Field Recognition

Pale yellow, almost white body color; slightly less than 1 mm in size; abdominal segments typically have small dark bands and median dark blotches; mature adults winged.

May be Confused with

Lighter colored forms of flower thrips, Florida flower thrips, tobacco thrips, and common blossom thrips. Note that tobacco thrips also prefers feeding on leaves, but it is sometimes up to 1.5 mm in size and can occur in wingless forms as adults. Other lighter colored forms of Frankliniella species prefer feeding on flowers. Mature western flower thrips are larger than chilli thrips, but can have a similar color pattern.

Damage Symptoms

Feeding primarily occurs on new plant foliage growth and flower buds, but may also occur in flower or on fruit. Known as a vector for peanut bud necrosis virus, peanut chlorotic fan virus, and peanut yellow spot virus.

Known U.S. Distribution

Florida, Georgia, Texas

Common Hosts

Extremely wide host range, including a variety of vegetable, fruit, and ornamental crops. Some of the most damaged hosts in the Florida landscape have included: Indian hawthorn, ligustrum, plumbago, pittosporum, roses, and sweet viburnum.

Chilli Thrips

Scirtothrips dorsalis



014

E X O T I C

Scirtothrips dorsalis

Chilli Thrips

Field Recognition

Pale yellow, almost white body color; slightly less than 1 mm in size; abdominal segments typically have small dark bands and median dark blotches; mature adults winged.

May be Confused with

Lighter colored forms of flower thrips, Florida flower thrips, tobacco thrips, and common blossom thrips. Note that tobacco thrips also prefers feeding on leaves, but it is sometimes up to 1.5 mm in size and can occur in wingless forms as adults. Other lighter colored forms of Frankliniella species prefer feeding on flowers. Mature western flower thrips are larger than chilli thrips, but can have a similar color pattern.

Damage Symptoms

Feeding primarily occurs on new plant foliage growth and flower buds, but may also occur in flower or on fruit. Known as a vector for peanut bud necrosis virus, peanut chlorotic fan virus, and peanut yellow spot virus.

Known U.S. Distribution

Florida, Georgia, Texas

Common Hosts

Extremely wide host range, including a variety of vegetable, fruit, and ornamental crops. Some of the most damaged hosts in the Florida landscape have included: Indian hawthorn, ligustrum, plumbago, pittosporum, roses, and sweet viburnum.

Chilli Thrips

Scirtothrips dorsalis



014

E X O T I C

Scirtothrips dorsalis

Chilli Thrips

Field Recognition

Pale yellow, almost white body color; slightly less than 1 mm in size; abdominal segments typically have small dark bands and median dark blotches; mature adults winged.

May be Confused with

Lighter colored forms of flower thrips, Florida flower thrips, tobacco thrips, and common blossom thrips. Note that tobacco thrips also prefers feeding on leaves, but it is sometimes up to 1.5 mm in size and can occur in wingless forms as adults. Other lighter colored forms of Frankliniella species prefer feeding on flowers. Mature western flower thrips are larger than chilli thrips, but can have a similar color pattern.

Damage Symptoms

Feeding primarily occurs on new plant foliage growth and flower buds, but may also occur in flower or on fruit. Known as a vector for peanut bud necrosis virus, peanut chlorotic fan virus, and peanut yellow spot virus.

Known U.S. Distribution

Florida, Georgia, Texas

Common Hosts

Extremely wide host range, including a variety of vegetable, fruit, and ornamental crops. Some of the most damaged hosts in the Florida landscape have included: Indian hawthorn, ligustrum, plumbago, pittosporum, roses, and sweet viburnum.

Chilli Thrips

Scirtothrips dorsalis



014

E X O T I C

Scirtothrips dorsalis

Chilli Thrips

Field Recognition

Pale yellow, almost white body color; slightly less than 1 mm in size; abdominal segments typically have small dark bands and median dark blotches; mature adults winged.

May be Confused with

Lighter colored forms of flower thrips, Florida flower thrips, tobacco thrips, and common blossom thrips. Note that tobacco thrips also prefers feeding on leaves, but it is sometimes up to 1.5 mm in size and can occur in wingless forms as adults. Other lighter colored forms of Frankliniella species prefer feeding on flowers. Mature western flower thrips are larger than chilli thrips, but can have a similar color pattern.

Damage Symptoms

Feeding primarily occurs on new plant foliage growth and flower buds, but may also occur in flower or on fruit. Known as a vector for peanut bud necrosis virus, peanut chlorotic fan virus, and peanut yellow spot virus.

Known U.S. Distribution

Florida, Georgia, Texas

Common Hosts

Extremely wide host range, including a variety of vegetable, fruit, and ornamental crops. Some of the most damaged hosts in the Florida landscape have included: Indian hawthorn, ligustrum, plumbago, pittosporum, roses, and sweet viburnum.

Chilli Thrips

Scirtothrips dorsalis



014

E X O T I C

Scirtothrips dorsalis

Chilli Thrips

Field Recognition

Pale yellow, almost white body color; slightly less than 1 mm in size; abdominal segments typically have small dark bands and median dark blotches; mature adults winged.

May be Confused with

Lighter colored forms of flower thrips, Florida flower thrips, tobacco thrips, and common blossom thrips. Note that tobacco thrips also prefers feeding on leaves, but it is sometimes up to 1.5 mm in size and can occur in wingless forms as adults. Other lighter colored forms of Frankliniella species prefer feeding on flowers. Mature western flower thrips are larger than chilli thrips, but can have a similar color pattern.

Damage Symptoms

Feeding primarily occurs on new plant foliage growth and flower buds, but may also occur in flower or on fruit. Known as a vector for peanut bud necrosis virus, peanut chlorotic fan virus, and peanut yellow spot virus.

Known U.S. Distribution

Florida, Georgia, Texas

Common Hosts

Extremely wide host range, including a variety of vegetable, fruit, and ornamental crops. Some of the most damaged hosts in the Florida landscape have included: Indian hawthorn, ligustrum, plumbago, pittosporum, roses, and sweet viburnum.

Chilli Thrips

Scirtothrips dorsalis



015

E X O T I C

Scirtothrips perseae

Avocado Thrips

Field Recognition

Pale yellow, almost white body color; slightly less than 1 mm in size; abdominal segments typically have small dark bands; mature adults winged.

May be Confused with

Other Scirtothrips and lighter colored forms of Frankliniella species; immatures of avocado thrips are more oval than cigar shaped; adults and larvae more easily seen on the upper surface of leaves than other species.

Damage Symptoms

Leaf bronzing and fruit scarring; found more commonly on foliage than other species; may hide under calyx; immatures more commonly found on the underside of leaves.

Known U.S. Distribution

First identified as a new pest and described from California in 1996; Latin America likely location of origin.

Common Hosts

Only reported from avocado (Persea americana)

Avocado Thrips
Scirtothrips perseae



015

E X O T I C

Scirtothrips perseae

Avocado Thrips

Field Recognition

Pale yellow, almost white body color; slightly less than 1 mm in size; abdominal segments typically have small dark bands; mature adults winged.

May be Confused with

Other Scirtothrips and lighter colored forms of Frankliniella species; immatures of avocado thrips are more oval than cigar shaped; adults and larvae more easily seen on the upper surface of leaves than other species.

Damage Symptoms

Leaf bronzing and fruit scarring; found more commonly on foliage than other species; may hide under calyx; immatures more commonly found on the underside of leaves.

Known U.S. Distribution

First identified as a new pest and described from California in 1996; Latin America likely location of origin.

Common Hosts

Only reported from avocado (Persea americana)

Avocado Thrips
Scirtothrips perseae



Orchid or Anthurium Thrips

Field Recognition

Pale yellow; dark spots over thorax; distinctively dark-banded wings.

May be Confused with

Chilli thrips, S. dorsalis, and other Chaetanaphothrips species such as the banana rust thrips, C. signipennis, and C. leeuweni. The dark patches on the thorax (epilets) and then the dark band formed by the wings distinguishes orchid thrips from chilli thrips.

Damage Symptoms

Ornamental flowers show typical thrips flecking and curling damage. Early flower drop may occur. Feeding damage on citrus fruit can cause a characteristic rind blemish.

Known U.S. Distribution

Common in Florida and Hawaii landscapes and greenhouses.

Common Hosts

Known as a problematic pest for several ornamental greenhouse plants, primary problems reported from Florida include orchid and grapefruit. Hawaii reports a preference for Anthurium.

Orchid or Anthurium Thrips
Chaetanaphothrips orchidii



016

E X O T I C

Chaetanaphothrips orchidii

Orchid or Anthurium Thrips

Field Recognition

Pale yellow; dark spots over thorax; distinctively dark-banded wings.

May be Confused with

Chilli thrips, S. dorsalis, and other Chaetanaphothrips species such as the banana rust thrips, C. signipennis, and C. leeuweni. The dark patches on the thorax (epilets) and then the dark band formed by the wings distinguishes orchid thrips from chilli thrips.

Damage Symptoms

Ornamental flowers show typical thrips flecking and curling damage. Early flower drop may occur. Feeding damage on citrus fruit can cause a characteristic rind blemish.

Known U.S. Distribution

Common in Florida and Hawaii landscapes and greenhouses.

Common Hosts

Known as a problematic pest for several ornamental greenhouse plants, primary problems reported from Florida include orchid and grapefruit. Hawaii reports a preference for Anthurium.

Orchid or Anthurium Thrips
Chaetanaphothrips orchidii



017

NATIVE

Echinothrips americanus

Field Recognition

Adult female approximately 1.6 mm long; adult male approximately 1.3 mm long; dark brown body color; reddish color occurs between abdominal segments. Head and prothorax with hexagonally reticulate sculpture. Front wings are pale gray, with two light brown bands. Marginal wing setae often capitate.

May be Confused with

This species is fairly easy to differentiate from other common species.

Damage Symptoms

Flecking on foliage, similar to damage from other thrips or mites; prefers feeding on host leaves, and is most commonly found on the underside of leaves; feeding on top surface of leaves or flowers occurs less frequently.

Known U.S. Distribution

Tropical and subtropical U.S. with preferred hosts and potential greenhouse pest elsewhere.

Common Hosts

Wide host range, and particularly a pest of concern for greenhouse and ornamental plants. Some preferred hosts include: hibiscus, Ficus, poinsettia, impatiens, Diffenbachia, Philodendron, and Syngonium.

Echinothrips americanus



017

NATIVE

Echinothrips americanus

Field Recognition

Adult female approximately 1.6 mm long; adult male approximately 1.3 mm long; dark brown body color; reddish color occurs between abdominal segments. Head and prothorax with hexagonally reticulate sculpture. Front wings are pale gray, with two light brown bands. Marginal wing setae often capitate.

May be Confused with

This species is fairly easy to differentiate from other common species.

Damage Symptoms

Flecking on foliage, similar to damage from other thrips or mites; prefers feeding on host leaves, and is most commonly found on the underside of leaves; feeding on top surface of leaves or flowers occurs less frequently.

Known U.S. Distribution

Tropical and subtropical U.S. with preferred hosts and potential greenhouse pest elsewhere.

Common Hosts

Wide host range, and particularly a pest of concern for greenhouse and ornamental plants. Some preferred hosts include: hibiscus, Ficus, poinsettia, impatiens, Diffenbachia, Philodendron, and Syngonium.

Echinothrips americanus

Lacewing Larva Feeding
on *E. americanus*



018

E X O T I C

Taeniothrips inconsequens

Pear Thrips

Field Recognition

Adult: slightly less than 2mm in size; dark brown body; four wings with long fringed hairs. Immatures: white with red eyes.

May be Confused with

*Damage symptoms may be confused with late frost symptoms. Predatory thrips, such as the black hunter thrips, *Leptothrips mali*, occurring in forest ecosystems.*

Damage Symptoms

Crinkled brown leaves curling at the leaf margins inward; brown scars in leaf veins and petioles due to egg laying; leaf drop; decline in growth; crown dieback.

Known U.S. Distribution

Generally occurs throughout the U.S. Most serious forest outbreaks have occurred in the Northeastern U.S.

Common Hosts

*Wide host range, but particularly associated with fruit crops and forests that include maple (*Acer*), birch (*Betula*), black cherry (*Prunus serotina*), and beech (*Fagus*).*

Pear Thrips

Taeniothrips inconsequens



018

E X O T I C

Taeniothrips inconsequens

Pear Thrips

Field Recognition

Adult: slightly less than 2mm in size; dark brown body; four wings with long fringed hairs. Immatures: white with red eyes.

May be Confused with

*Damage symptoms may be confused with late frost symptoms. Predatory thrips, such as the black hunter thrips, *Leptothrips mali*, occurring in forest ecosystems.*

Damage Symptoms

Crinkled brown leaves curling at the leaf margins inward; brown scars in leaf veins and petioles due to egg laying; leaf drop; decline in growth; crown dieback.

Known U.S. Distribution

Generally occurs throughout the U.S. Most serious forest outbreaks have occurred in the Northeastern U.S.

Common Hosts

*Wide host range, but particularly associated with fruit crops and forests that include maple (*Acer*), birch (*Betula*), black cherry (*Prunus serotina*), and beech (*Fagus*).*

Pear Thrips

Taeniothrips inconsequens



018

E X O T I C

Taeniothrips inconsequens

Pear Thrips

Field Recognition

Adult: slightly less than 2mm in size; dark brown body; four wings with long fringed hairs. Immatures: white with red eyes.

May be Confused with

*Damage symptoms may be confused with late frost symptoms. Predatory thrips, such as the black hunter thrips, *Leptothrips mali*, occurring in forest ecosystems.*

Damage Symptoms

Crinkled brown leaves curling at the leaf margins inward; brown scars in leaf veins and petioles due to egg laying; leaf drop; decline in growth; crown dieback.

Known U.S. Distribution

Generally occurs throughout the U.S. Most serious forest outbreaks have occurred in the Northeastern U.S.

Common Hosts

*Wide host range, but particularly associated with fruit crops and forests that include maple (*Acer*), birch (*Betula*), black cherry (*Prunus serotina*), and beech (*Fagus*).*

Pear Thrips

Taeniothrips inconsequens



019

NATIVE

Caliothrips fasciatus

Bean Thrips

Field Recognition

Adult: dark body; four wings with fringed hairs; dark bands on front wings and legs, and antennae; 1 mm or less in size.

May be Confused with

Darker forms of western flower thrips or predatory thrips, *Aeolothrips* spp.; other panchaetothripines due to dark integument with heavy sculpturing.

Damage Symptoms

Leaf bronzing and silvering, typical of other leaf-feeding thrips.

Known U.S. Distribution

Western continental U.S.

Common Hosts

Problematic pest on beans (family Fabaceae). Known to hitchhike on other shipped products, such as oranges. Typically thrips hitchhikers are found when cutting open winter navel oranges, especially in the creases in the navel.

Bean Thrips

Caliothrips fasciatus



020

NATIVE

Heliothrips haemorrhoidalis

Greenhouse Thrips

Field Recognition

Adult: black thorax and abdomen with yellow legs; approximately 1 mm in size. Immatures: white to light yellow with red eyes. Eggs: banana shaped and inserted singly into host; eggs may be visible with a hand lens during survey.

May be Confused with

This is a fairly distinctive species.

Damage Symptoms

Primarily a foliage feeder, feeding first on the lower leaf surface, and then moving to the top of the leaf as populations increase; leaves with a characteristic discoloration around leaf veins; advanced infestations with complete leaf yellowing and leaf drop.

Known U.S. Distribution

Occurs in the landscape in central and south Florida, and southern California; common in greenhouses throughout the U.S.

Common Hosts

Common pest on several ornamental plants, but particularly common on croton. Other reported hosts include dogwoods, azaleas, Ficus, ferns, palms, orchids, avocado, mangoes, and natal plum.

Greenhouse Thrips

Heliethrips haemorrhoidalis



020

NATIVE

Heliothrips haemorrhoidalis

Greenhouse Thrips

Field Recognition

Adult: black thorax and abdomen with yellow legs; approximately 1 mm in size. Immatures: white to light yellow with red eyes. Eggs: banana shaped and inserted singly into host; eggs may be visible with a hand lens during survey.

May be Confused with

This is a fairly distinctive species.

Damage Symptoms

Primarily a foliage feeder, feeding first on the lower leaf surface, and then moving to the top of the leaf as populations increase; leaves with a characteristic discoloration around leaf veins; advanced infestations with complete leaf yellowing and leaf drop.

Known U.S. Distribution

Occurs in the landscape in central and south Florida, and southern California; common in greenhouses throughout the U.S.

Common Hosts

Common pest on several ornamental plants, but particularly common on croton. Other reported hosts include dogwoods, azaleas, Ficus, ferns, palms, orchids, avocado, mangoes, and natal plum.

Greenhouse Thrips

Heliothrips haemorrhoidalis



020

NATIVE

Heliothrips haemorrhoidalis

Greenhouse Thrips

Field Recognition

Adult: black thorax and abdomen with yellow legs; approximately 1 mm in size. Immatures: white to light yellow with red eyes. Eggs: banana shaped and inserted singly into host; eggs may be visible with a hand lens during survey.

May be Confused with

This is a fairly distinctive species.

Damage Symptoms

Primarily a foliage feeder, feeding first on the lower leaf surface, and then moving to the top of the leaf as populations increase; leaves with a characteristic discoloration around leaf veins; advanced infestations with complete leaf yellowing and leaf drop.

Known U.S. Distribution

Occurs in the landscape in central and south Florida, and southern California; common in greenhouses throughout the U.S.

Common Hosts

Common pest on several ornamental plants, but particularly common on croton. Other reported hosts include dogwoods, azaleas, Ficus, ferns, palms, orchids, avocado, mangoes, and natal plum.

Greenhouse Thrips

Heliothrips haemorrhoidalis



Redbanded Thrips

Field Recognition

Adult Female: approximately 1.2 mm long; dark body and wings; a somewhat reddish color occurs underneath the body. Nymphs and Pupae: first 2 abdominal segments with a bright, red color, which can sometimes be seen in the membranes between the black segments of adults.

May be Confused with

Nymphal and pupal abdominal coloration are fairly distinctive. It is not easily confused with other dark colored, subtropical to tropical species already occurring in the U.S., especially if larvae are present. At magnification, the pronotum is 3x as wide as long, distinguishing this species from other similar species.

Damage Symptoms

Feeding occurs on foliage and fruit. Excrement droplets on foliage and typical thrips feeding leaf damage may also be present.

Known U.S. Distribution

Occurs in tropical to subtropical climates. In Florida, commonly occurs south of Orlando.

Common Hosts

Wide host range potential, but host preference may vary with local flora. Tropical fruits, such as mango and avocado, have been reported as hosts in some areas.

Redbanded Thrips

Selenothrips rubrocinctus



Redbanded Thrips

Field Recognition

Adult Female: approximately 1.2 mm long; dark body and wings; a somewhat reddish color occurs underneath the body. Nymphs and Pupae: first 2 abdominal segments with a bright, red color, which can sometimes be seen in the membranes between the black segments of adults.

May be Confused with

Nymphal and pupal abdominal coloration are fairly distinctive. It is not easily confused with other dark colored, subtropical to tropical species already occurring in the U.S., especially if larvae are present. At magnification, the pronotum is 3x as wide as long, distinguishing this species from other similar species.

Damage Symptoms

Feeding occurs on foliage and fruit. Excrement droplets on foliage and typical thrips feeding leaf damage may also be present.

Known U.S. Distribution

Occurs in tropical to subtropical climates. In Florida, commonly occurs south of Orlando.

Common Hosts

Wide host range potential, but host preference may vary with local flora. Tropical fruits, such as mango and avocado, have been reported as hosts in some areas.

Redbanded Thrips
Selenothrips rubrocinctus



Redbanded Thrips

Field Recognition

Adult Female: approximately 1.2 mm long; dark body and wings; a somewhat reddish color occurs underneath the body. Nymphs and Pupae: first 2 abdominal segments with a bright, red color, which can sometimes be seen in the membranes between the black segments of adults.

May be Confused with

Nymphal and pupal abdominal coloration are fairly distinctive. It is not easily confused with other dark colored, subtropical to tropical species already occurring in the U.S., especially if larvae are present. At magnification, the pronotum is 3x as wide as long, distinguishing this species from other similar species.

Damage Symptoms

Feeding occurs on foliage and fruit. Excrement droplets on foliage and typical thrips feeding leaf damage may also be present.

Known U.S. Distribution

Occurs in tropical to subtropical climates. In Florida, commonly occurs south of Orlando.

Common Hosts

Wide host range potential, but host preference may vary with local flora. Tropical fruits, such as mango and avocado, have been reported as hosts in some areas.

Redbanded Thrips

Selenothrips rubrocinctus

Pupae



Thrips Vectored Viruses

Damage Symptoms

Stunted growth or dieback of terminal tips; bronzed leaves; black, necrotic leaf spots; black streaks on petioles or stems; symptom severity varies depending upon host and cultivar.

May be Confused with

Similar to INSV; viruses may also be confused with other non-viral plant diseases or nutritional problems.

Known U.S. Distribution

Originally appeared to be more limited to tropical and subtropical areas; significant movement and reported outbreaks possible nationwide through ornamental greenhouse production.

Common Hosts

Over 1000 reported hosts, including tomatoes, peppers, peanuts, and ornamental plants. Although also reported on ornamental crops, TSWV outbreaks tend to be more associated with vegetable commodities.

Thrips Vectored Viruses

Tomato Spotted Wilt Virus (TSWV)



Thrips Vectored Viruses

Damage Symptoms

Stunted growth or dieback of terminal tips; bronzed leaves; black, necrotic leaf spots; black streaks on petioles or stems; symptom severity varies depending upon host and cultivar.

May be Confused with

Similar to INSV; viruses may also be confused with other non-viral plant diseases or nutritional problems.

Known U.S. Distribution

Originally appeared to be more limited to tropical and subtropical areas; significant movement and reported outbreaks possible nationwide through ornamental greenhouse production.

Common Hosts

Over 1000 reported hosts, including tomatoes, peppers, peanuts, and ornamental plants. Although also reported on ornamental crops, TSWV outbreaks tend to be more associated with vegetable commodities.

Thrips Vectored Viruses
Tomato Spotted Wilt Virus (TSWV)



Thrips Vected Viruses

Damage Symptoms

Similar to TSWV; stunted growth or dieback of terminal tips; bronzed leaves; black, necrotic leaf spots; black streaks on petioles or stems; symptom severity varies depending upon host and cultivar.

May be Confused with

Similar to TSWV; viruses may also be confused with other non-viral plant diseases or nutritional problems.

Known U.S. Distribution

Originally appeared to be more limited to tropical and subtropical areas; significant movement and reported outbreaks possible nationwide through ornamental greenhouse production.

Common Hosts

Very wide host range including many vegetable and ornamental crops; INSV outbreaks tend to be more often associated with floriculture crops.

Thrips Vected Viruses

Impatiens Necrotic Spot Virus (INSV)



Thrips Vected Viruses

Damage Symptoms

Similar to TSWV; stunted growth or dieback of terminal tips; bronzed leaves; black, necrotic leaf spots; black streaks on petioles or stems; symptom severity varies depending upon host and cultivar.

May be Confused with

Similar to TSWV; viruses may also be confused with other non-viral plant diseases or nutritional problems.

Known U.S. Distribution

Originally appeared to be more limited to tropical and subtropical areas; significant movement and reported outbreaks possible nationwide through ornamental greenhouse production.

Common Hosts

Very wide host range including many vegetable and ornamental crops; INSV outbreaks tend to be more often associated with floriculture crops.

Thrips Vectored Viruses

Impatiens Necrotic Spot Virus (INSV)



Thrips Vected Viruses

Damage Symptoms

Similar to TSWV; stunted growth or dieback of terminal tips; bronzed leaves; black, necrotic leaf spots; black streaks on petioles or stems; symptom severity varies depending upon host and cultivar.

May be Confused with

Similar to TSWV; viruses may also be confused with other non-viral plant diseases or nutritional problems.

Known U.S. Distribution

Originally appeared to be more limited to tropical and subtropical areas; significant movement and reported outbreaks possible nationwide through ornamental greenhouse production.

Common Hosts

Very wide host range including many vegetable and ornamental crops; INSV outbreaks tend to be more often associated with floriculture crops.

Thrips Vected Viruses

Impatiens Necrotic Spot Virus (INSV)



Thrips Vected Viruses

Damage Symptoms

Similar to TSWV; stunted growth or dieback of terminal tips; bronzed leaves; black, necrotic leaf spots; black streaks on petioles or stems; symptom severity varies depending upon host and cultivar.

May be Confused with

Similar to TSWV; viruses may also be confused with other non-viral plant diseases or nutritional problems.

Known U.S. Distribution

Originally appeared to be more limited to tropical and subtropical areas; significant movement and reported outbreaks possible nationwide through ornamental greenhouse production.

Common Hosts

Very wide host range including many vegetable and ornamental crops; INSV outbreaks tend to be more often associated with floriculture crops.

Thrips Vected Viruses

Impatiens Necrotic Spot Virus (INSV)



Thrips Vected Viruses

Damage Symptoms

Similar to TSWV; stunted growth or dieback of terminal tips; bronzed leaves; black, necrotic leaf spots; black streaks on petioles or stems; symptom severity varies depending upon host and cultivar.

May be Confused with

Similar to TSWV; viruses may also be confused with other non-viral plant diseases or nutritional problems.

Known U.S. Distribution

Originally appeared to be more limited to tropical and subtropical areas; significant movement and reported outbreaks possible nationwide through ornamental greenhouse production.

Common Hosts

Very wide host range including many vegetable and ornamental crops; INSV outbreaks tend to be more often associated with floriculture crops.

Thrips Vected Viruses

Impatiens Necrotic Spot Virus (INSV)



Thrips Predators (Insect Family: Anthocoridae)

Field Recognition

Adult: elongate, shield-shaped front wings characteristic of true bugs (Hemiptera); 2-5 mm in size; head somewhat triangular in shape; black and white body.

Immatures: smaller with a yellow to red-brown body; wings not fully developed.

May be Confused with

Plant bugs (family Miridae)

Other Information

Generalist predator, including thrips; commercially available.

Thrips Predators
Minute Pirate Bugs



Thrips Predators (*Franklinothrips vespiformis*)

Field Recognition

Dark colored species with white bands on legs, and clear or white band appearing across the abdomen. Head appears somewhat globular-shaped to resemble an ant.

May be Confused with

Ants or Wasps.

Other Information

It is important to remember that not all thrips species are plant feeders. Some thrips may be vagrant, not pest species. Others, particularly those in the family Aeolothripidae, may be beneficial. Some species may be commercially available.

Thrips Predators

Franklinothrips vespiformis



Thrips Predators (*Franklinothrips vespiformis*)

Field Recognition

Dark colored species with white bands on legs, and clear or white band appearing across the abdomen. Head appears somewhat globular-shaped to resemble an ant.

May be Confused with

Ants or Wasps.

Other Information

It is important to remember that not all thrips species are plant feeders. Some thrips may be vagrant, not pest species. Others, particularly those in the family Aeolothripidae, may be beneficial. Some species may be commercially available.

Thrips Predators

Franklinothrips vespiformis



Thrips Predators (*Franklinothrips vespiformis*)

Field Recognition

Dark colored species with white bands on legs, and clear or white band appearing across the abdomen. Head appears somewhat globular-shaped to resemble an ant.

May be Confused with

Ants or Wasps.

Other Information

It is important to remember that not all thrips species are plant feeders. Some thrips may be vagrant, not pest species. Others, particularly those in the family Aeolothripidae, may be beneficial. Some species may be commercially available.

Thrips Predators

Franklinothrips vespiformis



026

Six-spotted Thrips

Thrips Predators (*Scolothrips sexmaculus*)

Field Recognition

Light with grey marks on the abdomen and top surface of the thorax; front wings have dark gray bands at the base.

May be Confused with

Plant-feeding thrips species.

Other Information

It is important to remember that not all thrips species are plant feeders. Some thrips may be vagrant, not pest species. This species is primarily a predator of spider mites. Under magnification, it has 6 pair of large setae on the pronotum.

Thrips Predators
Scolothrips sexmaculus



Thrips Predators (*Amblyseius swirskii*)

Field Recognition

As with other mite species, close inspection reveals no wings and eight legs instead of six. Differentiating a pest mite from a beneficial can be difficult. Observation of mite predatory behavior compared to relatively stationary plant feeding may be possible. Specimens should be collected and viewed under a microscope if beneficial status is unknown.

May be Confused with

Pest mite species as well as a large number of native predatory mites.

Other Information

Predatory mites may be available commercially. Other small arthropod pests may be at least partially controlled by predatory mites.

Thrips Predators
Amblyseius swirskii



028

Lacewings

Thrips Predators *(Insect Order: Neuroptera)*

Field Recognition

Adults: slender bodies and four wings with a lace-like appearance. Larvae: Body may appear somewhat larger in the middle; long, slender mandibles.

May be Confused with

Not easily confused with pest species. Larvae may be confused with caterpillars.

Other Information

Adults and larvae may be good generalist predators for thrips, and other small arthropods. Commercially available lacewings are commonly available

Lacewings

Insect Order: Neuroptera



Thrips Predators *(Insect Order: Neuroptera)*

Field Recognition

Adults: slender bodies and four wings with a lace-like appearance. Larvae: Body may appear somewhat larger in the middle; long, slender mandibles.

May be Confused with

Not easily confused with pest species. Larvae may be confused with caterpillars.

Other Information

Adults and larvae may be good generalist predators for thrips, and other small arthropods. Commercially available lacewings are commonly available

Lacewings

Insect Order: Neuroptera

