

Thrips on Ornamental Plants ¹

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Thrips are very small, yellow, brown or black, slender insects ranging from 1/16 to 1/8 inch in length (Figure 1). Adults and larval thrips feed using a punch and suck technique. Their life cycle includes an egg stage, two larval instars, two pupal stages, and an adult stage.



Figure 1. Thrips, adult (left) and nymph (right).

Depending on the species, thrips feed on fully expanded leaves, young tissue in the bud, flowers, and/or small fruit. Infested leaves dry out and have a stippled or silver-flecked appearance. Small brownish specks of excrement will usually be noticed on the underside of the leaves. Infested flower buds fail to

open or the flowers are deformed. Damaged flowers become streaked and discolored. Flowers or leaves suspected of being infested with thrips should be shaken over a white sheet of paper to better observe the insects. A 10X magnifying glass or hand lens will aid in their detection. Thrips may also cause minor irritation if they get on human skin.

Thrips populations are at their peak in the spring. They damage both foliage and flowers of many ornamental plants. The most important thrips species attacking flowers and buds in Florida are flower thrips and the gladiolus thrips. Red-banded thrips, Cuban-laurel thrips and greenhouse thrips are the most common species on foliage. A new invasive species is the Chilli thrips.

Flower thrips are yellow in color with brown blotching. Larvae are lemon yellow and lack wings. The Florida flower thrips (*Frankliniella bispinosa*) occur in Florida, Georgia, and Alabama. The western flower thrips (*Frankliniella occidentalis*) is also pest in Florida. Thrips attack hundreds of plant species, including oaks, roses and other plants in the Rosaceae, citrus, and vegetables. White or yellow

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flowers are apparently preferred, as well as flowers with an open structure, where the stamens and pistils are easily accessible. Feeding and damage occur on buds, flowers, and leaves, resulting in discoloration and premature dropping.

Feeding by the **gladiolus thrips**, *Thrips simplex* (Figure 2), discolors flowers and foliage, and the corms (bulbs) become soft and prone to decay. Seriously damaged flower buds fail to open. The thrips may be seen on foliage during overcast days, but hide in flower buds and beneath leaves on sunny days. The gladiolus thrips occurs wherever gladiolus are grown, but also attack iris, carnation, lily, narcissus, freesia, amaryllis, tigerflower, poker plant, tomato, begonia, primula, snapdragon, chrysanthemum, and geranium. Females lay up to 200 eggs in leaves, and larvae develop rapidly. Nine or more generations may occur outdoors each year. Immatures are pale yellow with red eyes, and adults are dark brown, have a grey band on their folded wings, and are about 1/16 inch long.



Figure 2. Gladiolus thrips. Credits: Division of Plant Industry

Immature and adult **red-banded thrips**, *Selenothrips rubrocinctus* (Figure 3), produce a lot of honeydew, and their feeding causes premature defoliation. This species attacks fruit and shade trees, shrubs and vines, such as avocado, lychee nut, tung, acacia, persimmon, sweetgum, Brazilian pepper tree, and pyracantha. Breeding occurs continuously and there are overlapping generations in southern Florida. Eggs are inserted singly in the tissue on the underside of leaves, and are covered with excrement. Only larvae have red bands. Adults have dark brown to black bodies (3/64 inch long).



Figure 3. Red-banded thrips.

Adult and immature **Cuban-laurel thrips**, *Gynaikothrips ficorum* (Figure 4), feed on expanding leaves, creating purplish red spots on the undersurfaces, causing foliage to severely curl or roll and drop prematurely. Common hosts are *Ficus* spp. Adults are black, about 3/64 inch long, and actively fly on hot days. Breeding is continuous. Females lay eggs on the upper surface of curled leaves.



Figure 4. Cuban-laurel thrips.

The **greenhouse thrips**, *Heliothrips haemorrhoidalis* (Figure 5), is a common pest of greenhouse- and nursery-grown plants. It has many hosts, including maple, azalea, citrus, dogwood, Ficus, fuchsia, toyon, St. Johnswort, Grecian laurel, magnolia, mango, alligator pear, rhododendron, and viburnum. Unlike many thrips species, the greenhouse thrips openly feeds on the lower surface of leaves first, rather than on blossoms, buds, or growing shoots. It prefers shaded conditions, and does not thrive in hot, dry areas. It lives in dense colonies as immatures and adults. Its feeding causes a flecking, bleaching, or silvering to leaves, and young foliage may become distorted. Damaged foliage

becomes papery and wilts, then drops prematurely. These thrips also produce large quantities of varnish-like excrement, which sticks to foliage. Adults (3/64 inch long) are black with a silver sheen. Eggs hatch within 2-3 weeks. Larvae are translucent and white, and feed only for 2-3 weeks. Adults are not strong fliers, despite having wings, and may be wind-dispersed. Wings are narrow and fringed with long hairs.



Figure 5. Greenhouse thrips. Credits: Division of Plant Industry

Biological Control

Several arthropods help keep thrips populations under control, including green lacewing larvae, big-eyed bugs, damsel bugs, insidious plant bugs (*Orius insidiosus*), ladybird beetles, parasitic wasps, other predaceous thrips, and predatory mites. Also, a fungal pathogen, *Verticillium lecanii*, may be purchased and used to reduce thrips numbers. Some thrips are parasitized by insect-parasitic nematodes in the genus *Thripinema*.

Cultural Control

Plants that are commonly attacked by thrips should be monitored carefully and frequently (Figure 6). Blue, yellow or white sticky cards or traps are effective monitoring tools (color varies with the thrips species).

Chemical Control

If thrips are beginning to damage plants, apply one of the suggested insecticides (Table 1). Treat foliage or flowers as soon as thrips are found. Weekly applications may be needed until control is achieved. Spray the plants to the point of run-off. Be especially careful to cover the undersides of the leaves. Continue to inspect the plants periodically and apply an insecticide if plants become re-infested. Soaps are safe and effective.



Figure 6. Thrips damage.

Several systemic insecticides are applied as soil drenches, so that the roots take up the toxicant and spread it to where the insects are feeding. They may achieve control within several weeks, but are effective for a longer time than most contact insecticides.

Be sure to wear the appropriate protective clothing when using insecticides, as described on each containers label. Read and understand each label before doing an application.

For More Information

- Thrips Biology and Management Website (<http://thrips.ifas.ufl.edu/background.htm>)
- Chilli Thrips (ENY-725) (<http://edis.ifas.ufl.edu/IN638>)
- Flower Thrips (ENY-682) (<http://edis.ifas.ufl.edu/IN415>)
- Gladiolus Thrips (EENY-036) (<http://edis.ifas.ufl.edu/IN163>)
- Greenhouse Thrips (EENY-075) (<http://edis.ifas.ufl.edu/IN232>)
- Melon Thrips (EENY-135) (<http://edis.ifas.ufl.edu/IN292>)
- Red-banded Thrips (EENY-099) (<http://edis.ifas.ufl.edu/IN256>)

Table 1. Insecticides labeled for non-commercial (homeowner) use against thrips in Florida.

Active Ingredient	Trade Name	Chemical Class
Acephate	Ortho Orthenex Garden Insect & Disease Control Ortho Systemic Insect Killer	Organophosphate
Bifenthrin	Ortho Bug-B-Gon Max Lawn & Garden Insect Killer	Pyrethroid
Carbaryl	Sevin	Carbamate
Cyfluthrin	Bayer Advanced Lawn Complete	Pyrethroid
Imidacloprid	Bayer Advanced Rose & Flower Insect Killer Bayer Advanced Tree & Shrub Insect Control	Neonicotinoid
Lambda-cyhalothrin	Spectracide Triazicide Once & Done Insect Killer	Pyrethroid
Malathion	Green Light Malathion Ortho Malathion Plus Insect Spray	Organophosphate
Permethrin	Bonide Eight Liquid Hi-Yield Indoor/Outdoor Broad Use Insecticide Ortho Bug-B-Gon Max Garden Insect Dust	Pyrethroid
Potassium salts of fatty acids	Safer Insecticidal Soap	Biorational
Pyrethrins	Bonide Yard & Garden Insect Killer Spectracide Bug Stop Insect Killer Spectracide Rose & Flower Insect Spray	Botanical
Spinosad	Bulls-Eye Bioinsecticide	Microbial

Table 2. Insecticides labeled for professional use against thrips in Florida.

Active Ingredient	Florida Registered Products	Site	Chemical Class	Signal Word
Abamectin	Avid 0.15 EC	G, L, N, S	Glycoside	Warning
Acephate	Acephate Pro 75 Orthene TT&O Spray, TT&O Spray 97	G, L, N G, L, N	Organophosphate	Caution Caution
Acetamiprid	TriStar	G, L, S	Neonicotinoid	Caution
Azadirachtin	Azatin XL Azatrol EC	G, I, L, N, S	Botanical	Caution Caution
Bifenthrin	Onyx Talstar F Talstar GC Flowable* Talstar Nursery Flowable*	L G, I, L L G, N, S	Pyrethroid	Warning Caution Caution Caution
Carbaryl	Sevin SL Sevin 80 WSP	L L	Carbamate	Caution Warning
Cyfluthrin	Decathlon 20 WP Tempo 20 WP Tempo Ultra	G, N I, L I, L	Pyrethroid	Caution Caution Caution
Cyfluthrin + Imidacloprid	Discus	N, L	Pyrethroid + Neonicotinoid	Caution

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Active Ingredient	Florida Registered Products	Site	Chemical Class	Signal Word
Imidacloprid	Marathon 1% Granular Marathon 60 WP Marathon II Merit 2 Merit 75 WP/WSP	G, I, N G, I, N G, I, N I, L I, L	Neonicotinoid	Caution Caution Caution Caution Caution
Insecticidal Soap	M-Pede Safer's Soap	G, I, L	Biorational	Warning Caution
Lambda-cyhalothrin	Scimitar CS Scimitar GC*	L G, L, N, S	Pyrethroid	Caution Caution
Novaluron	Pedestal	G, N, S	IGR	Caution
Permethrin	Astro Permethrin Pro Termite-Turf-Ornamental	G, I, L I, L	Pyrethroid	Caution Caution
S-Kinoprene	Enstar II	G, I, S	IGR	Warning
Spinosad	Conserve SC	G, L, N	Microbial	Caution
G = greenhouse I = interiorscape L = landscape N = nursery S = shadehouse				
*Restricted use pesticide				