

Ficus Whitefly

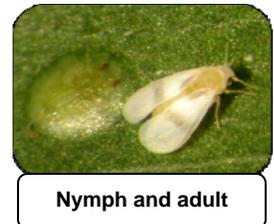
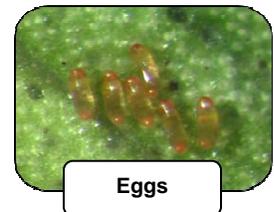
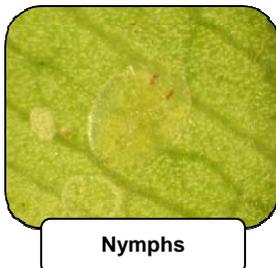
Management in the Landscape

Introduction: In 2007, a whitefly [*Singhiella simplex* (Singh) (Hemiptera: Aleyrodidae)], new to this continent, was reported attacking ficus trees and hedges in Miami-Dade County. Currently, this pest can be found in 16 Florida counties (Brevard, Broward, Collier, Hillsborough, Indian River, Lee, Manatee, Martin, Miami-Dade, Monroe, Okeechobee, Orange, Palm Beach, Pinellas, Sarasota, and St. Lucie).



What are whiteflies? First, they are not flies or related to flies. They are small, winged insects that belong to the Order Hemiptera which also includes aphids, scales, and mealybugs. These insects typically feed on the underside of leaves with their “needle-like” mouthparts. Whiteflies can seriously injure host plants by sucking nutrients from the plant causing wilting, yellowing, stunting, leaf drop, or even death. There are more than 75 different whiteflies reported in Florida.

Biology: The life cycle of the ficus whitefly is approximately one month. Eggs, which are usually laid on the underside of leaves, hatch into a crawler stage. The crawler which is very small wanders around the leaf until it begins to feed. From this point until it emerges as an adult, it remains in the same place on the plant. These feeding, non-mobile stages (nymphs) are usually oval, flat, and initially transparent. The early nymph stages can be very difficult to see. As the nymphs mature, they become more yellow in color, more convex, and their red eyes become more visible, making them easier to see.

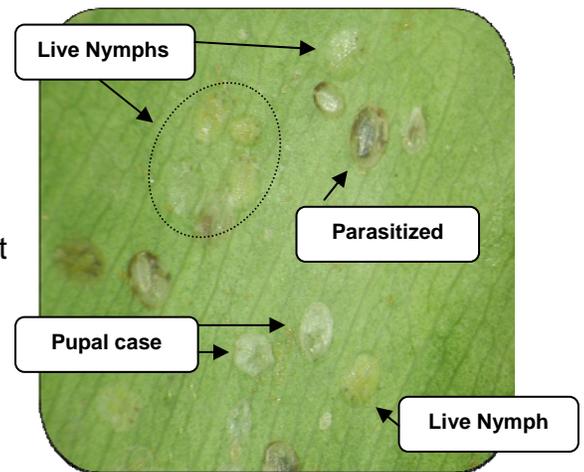


Plant Damage: The leaves of ficus trees infested with whiteflies begin to turn yellow before the leaves are dropped from the plant. Defoliation is one of the most obvious symptoms of an infestation of ficus whitefly. However, if you have defoliation, you have had the whitefly for numerous months. In addition to defoliation, there can be branch dieback. The amount of branch dieback is highly variable and is probably linked with the overall health of the plant. In most cases, trees and hedges will grow new leaves. Dead branches need to be pruned out. This whitefly has been most commonly found infesting weeping fig (*Ficus benjamina*) but has also been seen on several of the commonly planted ficus in the Florida landscape. This particular whitefly has never been reported on anything but ficus. A few ficus species that appear not to be affected by this whitefly include *F. microcarpa* “Green Island”, *F. religiosa*, *F. carica* (edible fig), *F. lyrata*, *F. pumila* (= *F. repens*), and *F. elastica* “Burgundy”.



Management in the Landscape: Before taking steps to manage ficus whitefly, it is important to not only identify that you have ficus whitefly or at risk of getting this whitefly. Often, when new pests arrive in a new place, they can reach very high populations and can be extremely damaging. It is not uncommon, however, that after several years after establishment, its impact is greatly reduced. Although it may be necessary to use insecticides for this pest, it is very important to understand the importance of natural enemies and the need to focus on long-term, biologically based management.

- Monitor your ficus plants for early signs of an infestation because it will be easier to manage the pest before it builds to high populations and causes major damage. Remember, if you have defoliation, the whitefly has already gone through several generations (several months). Although sometimes it is easy to see the adults flying around; they are not the best stage to use to determine your infestation. The adults do not live very long, and you often will not see the adults, but still have an active, live whitefly infestation. Commonly, you see several stages of the whitefly or signs that the whitefly has been there (pupal cases). Also, parasitized whitefly are often seen.



- It is suggested to reduce the amount of pruning if the hedge/tree is infested with ficus whitefly to reduce the level of stress on the plant. If you trim/prune infested plants, either leave the clippings on the property or if removing, bag the clippings to reduce the chance of spreading the insects. Note that the later stages of the whitefly on fallen leaves can survive and emerge into an adult and attack more ficus.
- In the landscape, several natural enemies have been observed attacking this whitefly which can play an important role in long-term control. Awareness of these natural enemies is very important so they are not also killed while trying to control the whitefly. These natural enemies include at least 2 parasitoids, 5 beetle predators and lacewings. Protecting natural enemies is a critical component in the long-term control of this pest.



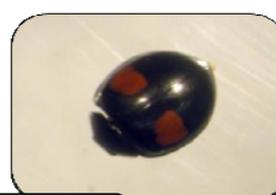
Parasitoid



Parasitized nymph



Beetle predators



Lacewing eggs

- If you are in an infested area and have susceptible ficus, you may initially need to use an insecticide to control this pest. It is extremely important to use the appropriate insecticides, methods, and timing in order to get the best control with the least amount of detriment to the natural enemies or the environment. There are several insecticide

options and most active ingredients come in more than one formulation (i.e. wettable powder, liquid, soluble granules, granular, pellets) and method of application.

- Apply a systemic (neonicotinoid) insecticide to the soil or trunk.

Systemic Neonicotinoid Insecticides for Use in the Landscape	
Active Ingredient	Trade Names
Acetamiprid	TriStar (Note: no soil application allowed)
Clothianidin	Arena, Aloft*
Dinotefuran	Safari
Imidacloprid	Merit, Coretect, Allectus*
Thiamethoxam	Meridian
*These products also contain a pyrethroid insecticide	

- Soil application methods – drench (fluid), surface (granular), bury (pellet)
 - Trunk application – basal spray, injection
 - Using a systemic insecticide with one of these methods should provide approximately one year control. Preferentially, apply the insecticide in the spring.
 - The whitefly does not need to be present for this type of application; however, this should only be done when it is known that the whitefly is in the area and your trees/hedges are at risk.
 - Misuse or overuse can cause problems such as insecticide resistance, secondary pest problems, environmental contamination, and detrimental effects on non-target organisms. The site and method of application must be on the label.
 - Note that these systemic insecticides also have restrictions about using near water (ponds, lakes, rivers, etc.). Always follow the label directions – **“The label is the law”**.
 - Take advantage of the different formulations and methods of application to fit the best product for your situation.
- Apply an insecticide to the foliage of the plant only when necessary.

Insecticide Options for Foliar Sprays in the Landscape	
Active Ingredient (Trade Name)	Active Ingredient (Trade Name)
Abamectin (Avid)	Dinotefuran (Safari)
Acephate (Orthene)	Fenoxycarb (Preclude)
Acetamiprid (TriStar)	Horticultural oil
Azadirachtin (Azatin XL; Azatrol)	Imidacloprid (Merit; Coretect; Allectus)
Beauveria bassiana (Botanigard)	Malathion (Malathion)
Bifenthrin (Talstar; Bifenthrin Pro; Onyx)	Potassium salts/fatty acids (Insecticidal soaps)
Carbaryl (Sevin)	Pymentrozin (Endeavor)
Clothianidin (Arena)	Pyriproxyfen (Distance)
Cyfluthrin (Tempo)	Spiromesifen (Forbid)
Cypermethrin (Demand)	Thiamethoxam (Meridian)
Deltamethrin (DeltaGard)	

- In general, foliar sprays are not for long-term control. Most are only active for a few weeks. However, some of these products can be very useful for quick knockdown in “hot spots” or for use in smaller situations.
- DO NOT use the same insecticide on the leaves that you use in the soil or on the trunk.
- If you use a foliar spray, there should be live whitefly present on the leaves.
- For extremely long hedges, it is not necessary to use a foliar spray on the entire hedge; just use where needed.
- Most foliar sprays require thorough coverage of the leaves for effective control.
- Most foliar sprays require frequent application (approximately every 7 to 10 days)
- Broad spectrum or persistent insecticides often kill a high proportion of predators and parasites. Carbamates (i.e. carbaryl), organophosphates (i.e. malathion) and pyrethroids (i.e. bifenthrin, cyfluthrin) are especially toxic to natural enemies.

For more information, contact your local Extension agent for additional information or <http://trec.ifas.ufl.edu/mannion/>

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