

Ficus Whitefly

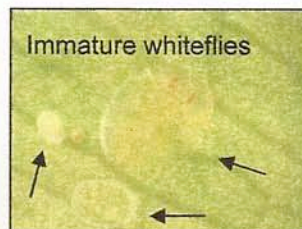
A New Pest in South Florida

Introduction: There is a new pest attacking ficus trees and hedges in Miami-Dade, Broward and Palm Beach Counties, Florida. This pest was identified as the fig (ficus) whitefly, *Singhiella simplex*, and is a new US continental record. Whiteflies are small, winged insects that belong to the Order Hemiptera which also includes aphids, scales, mealybugs, and bugs. These insects typically feed on the underside of leaves with their “needle-like” mouthparts. Whiteflies can seriously injure host plants by sucking juices from them causing wilting, yellowing, stunting, leaf drop, or even death.

Description and Damage: The leaves of ficus trees infested with whiteflies begin to turn yellow before the leaves are dropped from the plant. Ficus trees without their leaves are one of the most obvious symptoms of a whitefly infestation. This whitefly has been most commonly found infesting weeping fig (*Ficus benjamina*) but has also been reported on *F. altissima* (lofty fig, false banyan tree), *F. bengalensis* (also called “banyan tree”), *F. microcarpa* (Cuban laurel), *F. aurea* (strangler fig), *F. lyrata* (fiddle-leaf fig), and *F. macclandii* (= *F. binnendijkii*) (banana-leaf fig). This whitefly may eventually be found on other species of ficus.



If the foliage is disturbed the small, white gnat-like adult whiteflies can be seen flying from the foliage. The adult whitefly resembles a very small moth with a yellow body and white wings with a faint grey band in the middle of the wings. Immature stages (eggs and nymphs) can be found primarily on the underside of the leaves. Prior to adult emergence, the nymphs are tan to light green discs with red eyes. The underside of infested leaves look like they are dotted with small, silver or white spots which are actually the empty “skin” of the pupae after the adult emerges.

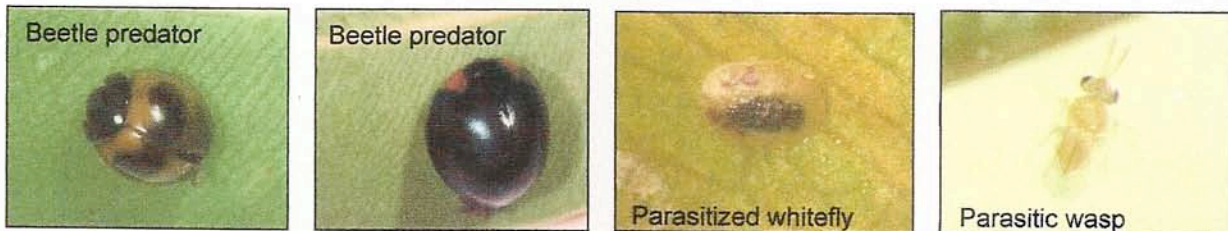


Biology: The life cycle of the ficus whitefly is approximately one month. Eggs which are usually laid on the underside of leaves hatch into a crawler stage. The crawler wanders around the leaf until they begin to feed. From this point until they emerge as adults, they are

immobile and remain in the same place on the plant. These feeding, non-mobile stages (nymphs) are usually oval, flat, and simple in appearance. The early nymph stages can be very difficult to detect.

Management: Although efforts to understand and control this pest are ongoing, there are several potential options for whitefly control. However, it is necessary to consider the site (landscape, hedge, large tree, container, production, etc), the size and number of trees, and the surrounding environment before taking steps to control this pest. For large trees, for example, a foliar spray may not be possible.

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 decisions for additional control measures can be made wisely so as not to also kill the natural enemies. The most commonly seen natural enemies include beetle predators, parasitoids, and lacewings.



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. Defoliation usually occurs after the whiteflies have been there for several generations. Also, if infested trees or hedges are trimmed, either leave the clippings on the property or if removing, bag the clippings to reduce the chance of spreading the insects. If clippings are being transported in a truck, be sure to either bag them or cover these clippings with a tarp. Although the eggs and early stages of the whitefly on fallen leaves will die, the last nymphal stage of the whitefly can likely survive, emerge into an adult and attack more ficus. Insecticidal soap or oil sprays may be an effective method of control for small trees or shrubs, but, thorough coverage of the undersides of the leaves is especially important. It will also be necessary to repeat these applications every 7 to 10 days. The use of other insecticides may be necessary to control this pest. However, it is important to use products that will not be detrimental to the natural enemies. Protecting natural enemies may be a critical component in the long-term control of this pest. Insecticides with systemic properties may be very useful in whitefly control because they can be applied as a drench to the soil and provide longer lasting control.

Control in the Landscape: The current recommendation is to drench the soil around the base of the tree or hedge with a product that contains a neonicotinoid compound (see below table). If applied appropriately, these products should provide sufficient control of the whitefly for 4-8 months (or perhaps longer) depending on the size of the tree or shrub. It is advisable to monitor your plants 3 months after application for the presence of live nymphs. Foliar sprays can also be applied to treat "hot spots" or get quick knockdown in addition to the soil applications. Products that can be considered for foliar applications are listed in the next section (Control in the Nursery), but it is important to only use those products that are allowed in the landscape. Also, the products (neonicotinoids) listed in the below table can also be

used as a foliar spray but it is not recommended that you use them as both a foliar and soil application and it is the soil application that will provide the longest control.

Products Containing Neonicotinoid Compounds

Active Ingredient	Trade Name	Over-the-Counter	Commercial Product
Clothianidin	Arena 50 WDG		X
	Aloft (combined with pyrethroid)		X
Dinotefuran	Safari 20 SG		X
	Spectricide Systemic Tree & Shrub Insect Control + Fertilizer	X	
Imidacloprid	Merit 75 WP, 75 WSP, or 2F; CoreTect		X
	Bayer Advanced Tree & Shrub Insect Control	X	
Thiamethoxam	Meridian 25 WG		X

Control in the Nursery: Follow the recommendations for whitefly management on <http://mrec.ifas.ufl.edu/iso/IAWG/> or <http://mrec.ifas.ufl.edu/LSO/bemisia/bemisia.htm>. In addition to the neonicotinoid insecticides listed above, insecticides that can be applied to the foliage for whitefly control include Aria (flonicamid), Avid (Abamectin), Azadirachtin, BotaniGard (mycoinsecticide with *Beauveria bassiana*), Distance (pyriproxyfen), Endeavor (pymentrozin), Endosulfan, Judo (spiromesifen), Talus (buprofenzin), Talstar (bifenthrin) and Tristar (acetamiprid). However, as stated above, a soil application is recommended and foliar applications should be used when whitefly populations are extreme or there is a need for quick knockdown. Rotation of insecticides among different modes of action is critical in the management of pests and is especially important for whiteflies that have been shown to develop resistance to insecticides. If plants have received a neonicotinoid drench, DO NOT spray with another insecticide in this group.

Also available are products that contain more than one insecticide such as Allectus (imidacloprid + bifenthrin) which is for use in the landscape and Discus (imidacloprid + cyfluthrin) which is for use in production. Sometimes these products are useful because you get the benefits of two different insecticides, however, it is important to use these products only when there is a need for both insecticides. It is also important to apply them in a way to get that added benefit of two insecticides. For example, it would be advisable to use these only as a foliar application and not a soil application. No matter what insecticide is selected, it is very important to check the insecticide label to determine if the insecticide can be used in the landscape, in production, or both. Note that many of the products containing a systemic insecticide also have restrictions about using near water (ponds, lakes, rivers, etc.). Always follow the label directions – “The label is the law”.

There have been reports of this whitefly killing ficus trees and hedges. There have been cases of branch dieback which sometimes can be severe and in a few cases plant death. In most cases, the trees and hedges will grow new leaves. If the tree or hedge has suffered from a massive loss of leaves, it is important not to overwater. Without leaves, the plants are less efficient at taking in the water and start to rot in the roots or lower trunk which may lead to plant death. If the twigs are still supple, the plant will produce new leaves in a few weeks. As soon as new growth is evident, a systemic insecticide applied to the soil may provide protection to the new growth.

For more information, contact your local Extension agent for additional information. Please visit the UF/IFAS Miami-Dade County Extension website for updates <http://miami-dade.ifas.ufl.edu> or <http://mannion.ifas.ufl.edu>

Catharine Mannion, University of Florida, Tropical Research and Education Center; Lance Osborne, University of Florida, Mid-Florida Research and Education Center; Adrian Hunsberger and Henry Mayer, Cooperative Extension Service, Miami-Dade County; Greg Hodges, Department of Agriculture and Consumer Services, Division of Plant Industry.

Photo Credits: C. Mannion, H. Glenn, UF/IFAS, A. Hunsberger, UF/IFAS Miami-Dade County Extension

The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication does not signify our approval to the exclusion of other products of suitable composition. All chemicals should be used in accordance with directions on the manufacturer's label. Check the label carefully as this information does change and our publications may not have the latest information. Use pesticides safely. Read and follow directions on the manufacturer's label.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other extension publications, contact your county Cooperative Extension service.

U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Larry Arrington, Dean.