UF UNIVERSITY of FLORIDA
IFAS Extension
LEE COUNTY
SOUTHWEST FLORIDA

Stephen H. Brown, Horticulture Agent
Lee County Extension, Fort Myers, Florida
(239) 533-7513 brownsh@ufl.edu
http://lee.ifas.ufl.edu/hort/GardenHome.shtml

Rugose Spiraling Whitefly in South Florida

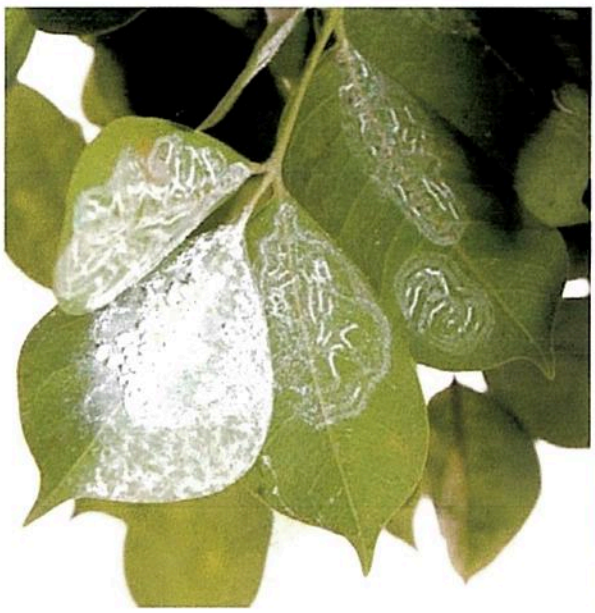
Occasional New Pests

Every now and then, Mother Nature sends a new insect tsunami our way. Here in South Florida we have been primed to expect these onslaughts with regularity. The Sri Lanka weevil has been notching the leaves of practically everything in sight since 2000. Beginning in 2002, the pink Hibiscus mealybug became an intractable nuisance. Back in 1996, the cycad aulacaspic scale came along and is now responsible for practically extinguishing the once ubiquitous king and queen sago palms as cultivated species. Florida gets about two new insect pests each month mostly moving north out of the tropics. Most of these foreign insects we ignore as they are consumed in a gluttony of diseases and predators. Occasionally though, some of these new arrivals are so problematic that they have some gardeners uprooting their favorite plants while others conduct chemical warfare to control them.

The latest plant scourge is an insect from Central America. It's the rugose spiraling whitefly (*Aleurodicus rugioperculatus)*. This is not the same whitefly that arrived in 2009 which causes defoliation and branch dieback of ficus in Florida. The rugose spiraling whitefly is an entirely new species. The infestation by the rugose spiraling whitefly is particularly nasty on Sanibel, Captiva, Pine Island, Bonita Springs, and Naples.

Symptoms of Rugose Spiraling Whitefly Infestation

If your plants have it, you cannot miss it. The undersides of the leaves are covered with an abundance of white, waxy material and the top with excessive black sooty mold. The sooty mold is a particular nuisance as it also accumulates on uninfected understory plants, mulch, gravel, concrete, automobiles and even on the surface of water. The preamble to the sooty mold is a sticky material known as honeydew, a sugary substance that is food for the sooty mold fungus.



Rugose spiraling whiteflies and the spiraling patterns of infestation on gumbo limbo (*Bursera simaruba*) leaves.

Rugose spiraling whiteflies on black olive (*Bucida buceras*)) leaves.

Underside of gumbo limbo leaves

Underside of coconut palm (*Cocos nucifera*) leaves

Whiteflies and Sooty Mold

It wouldn't hurt to understand the unending relationship between the whitefly, the honeydew and the sooty mold. Whiteflies, including this one, feed by sucking the sap from the leaves of plants. The sap is the sugary food of many insects and after consumption the whiteflies expel the waste as a sticky, glistening substance known as honeydew. Aerial spores of a fungus known as sooty mold, which are always present but unseen to the naked eyes, settle to feed on the honeydew. The shiny honeydew soon turns black as the fungus accumulates and spreads. Sooty mold can be physically removed but more often than not, new unaffected leaves replace old affected leaves returning the plant back to its normal appearance. While this is a messy pest, we are not sure about the degree of damage it causes to its many hosts. I know of no case of a plant killed by the rugose spiraling whitefly.


Rugose spiraling whiteflies and sooty mold on underside of Brazili beautyleaf (*Calophyllum brasiliense*)


Sooty mold on leaf tops of Brazili beautyleaf

Host Plants
The rugose spiraling whitefly is big and docile for a whitefly. They can gather in such great numbers that clouds of whiteflies take flight when an affected plant is shaken. This whitefly is particularly adapted to feeding on many types of plants. Top on the list are gumbo limbo, black olive, and Brazil beautyleaf trees; also palms such as areca, coconut, and foxtail, and birds of paradise shrub. It does not discriminate against native, exotic, or invasive plants.

Natural Biological Control
The number one question we get at the UF/IFAS Lee County Extension office on this pest is how to control it. It is important to know that a newly introduced insect becomes a pest of abundance because it has few natural enemies trying to gobble it up. Natural enemies come in the form of disease or more commonly predatory insects or mites. It is not uncommon, however, that after several years, the impact of an insect tsunami is greatly reduced. Local predatory insects and mites soon realize that a new dish has been added to the menu and they act accordingly.

Chemical Controls
In this relatively early phase of an insect tsunami we often recommend restraint so as to build up the population of predators. Killing the pest often means killing the predator when using some forms of insecticides. To reduce the risk of killing the good guys a systemic insecticide is preferred for control. Systemic insecticides are absorbed by the plant's roots and trunk and move upward to the area of feeding. Since the predatory insects and mites do not feed on the toxic plant tissue they are not noticeably affected by systemic insecticides. Systemic insecticides give longer pest control than contact insecticides.

If the plant is small and reachable then consider using a contact insecticide such as insecticidal soap or horticultural oil sprayed once a week for 3 to 4 weeks. Even a strong stream of water can effectively control this whitefly, the honeydew and sooty mold when it's done a few times a month. However, these approaches necessitate frequent applications and the control may be limited. Instead consider using a systemic insecticide to infested shrubs, trees and palms. A soil drench of Imidacloprid (Merit, Bayer's Advanced……), or Dinotefuran (Safari) is recommended. Gardeners can purchase these products at most garden centers and apply the drench themselves. Dinotefuran gives quicker control than Imidacloprid. The latter takes 3 to 4 weeks to work. Imidacloprid is longer lasting than Dinotefuran. Imidacloprid gives 10 to 12 months of control in South Florida. Dinotefuran is applied 3 to 4 times a year for effective control.

Dinotefuran can also be applied to the trunk or bark of trees for whitefly control. Bark absorption and insect control is faster than root absorption and control. Another form of Imidacloprid can be trunk injected into taller and larger trees and palms by a licensed pesticide applicator. Whitefly control begins 24 to 72 hours after trunk injection and so gives faster control than soil drenches. Field reports indicate that trunk injection effectively controls rugose spiraling whitefly for 12 or more months. Dinotefuran is not used as a trunk injection.

Not all plants need to be treated and systemic products cannot be used on coconuts if the nuts are going to be eaten or on other edible plants unless the Bayer Advanced Vegetable, Citrus and Fruit tree insect control product is used.

If you are having your garden or landscape professionally treated, be sure to compare the prices for control offered by several companies. I have heard quotes as varied as $800 to $5,000 for the same job. If you are doing the job yourself, read and follow all label directions. Never reapply a pesticide without checking first to see if it is necessary.

Useful Links

Rugose Spiraling Whitefly
Video Clip on Rugose Spiraling Whitefly
Chili Thrips Fact Sheet
Croton Scale Power Point
Erythrina Gall Wasp Power Point
Ficus Whitefly Fact Sheet
Hibiscus Insect Problems Power Point
Oak Galls
Whitefly on Cocoplum Fact Sheet

Useful Links in Spanish

Acaros Daño de Tres Plantas Del Sur de la Florida
Avispas Braconide
Fusarium en Palma Reina

All pictures taken by Stephen H. Brown except where indicated.

This fact sheet was reviewed by Cathrine Mannion, Ornamental Entomology, UF Tropical REC; Peggy Cruz, and Karen Headlee, Lee County Extension.