

SherrillTree Spotlight : Whiteflies in Florida

Possible treatment combinations:

- Wash tree with water + inject with **IMA-jet** + soil drench with **AzaSol**
- Spray with **Pure-Spray E10 Horticultural Oil** + soil drench with **AzaSol**
- Spray with **AzaSol** + soil treatment with **Transtect**
- Spray with **Pure-Spray E10 Horticultural Oil** + inject with **Xytect**
- Wash tree with water + soil treatment with **AzaSol** + inject with **Xytect**
- Spray tree with **Pure-Spray E10 Horticultural Oil** + soil treatment with **Transtect** + inject with **IMA-jet**
- Wash tree with water + inject with **IMA-jet** + spray with **AzaSol**
- Spray tree and surrounding soil with **AzaSol** + **Vivid II** Microinjectable

Whiteflies have become a major pest in South Florida, especially the Ficus Whitefly and the Rugose Spiraling Whitefly. This pest can be easily identified by the mass numbers of small white flying moth-looking bugs, and the spiral pattern of white eggs left on the underside of leaves, looking like a white thumbprint. They are especially prevalent due to their ability to feed and reproduce on almost any plant. This allows them to multiply and spread very quickly, colonizing entire farms or nurseries almost overnight. This pest was first discovered in Dade County Florida, in 2009, and has since spread steadily north to cover most of Florida, currently reaching into the Northern counties of Florida. This pest isn't a true fly, but more like an aphid, whose needle-like mouth pieces puncture and suck sugar out of the leaves. In addition to damaging trees and transmitting viruses, the whitefly secretes a sticky, white substance called honeydew, which grows a black fungus called sooty mold which can cause further damage to the tree. The feeding can hurt trees and cause leaves to die and fall, but whiteflies are unlikely to kill a tree. The bigger problem is that they are a huge nuisance, covering everything with goo. This goo quickly grows a black fungus called sooty mold, which can further damage trees. In areas infested with Whiteflies anything left outside can be covered in this unpleasant secretion, especially cars. In heavily infested areas with little rainfall, everything outside is sticky, as if someone spilled a soda over everything. The mass of dead whitefly bodies can also be a problem itself, littering the ground and clogging up pool filters.

Research is being done to determine the best control methods for Whiteflies, but so far most treatments haven't been very effective. Whiteflies seem to quickly build up resistance to pesticides, and spraying seems to do more harm than good. The only effective control is using an Integrated Pest Management system, combining several different control methods with different active ingredients and different modes of attack. SherrillTree offers a variety of products that can help kill whiteflies, but they are only truly effective when used in conjunction with each other and alternated to prevent resistance. Below is a list of products shown to be effective against this pest, and suggestions for how you could combine them effectively.

Treatments for FL Whiteflies

Pure-Spray E10 Horticultural Oil- the environmentally responsible alternative to chemical sprays, this ultra-pure oil smothers whiteflies instead of poisoning them. It causes almost no negative effects to non-target plants, animals or water sources. Inexpensive and extremely pure (99%), it is the most economical and environmentally conscious option for spraying. Kills whiteflies at all stages of development. Can only be used as a spray. Does not provide long-lasting protection, so should be sprayed regularly , as needed.

AzaSol (azadirachtin)- derived from NEEM oil, this organic product has been shown to be effective against whiteflies. It can be applied as an injection, soil drench or spray. NEEM oil has been used as a natural insecticide for many years, and the active ingredient, azadiractin, has recently been made into an effective and environmentally responsible insecticide with several possible application methods. This product is a favorite among gardeners insisting on safe pesticide control. This is the best and safest option for homeowners treating small plants or trees. Treatments will probably needed regularly depending on size of infestation.

IMA-jet (imidicloprid 5%) Most commonly used chemical insecticide against whiteflies. This product is injected directly into the xylem of the tree to provide protection to the tree without damaging natural predators, local water sources, non-target animals, or the environment in general. The active ingredient, imidicloprid, is a dangerous chemical pesticide, but when injected directly into trees has no apparent environmental impact. Application requires a tree injection system, such as the **Arborjet Tree IV system**. The active ingredient, imidicloprid, generally lasts 8-10 months in a hot environment like Florida.

Xytect 2F, 75WSP, Inject (imidicloprid 21%, 75%, 5%) most commonly used chemical insecticide against whiteflies, offers a variety of methods for application. Tree injection is the safest and most environmentally conscious application method, but requires a separate system to inject the product. Soil application can be especially useful in trees that are too small to inject. Can be used as a foliar spray if no better options, but should be applied carefully, at the appropriate time using proper personal protective equipment. Individuals should be trained before spraying pesticides. Active ingredient, imidicloprid, generally lasts 8-10 months in a hot environment like Florida.

Merit microinjectable capsule(imidicloprid 17%) This easy to apply microinjectable capsule contains imidicloprid, the most commonly used systemic insecticide against Whiteflies. This can be applied by professionals and homeowners, with the limited environmental risk associated with tree injection. This product can only be shipped in boxes of 25 capsules. The number of capsules needed varies with the type and diameter of the tree, but generally can be used at 6 inch spacing around the circumference of the tree. Active ingredient, imidicloprid, generally lasts 1 years, probably 8-10 months in hot environment like Florida.

Vivid II microinjectable capsule(Abamectin 1%) This easy to apply microinjectable capsule contains abamectin, a commonly used chemical insecticide. This can be applied by professionals and homeowners, with the limited environmental risk associated with tree injection. This product can only be shipped in boxes of 25 capsules. The number of capsules needed varies with the diameter of the tree, but generally can be used at 6 inch spacing around the circumference of the tree. Should be applied as needed.

Transtect (dinotefuran 70%) Effective chemical insecticide against whiteflies, can be applied a foliar spray, soil drench, soil injection, or bark spray. Cannot be injected straight into trees, but effective as a soil treatment. Bark sprays are safer than foliar sprays, but are more effective when used with a bark penetrating adjuvant, such as **Pentra-Bark**. The product can be effective for up to one whole growing season, which is roughly 6-8 months.

CHEMICAL PESTICIDES KILL NATURAL ENEMIES OF WHITEFLIES, AND WHITEFLIES QUICKLY BUILD UP RESISTANCE!

***Avoid spraying chemical pesticides unless no other viable options**

***ALL PESTICIDES MUST BE APPLIED ACCORDING TO THE INSTRUCTIONS ON THE LABEL.**

APPLYING PESTICIDES IN AMOUNTS GREATER THAN THE LABEL RATE IS ILLEGAL

TREATING TREES INFESTED WITH WHITEFLIES

If you are treating a tree with a diameter of more than 6 inches, tree injections are a better option than sprays because they don't kill natural enemies controlling the whitefly population.

Whiteflies are unusually good at building up resistance to pesticides. If you use the same chemical treatment over and over, the pest population will build resistance to the point where you are no longer effectively controlling them. Those chemicals will, however, kill off the whiteflies natural enemies, meaning that they are an even bigger problem than before. To prevent this from happening, use a mixture of different techniques, including organic solutions. A combination of

washing the trees off with water, applying a soil drench insecticide and a trunk injection with a systemic insecticide should significantly reduce the pest problem. As an alternative idea; you could spray the tree with horticultural oil or **AzaSol**(NEEM), and use a systemic injectable insecticide, such as **IMA-jet** or **Xytect** inf. If multiple treatments are needed, you should switch to products with different active ingredients. These methods can be used in conjunction with biological controls that are available, such as lady beetles and beneficial fungi, along with mechanical controls such as sticky traps.

*Depending on the size of the plant, washing the leaves with water from a hose can significantly reduce size of infestation. This must be done regularly to be effective, not an effective control strategy in the long term by itself.

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Which combination you use makes little difference, as long as the different control methods use very different active ingredients and methods, and you don't repeat the same control multiple times

*Remember when spraying with **AzaSol**(NEEM) to spray the soil around the tree, that is where some of the eggs were hatched. Spray infested leaves that have already fallen.

*Note: only trees with a 6-8" diameter trunk or more can be injected, for smaller trees and shrubs, see recommendations below

TREATING SHRUBS OR SMALL TREES INFESTED WITH WHITEFLY

Shrubs, bushes and trees smaller than 6" in diameter are too small for injections, but you can still treat them using soil drenches and sprays. Smaller plants are easier to wash thoroughly with a hose, and that should be attempted before any major treatment

Recommendations: wash plant thoroughly first with water, use soil treatment such as **Xytect 2F**, **Transtector** **AzaSol**. If whiteflies persist after a few days, spray shrub with **PureSpray Horticultural Oil** or **AzaSol**. Spray plant with chemical pesticides if no other acceptable option.

Just like with trees; combine different control methods to prevent resistance. If one product proves ineffective, try a different product, or multiple different products at the same time.

Treatments may need to be repeated regularly to maintain effectiveness

ALTERNATIVE CONTROL METHODS

In addition to the control methods offered at SherrillTree, there are a number of biological methods of controlling whiteflies that exist on the market, the effectiveness of these are unknown.

These include: lacewings, big-eyed bugs, lady beetles such as *Clitostethus arcuatus* and *Harmonia axyridis*, and the *Beauveria bassiana* fungus that can be used to control whiteflies

Mechanical controls: Yellow sticky traps can be made at home using a yellow painted board covered with an adhesive of petroleum jelly and household detergent.

Whitefly infestations can be avoided if you remove infected leaves and use a water spray to reduce whitefly population. Aluminum foil and reflective mulches can repel whiteflies

*Note: SherrillTree takes no responsibility for the effectiveness for biological or mechanical controls. These are offered merely as suggestions based on what other people not connected to SherrillTree have found effective.

Affected Areas

Brevard County

Broward County

Dade County

Davie

Delray Beach

Duval County

Ft. Lauderdale

Hollywood

Indian River County

Key West

Lee County

Martin County

Miami

Monroe County

Palm Beach County

Palm Beach Gardens

Pinellas County

Polk County

South Florida

St Lucie County

Suwanee County

The Keys