Ficus Whitefly
and Other Pests of Ficus
Whiteflies

• Approximately 75 species of whiteflies in Florida.
• Piercing-sucking mouthparts; feed on the phloem
• Adults are small, moth-like, usually with white wings.
• Typically cause yellowing and leaf drop

Photos: H. Glenn, UF/IFAS
Whiteflies

- Immatures and eggs are typically found on underside of leaves

Photos: H. Glenn, UF/IFAS
Ficus Whitefly
Singhiella simplex (Hemiptera: Aleyrodidae)

• First observed in 2007
• New U.S. continental record
• Currently in Miami-Dade, Broward and Palm Beach Counties
• Faint grey band on the middle of the wings
Ficus Whitefly Hosts

- *F. benjamina* (weeping fig)
- *F. altissima*
- *F. bengalensis* (“banyan tree”)
- *F. aurea* (strangler fig)
- *F. microcarpa* (Cuban laurel)
- *F. maclellandii* (banana-leaf fig)
Damage to Ficus

- Leaf yellowing
- Defoliation
- Branch dieback
  - Severity may be linked to other problems

[Images of a leaf in May and July, showing signs of damage]
Another Whitefly Also on Ficus

*Tetraleurodes fici*

Photo: H. Glenn, UF/IFAS
Predators Collected in Miami on Ficus Infested with Whitefly

*Harmonia axyridis*
*Olla v-nigrum*

*Exochomus childreni*
*Chilocorus nigritis*
*Curinus coeruleus*
Parasitoids Collected in Miami on Ficus Infested with Whitefly

*Encarsia protransvena*  
*Amicus bennetti*

Photos: H. Glenn, UF/IFAS
Lacewing Larvae and Eggs
Ficus Whitefly Life Cycle

**Adult Whitefly**
(2-4 days)

**Eggs**
(10 days)

**1st instar – crawler**
(4.2 days)

**4th instar – puparia**
(5.8 days)

**2nd-3rd instars – nymphs**
2nd instar – 3.7 days; 3rd instar – 3.3 days

*2nd Constant temperature (80º F)*

*3rd

Photo: H. Glenn, UF/IFAS
What do you actually see on a leaf?

- Eggs
- New egg
- Recently molted nymph
- Pupal case
- Emerging adult
- Nymph
- Parasitized nymphs
- Recently molted nymph
- Nymph
- Nymph
- Nymph
- Nymph
Ficus Whitefly
F. microcarpa

[Bar graph showing mean number of eggs and pupae per leaf with values 68.2 for eggs and 2.4 for pupae]
F. binnenijkii "Alii"
**F. microcarpa** "Green Island"
F. elastica "Burgundy"
**F. religiosa**
Preliminary Results
(Studies ongoing)

- Eggs
- Development of immature stages
  - Very few or no eggs
  - Very little or no development
Fig Whitefly Management in the Landscape

• Monitor for early signs of infestation and natural enemies

• When pruning trees and hedges
  – Leave or remove by bagging
  – Late instar nymphs can survive on fallen leaves

• Current pesticide recommendations
  – Apply a systemic insecticide to the soil
  – Limited foliar recommendations
Using Insecticides Safely

1. Only use pesticides when necessary
   – Misuse or overuse can cause problems such as insecticide resistance, secondary pest problems, environmental contamination, and detrimental effects on non-target organisms

2. Monitor plants for live whiteflies before applying an insecticide
   – Some ficus are not damaged by this whitefly

3. Choose insecticides and application methods that are not as detrimental to natural enemies or the environment

4. Consider alternative plant options if planting a new tree or shrub
Insecticide Selection
Professional Use (Landscape and Nursery)

– Soil Application (Systemic insecticides)
  • Clothianadin (Arena, Aloft*)
  • Thiamethoxam (Flagship, Meridian)
  • Imidacloprid (Merit, Marathon, Coretect, Discus*, Allectus*)
  • Dinotefuran (Safari)

What is common to these insecticides?

1. In the same chemical class – neonicotinoids
2. Do not rotate these products
3. Do not use as a soil and foliar treatment
Soil Applied Neonicotinoids

- The goal is to get the insecticide to the roots around the base of the tree
- Use as much water as possible (0.5 to 2.5 gallons of water per tree)
- Apply at the base of the tree; splashing on to the trunk is okay
- Prior to drench; remove mulch or leaf litter to increase uptake
- Apply as best you can around the trunk, however, with hedges with trunks less than 3 feet apart, you can apply a band along the tree row.
# Insecticide Selection

Professional Use (Landscape and Nursery)

Foliar application

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abamectin (Avid)</td>
<td></td>
</tr>
<tr>
<td>Acetamiprid (TriStar)</td>
<td></td>
</tr>
<tr>
<td>Azadirachtin (Azatin XL)</td>
<td></td>
</tr>
<tr>
<td>Bifenthrin (Talstar)</td>
<td></td>
</tr>
<tr>
<td>Buprofezin, (Talus)</td>
<td></td>
</tr>
<tr>
<td>Clothianidin (Arena)</td>
<td></td>
</tr>
<tr>
<td>Endosulfan (Endosulfan;</td>
<td></td>
</tr>
<tr>
<td>Thiodan)</td>
<td></td>
</tr>
<tr>
<td>Flonicamid (Aria)</td>
<td></td>
</tr>
<tr>
<td>Horticultural oil</td>
<td></td>
</tr>
<tr>
<td>Imidacloprid (Merit,</td>
<td></td>
</tr>
<tr>
<td>Marathon, Discus, Allectus)</td>
<td></td>
</tr>
<tr>
<td>Pymentrozine (Endeavor)</td>
<td></td>
</tr>
<tr>
<td>Pyriproxyfen (Distance)</td>
<td></td>
</tr>
<tr>
<td>Spiromesifien (Judo)</td>
<td></td>
</tr>
<tr>
<td>Beauveria bassiana (BotaniGard)</td>
<td></td>
</tr>
</tbody>
</table>
Insecticide Selection
Professional Use (Landscape and Nursery)

Foliar application

Although these insecticides may provide some quick control, they will not provide long-term control. Some of these insecticides (i.e. bifenthrin) may disrupt the natural enemies and should be used very selectively.
Control of Ficus Whitefly
Soil and Foliar Applications

Control
Hort Oil-foliar
Merit-foliar
TriStar-foliar
CoreTect-low soil
CoreTect-high soil

Mean No. Live Nymphs per Leaf

Days After Application

0 4 8 12 16 20 24 28 32 36 40 44 48

0 5 10 15 20 25 30 35 40
Fig Wax Scale  
*Ceroplastes rusci*

- First found in Florida in the mid 1990’s; reported as a pest of *Ixora* spp.
- Broad range of host plants (22 plant families)
- Recent infestations in Miami - on large ficus trees; understory plants also infested
- Produce a large amount of honey dew which leads to excessive sooty mold
Fig Wax Scale

Adult females are found on twigs; eggs hatch to crawlers which move to feed on the leaves, after about one month the 2nd instar nymphs migrate to the leaf petioles or to new shoots.

Photo: H. Glenn, UF/IFAS
Fig Wax Scale

Parasitized – dying scale?

Photo: H. Glenn, UF/IFAS
Fig Wax Scale - Management

- Parasites present (6 parasites have been identified)
- Light infestations
  - Horticultural oil or insecticidal soap
- Heavy infestations
  - Insecticides recommended for scale control
  - Large trees may require a soil application of a neonicotinoid to take advantage of the systemic properties and long term control
Fig Wax Scale
Pesticide Options

• **Neonicotinoids**
  – Acetamiprid (TriStar)
  – Clothianidin (Arena, Aloft*)
  – Dinotefuran (Safari)
  – Imidacloprid (Merit, Cortect, Allectus*)
  – Thiamethoxam (Meridian)

• **IGRs**
  – Azadirachtin (Azatin)
  – Pyriproxyfen (Distance)

• **Pyrethroids**
  – Bifenthrin (Talstar)
  – Cyfluthrin (Tempo)
  – Deltamethrin (DeltaGard)

• **Other**
  – Acephate (Orthene)
  – Malathion

* Combination product (neonicotinoid + pyrethroid)
Other New Pests on Ficus

• Blister galls caused by a small wasp
  – Reported in 2007 in Naples only the Cuban-laurel.

• Fig gall midge – reported in the Naples area on *F. microcarpa*

http://www.doacs.state.fl.us/pi/enpp/ento/fig_horidiplosis.html
Weeping Ficus Thrips 
(*Gynaikothrips uzeli*)

- First noted in 2003 due to heavy damage on *Ficus benjamina* in south Florida
- Prefer tender, new foliage
- Feeding causes sunken, reddish spots on leaves. Leaves tend to curl and fold inward.
Management - Ficus Thrips

- Monitor new foliage which is what they prefer; remove folded leaves
- Landscape – may not be economic to control (natural enemies)
- Oils and soaps would probably will not work well
- Pesticides that can be used include abamectin (Avid), acephate (Orthene), acetamiprid (TriStar), azadirachtin (Azatin), cyfluthrin (Decathlon), dinotefuran (Safari) imidaclorpid (Merit), novaluron (Pedestal), and spinosad (Conserve)*.

Photo: H. Glenn, UF/IFAS
Management of Ficus Thrips

- Thrips peak in late spring and late summer
- The predatory bugs were able to bring the populations back down after these peak periods
- Orthene and Safari (drench treatments) provided control – may only be needed during peak thrips populations
- All insecticides reduced the number of predators
- Overall, the level of damage did not differ much between the insecticide treatments and the control treatments over the long term
Exotic Soft Scale
(Hemiptera: Coccidae)

- 2008 - Reported in Florida; new to science
- Biology – unknown
- Hosts – Numerous hosts; croton is common; many native plants in Florida
- Damage - Can build up to high densities on some hosts; plant decline
Catharine Mannion
Research and Extension Specialist
Ornamental Entomology

University of Florida, IFAS
Tropical Research and Education Center
18905 SW 280th Street
Homestead, FL 33031

305-246-7000
cmannion@ufl.edu
http://trec.ifas.ufl.edu/mannion