New Pests of Ficus Whitefly and Thrips

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Recent Pest Problems on Ficus

Whitefly

Thrips

Photos: H. Glenn, UF/IFAS
Fig Whitefly
Singhielia simplex

- New U.S. continental record
- Miami-Dade County (approximately 35 sq miles)
- Looks like a typical whitefly

Photos: H. Glenn, UF/IFAS
Plant Hosts

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

- Leaves turn yellow
- Rapid defoliation

Photos: H. Glenn and C. Mannion, UF/IFAS
Natural Enemies - Parasitoid

Encarsia protransvena

Parasitized whiteflies

Photos: H. Glenn, UF/IFAS
Natural Enemies - Predators

Three predatory beetles identified thus far:

- *Curinus coeruleus*
- *Chilocorus nigritis*
- *Exochomus childreni*

Photos: H. Glenn, UF/IFAS
Parasitized Whitefly

Number of Whitefly per 30 Leaves

Oct    Nov

Live   Dead

0  10  20  30  40  50
Management

• Monitor ficus plants for early signs of infestation
• Monitor for natural enemies
• When pruning trees and hedges, bag clippings
Management

• Homeowners
  – Insecticidal soap and oil sprays
  – Thorough coverage is necessary
  – Repeat applications 7 – 10 days
  – Systemic insecticides
    • Imidacloprid (Bayer Advanced Tree and Shrub)
    • Dinotefuran (Spectricide Tree and Shrub)
  – Contact insecticides
    • Bifenthrin (Ortho Bug-B-Gon); Cyfluthrin (Bayer Advanced rose and Flower); Sevin (Carbaryl); malathion and others
Management

• Professional Use (Landscape and Nursery)
  – Systemic insecticides – soil treatment
    • Clothianadín (Celero)
    • Thiamethoxam (Flagship)
    • Imidaclorpid (Merit, Marathon, Discus*, Allectus*)
    • Dinotefuran (Safari)
  – Insecticides – foliar treatment
    • Flonicamid (Aria), Abamectin (Avid), Azadirachtin, Pyriproxyfen (Distance), Pymentrozine (Endeavor), Endosulfan, Spiromesifen (Judo), Buprofezin, (Talus), Acetamiprid (Tristar)
Q Biotype Whitefly
*Bemisia tabaci*

- Whitefly is a major pest of vegetables and ornamental crops around the world
- Q biotype – resistant to many of the commonly used insecticides
- [http://mrec.ifas.ufl.edu/lso/bemisia/bemisia.htm](http://mrec.ifas.ufl.edu/lso/bemisia/bemisia.htm)
Pesticide Mode of Action

• How the pesticide works in the insect
• Classify compounds by their mode of action
  – IRAC (Insecticide Resistance Action Committee)
  – An Interactive Mode of Action tool
    http://www.irac-online.org/eClassification/
  – Chemical Class Chart (ohp.com)
### Neonicotinoid Compounds (MOA 4)

<table>
<thead>
<tr>
<th>Acetamiprid</th>
<th>TriStar</th>
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<tbody>
<tr>
<td>Dinotefuran</td>
<td>Safari</td>
</tr>
<tr>
<td>Imidacloprid</td>
<td>Marathon/Merit Discus/Allectus*</td>
</tr>
<tr>
<td>Thiamethoxam</td>
<td>Flagship</td>
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*Combination products (imidacloprid + pyrethroid)
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 - Thrips

- Detection of thrips can be done by placing a white paper beneath the leaves or flowers and shake the plant.
- Look for the small spots of varnish like excrement on the leaves
- Biological control
  - Resident populations of predaceous thrips, minute pirate bugs, and predaceous mites help but cannot be relied upon for adequate control
  - Some success with releases
<table>
<thead>
<tr>
<th>Group 1B – Organophosphates</th>
<th>Group 6 – Avermectin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Acephate (such as Orthene)</td>
<td>• Abamectin (Avid)</td>
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<thead>
<tr>
<th>Group 3 – Pyrethroids</th>
<th>Group 9 – Unknown/nonspecific</th>
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<tbody>
<tr>
<td>• Bifenthrin (Talstar, Onyx)</td>
<td>• Flonicamid (Aria)</td>
</tr>
<tr>
<td>• Cyfluthrin (Tempo, Discus)</td>
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<thead>
<tr>
<th>Group 4A – Neonicotinoids</th>
<th>Group 15 – Benzoylureas</th>
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</thead>
<tbody>
<tr>
<td>• Acetamiprid (TriStar)</td>
<td>• Novaluron (Pedestal)</td>
</tr>
<tr>
<td>• Dinotefuran (Safari)</td>
<td></td>
</tr>
<tr>
<td>• Imidacloprid (Marathon, Discus)</td>
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</tbody>
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<tr>
<th>Group 5 – Spinosyn</th>
<th>Group 18B – Azadirachtin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Spinosad (Conserve)</td>
<td>• Azadirachtin (Azatin, Ornizin)</td>
</tr>
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</table>
Gnaikothrips uzeli

Mean Number Thrips

Sample date

Mean Number Predatory Bug

Sample date

- Control 1
- Control 2
Gnaikothrips uzeli

![Graph showing population changes of Gnaikothrips uzeli over time with different treatments.](image-url)
Management of Ficus Thrips (Gynaikothrips uzeli)

- 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
Managing Pests

• http://edis.ifas.ufl.edu/
• http://creatures.ifas.ufl.edu/
• http://mannion.ifas.ufl.edu
• Pest Alerts
  – University of Florida
    (http://extlab7.entnem.ufl.edu/pestalert/)
  – DOACS (http://doacs.state.fl.us/~pi/enpp/pi-pest-alert.html)
• Pests you have not seen before or unexpected damage
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