

Integrated Pest Management of the Ficus Whitefly

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Integrated pest management (IPM) measures listed here are based on research conducted at the University of Florida (Mannion 2010). Further research is needed to determine management approaches for this pest in Arizona.

Inspect ficus plants regularly and detect the presence of the insects early, before they become a problem or cause major plant symptoms.

Identify the pest correctly (Nair et al. 2015). If unsure, seek expert help. Make sure the symptoms on your plants are due to whiteflies. Look for eggs & nymphs in the **early winter, before there are any leaf symptoms** (Fig. 1). Adults may be observed flying around when leaves and branches are shaken.

The adults are short lived and may not be in numbers large enough to be readily noticed by a casual observer. You can still have an active infestation of feeding nymphs on the leaves even if adults are not abundant. It is easier to manage this pest before their population builds up.

Understand that major leaf symptoms such as yellowing, wilting, distortion, stunting of leaves or leaf-drop (Fig. 2) indicate an advanced population that has been in residence for some time.

If the ficus plants are losing large numbers of leaves, it is because the whiteflies have already infested the plants for several weeks or months, and control measures will be costly and less effective at this point.

Resistant ficus varieties

Not all varieties of ficus trees or their relatives are susceptible to whitefly infestations. Some ficus species that are noted to be resistant are *F. microcarpa* "Green Island", *F. religiosa*, *F. carica* (edible fig), *F. lyrata*, *F. pumila* (= *F. repens*) and *F. elastica* "Burgundy", whereas *F. benjamina* and *F. nitida* are susceptible. Choose resistant ficus varieties for new plantings in your landscape. When the flexibility exists, select other tree or shrub species that are better adapted to desert conditions, frost tolerant, water-saving, and non-hosts for ficus whiteflies.

Natural enemies

Naturally occurring predatory and parasitic insects play an important role in the long-term management of the pest. (Continued on next page).

Figure 2. Symptoms of ficus whitefly damage on ficus plants:
A – initial yellowing and distortion,
B – advanced yellowing,
C – severe defoliation





Figure 3. Parasitoid wasp laying eggs on whitefly nymph

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Natural enemies

If parasitized nymphs are observed on the leaves (Fig. 4B, C), it means that parasitoid wasps are at work (Fig. 3). Recognize the differences between healthy and parasitized nymphs (Fig. 4). Parasitized nymphs (Fig. 4B, C) may be slightly darker in color than healthy ones (Fig. 4A), and may contain at least one larvae of the parasitoid wasp (Fig. 5) developing within (use magnification to view). Exit holes present on the backs of nymphal skins are also a good diagnostic of parasitoid activity. Parasitoid wasps leave an round exit hole on emergence (Fig. 6B), whereas a normal whitefly adult will leave a T-shaped exit hole (Fig. 6A).

Many other insects such as lady beetles (Fig. 7) and green lacewings (Fig. 8), assassin bugs, long-legged flies, etc. are predators of whiteflies. These beneficial insects must be protected and encouraged as much as possible, taking care to avoid their exposure to broad-spectrum insecticides.

Control with insecticides should be considered **before** major symptoms of damage are evident and only after following all steps given. Plants that are already defoliating will not respond well to the late addition of insecticides. Susceptible, valuable specimen trees should be monitored early in the winter for the presence of nymphs and the activity of natural enemies.

Regular inspections will tell the pest manager if the population is growing and possibly in need of a chemical control. The decision to use a pesticide should be carefully considered. In FL, just one, very well timed soil application of a neonicotinoid insecticide like dinotefuran or imidacloprid has provided year-long control of this pest (Mannion 2010). Mixtures with other insecticides (especially pyrethroids) and foliar sprays are generally not necessary and may be counterproductive because of their negative impacts on beneficial insects and possible development of pest resistance to insecticides. Spraying soapy water (1 tbsp. per gallon of water) is helpful for immediate knock down of adult whiteflies. Consult a professional and **always read the label**; the label is law.

Also see:

- Mannion, C. 2010. Ficus whitefly management in the landscape. http://cirs.ucr.edu/pdf/ficus_whitefly_feb2010_fact_sheet.pdf University of Florida Cooperative Extension.
- Nair, S., R. Senior, K. Umeda, P. Ellsworth, U. Schuch, D. Gouge, S. Li. 2015. Identification and Biology of the Ficus Whitefly. http://cals.arizona.edu/apmc/docs/Ficus_Whitefly_Short1.pdf University of Arizona.

A PDF of this publication is available on-line at: http://cals.arizona.edu/apmc/docs/Ficus_Whitefly_Short2.pdf



Figure 4. A-Healthy and B,C- Parasitized whitefly larvae

H. Glenn, UF/IFAS



Figure 5. Parasitoid wasp larvae developing inside whitefly larvae

Rebecca Senior, UA

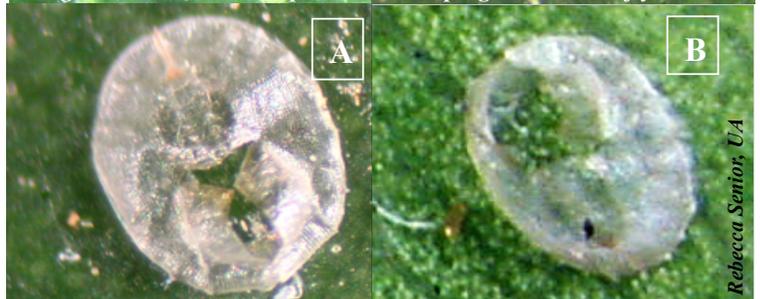


Figure 6. A – Whitefly adult exit hole; B – parasitoid wasp exit hole

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Figure 7. Lady beetle (*Delphastus* spp.) A – adult and B – larva feeding on ficus whitefly nymphs

Chris Mallory, SocialFauna.net



Figure 8. Green lacewing larva

David Riley, UGA

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