

Citrus Leafminer (*Phyllocnistis citrella*)

Introduced: First reported in Florida in May 1993 in Miami-Dade, Broward, and Collier Counties.

Current Infestation: It now occurs everywhere in Florida where citrus is grown, and has spread to other Gulf Coast states.

Description/Biology: The very tiny eggs are laid singly on the underside of immature host leaves in the evenings and early mornings.

Larvae are very small, less than 1/6 inch (up to 0.5 cm) long, green-yellow, translucent, and are found inside leaf mines.



Larvae are best identified by the meandering leaf mines on the leaves and occasionally on new shoots.



Larvae are protected within the leaf during their feeding cycle and are therefore difficult to control.

The pupal stage is within the mine in a special pupal cell at the leaf margin, under a slight curl of the leaf.

Adults of the citrus leafminer are small moths 1/12 inch in length (2mm) that appear white and silvery with several black and tan markings.



Adults generally are too small to be easily noticed and are therefore, rarely encountered. Adults live for only a few days.

Seasonality: In Florida, one generation is produced about every three weeks, but populations increase when citrus are producing new foliage (flushing). Citrus leafminer populations peak during the summer and early fall.

Hosts: The citrus leafminer is common on all species of citrus and their relatives (Rutaceae). Citrus leafminer is commonly found on leaves of limes, oranges, grapefruit, and pummelo (*Citrus maxima*). Florida records include various *Citrus* spp., kumquat (*Fortunella crassifolia*), calamondin (*X Citrofortunella microcarpa*), orange jasmine (*Murraya paniculata*), and boxthorn (*Severinia buxifolia*).

Importance: Damage by citrus leafminer does not significantly affect growth (except on young trees).

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Damage: Leaf curling and the presence of serpentine “winding” mines are usually found on the lower leaf surface and occasionally on the upper leaf surface when

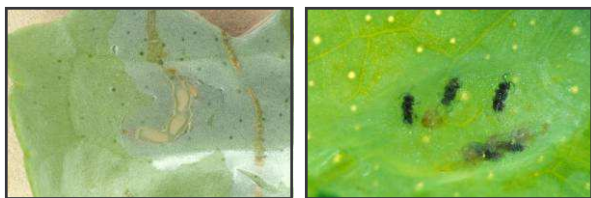
heavily infested. The leaf epidermis over the mines appears as a



silvery film. Usually only one leaf mine is present per leaf but large leaves may have up to fifteen mines during serious outbreaks.

Old damage appears as necrotic leafmines. The insect is no longer present. As a rule, mature leaves are not attacked.

Management: In Florida, chemical control is limited but biological control and applications of horticultural oil are suitable methods to help reduce populations of citrus leafminer. Parasitic wasps have been released to suppress citrus leafminer to an acceptable level. Spiders also help reduce pest populations.



Citrus leafminer parasitoid: *Ageniaspis citricola*

Homeowner and Professional - It is more important to monitor and possibly treat young trees. However, if a pesticide is used, it must be registered for use on fruit trees in landscapes.

Prune heavily infested shoots, reduce nitrogen fertilization to discourage new growth, and spray with horticultural oil as soon as new shoots begin to develop. Continue oil sprays every 10-14 days until leaves harden off. Avoid spraying when 80° F or above to avoid phytotoxicity.

Grower - Citrus nursery stock are generally most affected by citrus leafminer damage. Since leafminer populations build up on flush growth, grove practices that will deter winter flushes should be encouraged. Citrus leafminer greatly exacerbates the severity of citrus canker because the tunnels made by the leafminer are susceptible to canker infection much longer than mechanical wounds. The introduced parasitoid, *Ageniaspis citricola*, makes a significant contribution to control of this pest and should, therefore, be conserved by avoiding unwarranted pesticide use. A scouting program should be initiated to determine peak periods of larval activity. Insecticides include imidacloprid, abamectin, acetamiprid, diflubenzuron, and spinosad. Be sure to follow all label instructions.

Websites:

<http://edis.ifas.ufl.edu/IN165>

<http://edis.ifas.ufl.edu/CH083>

http://creatures.ifas.ufl.edu/citrus/citrus_leafminer.htm

<http://www.doacs.state.fl.us/pi/enpp/ento/clm.html>

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