

Introduction: Citrus leafminer, *Phyllocnistis citrella*, was first documented in Dade County Florida in 1993 and has since spread to other Gulf Coast States. Leafminer damage to foliage can stunt the growth of young trees and make trees more susceptible to citrus canker in Florida and Louisiana. Mature trees can better tolerate the damage although heavy infestations may reduce production.



Fig. 1



Fig. 2

Description: Adults (Fig. 1) of the citrus leafminer are small silvery moths with a wingspan of 4mm. The wings have several black and tan spots with a small black dot on the wingtips. The adults are seldom seen and are active in the mornings and evenings. Female moths lay one egg on the underside of new foliage. When the egg hatches, the larvae (Fig. 2) enter the leaf and meander through the leaf causing damage and malformed foliage (Fig.3). The larvae then turn into pupae before the adult moth emerges. The adults only live few days. The life cycle can take from 13-52 days depending on conditions. In Florida it is about 21 days and populations peak in summer and early fall. In Georgia and north Florida the life cycle is interrupted by winter. The leaf damage from the larvae is usually the first indication of their presence. In Georgia, the spring foliage flush is not usually attacked, but every leaf in subsequent flushes may be damaged.

Control: Soil Drench(*Young Trees 4<*) Leafminers can be tough to control because they are inside the leaf. Soil applied imidacloprid products such as Admire Pro 4.6F, Admire 2F, Alias 4F, Alias 2F, or numerous generics, are the best controls for preventing leafminer damage and have minimal effects on natural predators. However, bees can be exposed to imidacloprid through nectar and pollen so make the application to young trees after bloom. Apply soil drenches to the base of the tree to provide 1-3 months of control. Injection through irrigation will be less effective if the material is spread beyond the root zone. Follow the labels on all chemicals before use.



Fig. 3

Control: Foliar Sprays (Mature Trees) If needed, use follow up foliar applications of products such as methoxyfenozide (Intrepid 2F), spinetoram (Delegate), diflubenzuron (Micromite), or abamectin (Ari-Mek). These work best if mixed with petroleum oils. Foliar sprays of imidacloprid can also be used before or after bloom. Avoid applications of malathion, pyrethroids, and carbaryl, as they will kill beneficial insects that can result in a flare up of mites, scales, aphids, and whiteflies. In areas with citrus canker, infection can readily occur in foliage damaged leaves.

Homeowner Control

Use (Bayer Advanced Fruit, Citrus, and Vegetable Insect Control) containing imidacloprid as a drench or foliar spray. Foliar sprays of natural materials such as azadirachtin (Safer BioNEEM) or spinosad (Green Light Insect Spray) have some efficacy but will need to be repeated. Also, horticultural oils applied 10-14 days apart as soon as new shoots begin to develop may help reduce leafminers. Stop use when the leaves harden off. Do not apply when temperatures rise to above 85 degrees to prevent phytotoxicity. None of these materials will harm beneficial insects.

For more information

Citrus leafminer, *Phyllocnistis citrella* Stainton, (Insecta: Lepidoptera: Phyllocnistinae), J.B. Heppner (http://entnemdept.ufl.edu/creatures/citrus/citrus_leafminer.htm)

2014 Florida Citrus Pest Management Guide: Asian Citrus Psyllid and Citrus Leafminer, M.E. Rogers (<http://edis.ifas.ufl.edu/in686>)

Citrus Leafminer and Citrus Peelminer, Elizabeth E. Grafton-Cardwell, University of California, Riverside (<http://anrcatalog.ucdavis.edu/pdf/8321.pdf>)

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