

Citrus Leafminer

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Many customers to our plant clinic are concerned about citrus leaves that are curled and have brown squiggly lines running through them. The leaves may also have a silvery film over the brown lines and the leaf edges may be rolled.



The above symptoms are caused by the citrus leafminer and are the result of the moth's larva mining out material just below the leaf surface. It starts with a very small moth that lays an egg on the underside of a leaf. Once the egg hatches, the larva immediately enters the leaf and begins feeding. They go back and forth across the leaf making a serpentine (snake-like) shape as they tunnel beneath the leaf surface. The mines get larger as the leafminer develops. At the end of the larva stage it goes to the edge of the leaf and curls the leaf edge to form a cocoon.

Citrus leafminer can occur on new, tender growth flushes throughout the growing season, but it normally does not affect the first spring flush. For mature trees, citrus leafminer is usually just a case of the tree not looking perfect. It does not usually affect tree growth or fruit yield. However, young trees can be damaged by leafminer because of the frequent new growth flushes which can be attacked.

Because leafminers are inside the leaf, sprays do NOT kill them. If leafminers have been a problem in the past you can spray a horticultural oil, starting in February, and spray only when new growth is present. Wait two weeks to spray again. This will help to keep the moth from laying her egg on the leaf and will provide some limited protection. Remember to spray late in the evening so as not to burn the plant with the oil (never spray a citrus tree with oil if it is under drought stress). Females also lay their eggs in the evening and at night, so that is the best timing for a spray. Use summer grade oil such as ultra-fine or superior oils. Be sure to read and follow the label directions.

There are many other good insects that attack and kill the leafminer. Insects that eat or otherwise kill pest insects are known as beneficial insects. A parasitoid wasp (beneficial insect) that was introduced into Florida does a good job at keeping the leafminer reduced. To keep the good insects around in your landscape, use only insecticidal soaps, horticultural oils, and *Bacillus thuringiensis* (Thuricide, Dipel) products. Long-lasting pesticides kill off the good (beneficial) insects leaving plants at the mercy of the pest insects.

Remember that insects are an important part of Florida's ecosystem and are a major food source for many birds. Keeping a healthy landscape requires insects. It is only when the pest insects cause too much damage that soaps, oils or *Bacillus thuringiensis* need to be used.