



## LEAF MINERS INFORMATION SHEET

There are numerous species of leaf miners as well as insects in which the larval stage lives in and nourishes itself from the plants leaf tissue.

### Damage

Punctures caused by females during the feeding and oviposition processes can result in a stippled appearance on foliage, especially at the leaf tip and along the leaf margins. However, the major form of damage is the mining of leaves by larvae, which results in the destruction of leaf mesophyll. The mine becomes noticeable about three to four days after oviposition and becomes larger in size as the larva matures. The pattern of mining is irregular. Both leaf mining and stippling can greatly depress the level of photosynthesis in the plant. Extensive mining also causes premature leaf drop, which can result in lack of shading and sun scalding of fruit. Wounding of the foliage also allows entry of bacterial and fungal diseases.

The pattern of the feeding tunnel and the layer of the leaf being mined is often a good diagnostic of the responsible pest. The leaf miner is capable of breeding throughout the year especially in heated greenhouses. It is an extremely virulent pest and when in outbreak proportions, it may severely disrupt photosynthesis in the plant leaves eventually leading to dry-out and defoliation and a reduction in crop yield.



It is not the biggest threat to cannabis growers and it can rarely destroy the plant completely, but can hinder the proper development of the plant functions and significantly impair your harvest. If you manage to spot them early enough and handle the issue adequately, then yield should remain unaffected.



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## Common Species of Leaf Miners

**Tomato Leaf Miner (*Tuta absoluta*)** also known as the, tomato pinworm and South American tomato moth, is a major pest of field and greenhouse-grown tomatoes. Adult moths are grey-brown, while newly hatched caterpillars are yellowish and small. During maturation, caterpillars turn yellow-green and a black band develops behind the head. Fully-grown caterpillars have a pinkish color on their back.



### Damage

*Tuta absoluta* larvae mine the leaves producing large galleries, where they feed on mesophyll tissues and leaving irregular mines on the leaf surface, later they burrow into the fruit, causing a substantial loss of tomato production in protected and open field cultivations. This pest damage occurs throughout the entire tomato growing cycle. Adult females can lay hundreds of eggs and have a very high reproduction rate with up to 10 to 12 generations per year, in favorable conditions. *Tuta absoluta* are unlikely to enter diapause as long as a food source is available although they can also overwinter as eggs, pupae and as adults. The tomato leaf miner attacks tomato plants during all the plant stages, from seedling to mature plant. Losses on tomatoes can reach 100% due to larval feeding, if not effectively controlled.

**Adults Chrysanthemum leaf miners (*Chromatomyia syngenesiae*)** are small, black to gray flies with yellow markings. The females puncture leaves to feed on plant sap and lay eggs within the leaf tissues. The larval stage lives in and nourishes itself from the plants leaf tissue.

### Natural Enemies

[Neem oil](#) can be a good ally to prevent leaf miner. In case of greenhouse cultivation and placing anti-insect meshes can help prevent the pest from entering the facility.

Contact insecticides are ineffective against this pest, because the larvae are protected inside the leaves.

There are specific natural enemies for different species of leaf miners.

Natural enemies such as parasitic wasps are good predators for leaf miners.

**Beneficial Nematodes (*Steinernema feltiae*)** also target leaf miners along with their primary enemies.

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