

Fact sheet

Tomato leaf miner

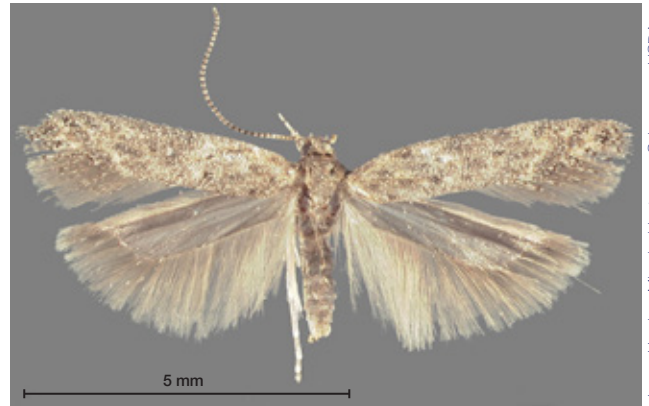
What is tomato leaf miner and what harm does it cause?

The tomato leaf miner (*Tuta absoluta*), also known as the South American tomato moth, is a serious pest of tomato and other Solanaceous plants. The larvae feed under the surface of the stem and leaves of host plants, creating visible tunnels (called mines). They also feed on apical buds, flowers or within fruit. The pest thrives in a tropical to subtropical environment and can cause losses of up to 100% if left uncontrolled in tomatoes.

What does it look like?

Tomato leaf miner adults are grey to brown moths that are approximately 6-10 mm in length and have a 10 mm wingspan, with males being darker in colour than females. The adult moths are often silvery brown with small black spots on their fore wings and fringes on their hind wings. Taxonomic identification of adults requires an entomologist. The eggs are very small (0.4 mm long), oval shaped and are creamy white to bright yellow, darkening to yellow-orange before hatching. Larvae are 0.35-0.5 mm in length, are light yellow to green in colour, and as they mature they become either a darker green or light pink, depending on their food source. The head capsule is generally a light to dark brown and the larvae have a flattened appearance when viewed from the side. Pupation occurs on the host plant, often within leaf mines and surrounded by webbing, or in the soil. The pupae are green to brown and cylindrical in shape.

The mines on leaves caused by feeding larvae are one of the most obvious symptoms of infestation by the tomato leaf miner. These mines are usually partially filled with frass and are irregular in shape. Tissue death (necrosis) can occur around the mines and, during serious infestations, the leaves can become skeletonised. Small holes surrounded by frass and webbing may be visible in stems where the tomato leaf miner larvae have entered the plant to feed. In some cases, particularly after windy weather, lodging of stems can occur. The presence of frass, webbing, entry and exit holes and sunken lesions indicate feeding of larvae on fruit. Fruit infested with the tomato leaf miner larvae are prone to secondary infection by bacterial and fungal pathogens. Heavily infested tomato plants can have a scorched appearance.



James Hayden, Microlepidoptera on Solanaceae, USDA APHIS ITT, Bugwood.org

Adult tomato leaf miner



Maria van der Straten, NWA Plant Protection Service, Bugwood.org

Tomato leaf miner larva feeding on tomato fruit



Wijse den Hartog, National Reference Centre, Plant Protection Service Wageningen (NL), EPPPO.org

Leaf mines of the tomato leaf miner on tomato leaves



What can it be confused with?

The adult tomato leaf miner moths can be easily confused with a number of different moth species. Overseas they are often confused with the tomato pinworm (*Keiferia lycopersicella*) and potato tuber moth (*Tecia solanivora*). An entomologist is required to distinguish between these species. The leaf mining symptoms are also similar to the exotic pest the vegetable leaf miner (*Liriomyza sativae*), however, the shapes of the mines differ. An endemic species also known as the potato tuber moth (*Phthorimaea operculella*) can be easily confused with tomato leaf miner adults and feeding larvae. The adults are darker in colour than the tomato leaf miner and the larvae do not have the flattened shape of the tomato leaf miner.

The symptoms of larvae feeding on fruit can be confused with blossom end rot caused by calcium deficiency and sunburn, however, on closer inspection lesions caused by larval feeding will have entry and exit holes.

What should I look for?

Symptoms of larvae feeding such as black frass around apical buds, on fruit or flowers, entry and exit holes, sunken lesions on fruit or mining activity on leaves and stems indicate the presence of this pest. Insect traps should be checked regularly for pests, including adult tomato leaf miners. Inspect fruit or leaves with rot symptoms closely for larvae, as infestation with tomato leaf miner can lead to secondary infections by a number of different bacterial and fungal tomato pathogens.

How does it spread?

Adult tomato leaf miner are capable of flight over long distances. It is also possible for adults to be carried on machinery and vehicles. The larvae and pupae can be carried in infested fruit and other host plant material. The pupae can also be carried with soil.



Frass and webbing on tomato fruit caused by feeding of larvae

Marja van der Straaten, National Reference Centre, Plant Protection Service Wageningen (NL), EPPPO.net

Where is it now?

The tomato leaf miner is believed to have originated in the Andes region of South America. It has since spread to a number of tropical and sub-tropical regions of the world including Central and South America, Africa, Southern Europe, the Middle East and Southern Asia.

How can I protect my farm from tomato leaf miner?

Check your property regularly for the presence of new pests and unusual symptoms. Closely investigate any insect activity on tomatoes such as webbing, frass, entry and exit holes, sunken lesions on fruit or mining activity on leaves. Make sure you are familiar with the symptoms of common pests so you can monitor your crops for both endemic pests and be alert for exotic pests.

If you see anything unusual, call the Exotic Plant Pest Hotline



Disclaimer: The material in this publication is for general information only and no person should act, or fail to act on the basis of this material without first obtaining professional advice. Plant Health Australia and all persons acting for Plant Health Australia expressly disclaim liability with respect to anything done in reliance on this publication.

August 2015

