

Tomato Leaf Miner

TUTA ABSOLUTA (POVOLNY)

INSECTA—LEPIDOPTERA—GELECHIIDAE

INTRODUCTION

The Tomato Leaf Miner (*Tuta absoluta*) primarily attacks plants of the Solanaceae family, but prefers tomatoes. The pest is native to South America and has been recorded to damage every part of the plant except the root. Damage by the tomato leaf miner can reduce fruit quality and result in 50 - 90 % losses in yield.



Figure 1: Adult Tomato Leaf Miner. Photo © Sangmi Lee, Mississippi Entomological Museum

DESCRIPTION

The adult moth is on average 10 mm long, has filiform antennae, silver-grey scales and black spots on anterior wings (Fig.1). The eggs are 0.36 mm × 0.22 mm, cylindrical, creamy white to yellow.

The larva has a dark head, about 0.9 mm in length and cream in colour at hatching. The colour then changes to light green-pink by the fourth and last instar (Fig. 2). The last instar is 7.5 mm long. When mature the pupa is brown and 5-6 mm in length.

BIOLOGY

The Tomato leaf miner life cycle completes in 29-38 days depending on prevailing conditions. Optimum development occurs between 23-27 °C . The adult moths are nocturnal and prefer to lay their eggs on the top parts of the host plant. A single female can lay up to 260 eggs in her lifetime.

Eggs hatch 4-5 days after laying. The larvae goes through four instars over 13-15 days. During this time the larvae



Figure 2: *Tuta absoluta* larvae: 1st instar (top) and 4th instar (bottom) . Photo, Patrick Clement <https://www.flickr.com/people/26138378@N03>

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BIOLOGY cont'd

form mines in leaves predominantly, but also in fruits—unripe and ripe (Fig. 3) and the plant stem. The feeding of the larvae creates large mines and galleries (Fig. 4). The galleries formed in fruits can be invaded by secondary pathogens and cause the fruit to rot. The galleries formed in the stem can deform the growth of the plant.

Pupation takes 9-11 days and can occur in the soil, on the leaf, within the mines or in the fruit. When pupation occurs outside of the soil a thin silky cocoon is built.

DAMAGE

Larvae mine inside leaves, feed inside fruits and expose the fruit to secondary pathogens. This leads to decrease in production and quality of fruit. Mining of the young tomato plant stems by the leaf miner can lead to the death of the plant.

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www.tutaabsoluta.com



Figure 3: Tomato leaf miner damage and frass in unripe tomato fruit Photo, JM Cobos Suarez, Ministerio de Medio Ambiente y Medio Rural y Marino, Madrid (ES). From gd.eppo.int/



Figure 4: Tomato leaf mines with frass. Photo, <https://blog.plantwise.org/2011/07/29/the-life-and-travels-of-tuta-absoluta-the-tomato-leaf-miner/>

ENTRY PATHWAYS

The transportation of seedling/plants and fruits infested with *T. absoluta* is the main method of spread across countries.

REGULATORY STATUS

The Tomato leaf miner is a quarantine pest for St Kitts and Nevis

Within the Latin American and Caribbean Region, it is present in Costa Rica and Panama.