

THE INVASIVE TOMATO LEAF MINER (*TUTA ABSOLUTA*) IN SOUTH AFRICA

The tomato leaf miner, *Tuta absoluta* (Meyrick 1917) (Lepidoptera: Gelechiidae), a native of South America, is spreading like wild fire in Europe, the Middle East, Asia and Africa where it is damaging field-grown and greenhouse tomato crops. In South Africa, male moths were first detected in pheromone traps in Mpumalanga Province during August 2016, and they were positively identified as *T. absoluta* by a taxonomist at the ARC-PPRI, Biosystematics Division. In May 2017, the South African Department of Agriculture, Forestry and Fisheries (DAFF) issued a press statement that *T. absoluta* negatively affected tomato production in provinces of KwaZulu-Natal, Limpopo, Gauteng, Mpumalanga, Eastern Cape, Western Cape and North West.

Tuta absoluta has a life cycle of about 3 weeks, and it feeds on Solanum crops such as potato, pepper and eggplant, rendering it a serious economic risk to our farmers. It is on A2 list of the European and Mediterranean Plant Protection Organisation (EPPO).

IDENTIFICATION

Eggs: Laid singly, but also in batches of 2-5, on foliage and fruit. They take 4-5 days to hatch, and longer under cool conditions.

Larvae: Neonates are light green in colour, and change to green as they grow and develop inside leaves, stems or fruit. The prothoracic shield has a thin black line. They develop over four instars in approximately 8-14 days. Before pupation, 4th instar larvae exit feeding locations to pupate in the soil or folded leaves.

Pupae: They are constructed inside strong silken cocoons mainly at soil level, and on folded leaves. Pupal duration is usually 7-10 days.

Moths: Have mottle grey colour with dark markings, and have clear dark bands on the antennae. They are 6mm long, and are mostly active at night. Each female can lay up to 260 eggs over 1-2 weeks' life span.



Tuta absoluta larva (Photo: D. Visser)



Tuta absoluta pupation sites (Photo: D. Visser)



Tuta absoluta moth (Photo: D. Visser)

CONTROL

Monitoring

- Pheromone traps – pheromone lures placed inside Delta traps are used to monitor activity of male moths. This enables farmers to detect presence of the pest in the crop environment.
- Scouting – this method enables farmers to detect damage on the crop and severity of infestations.

Chemical control

Several insecticides with different active ingredients are registered against *T. absoluta*. Farmers must only apply insecticides according to the product label, and follow a proper insecticide rotation programme to minimize resistance development.

Biological control

Although several species of indigenous parasitic wasps and predatory insects have been recorded on *T. absoluta*, investigations on their efficacy are on-going.

Cultural control

- Sanitation – infested plants, residues of harvested crop, discarded fruit and Solanum weeds must be removed and burned.
- Crop rotation – in areas where *T. absoluta* is a problem, it is recommended that tomatoes be rotated with crops



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Characteristic *Tuta absoluta* damage on tomato leaves, unripe and ripe fruits