

direct feeding of the pest and secondary pathogens that may enter through the wounds made by the pest. Attacked tomato fruit lose their commercial value. The main concern is that it can cause serious yield losses of 50 to 100%. *Tuta absoluta* is considered to be one of the key pests that cause major damage to the foliage of potato plants.

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Photo taken from <http://www.tutaabsoluta.com/>

Tuta absoluta Tomato leaf miner / Tuta



Photo taken from <https://alchetron.com/Tuta-absoluta-4799093-W>



agriculture, land reform
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Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA



DESCRIPTION

Tuta absoluta or tomato leaf miner is a devastating Lepidopteran pest of tomato and other Solanaceae crops, including potatoes. The pest is grey-brown in colour and has a wing span of 6 to 10mm in size. The pest can reproduce rapidly, causing up to 100% crop yield losses on tomatoes. Adults are nocturnal (active at night) and hide between leaves during the day. Adult females can lay about 260 eggs on host plants and eggs hatch after 4 to 6 days. The larvae are cream to pink in colour with characteristic dark line on the prothoracic shield. The larval period is the most damaging period which is completed within 12 to 15 days.

ORIGIN AND GLOBAL DISTRIBUTION

Tuta absoluta originates in South America and it has quickly invaded central America and the Caribbean (Costa Rica and Panama), Europe, Asia and parts of Africa (Algeria, Botswana, Egypt, Ethiopia, Kenya, Libya, Morocco, Mozambique, Niger, Nigeria, Senegal, South Africa, Sudan, Tanzania, Tunisia, Uganda and Zambia).

SYMPTOMS

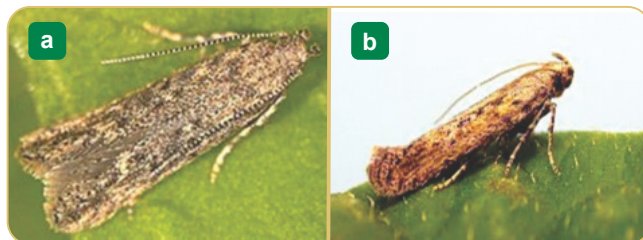


The pest causes damage by predominately feeding inside leaves, stems or fruits of host crops, producing irregular-shaped mines. In tomato crops specifically, the entire plant can be severely damaged and can be attacked at any developmental stage, from seedlings to mature plants. The young larvae penetrate into tomato fruits, leaves and stems on which they feed and develop; damaged fruits become unmarketable.

HOST RANGE

Tomato plants are the main host but other plants in the family Solanaceae, such as eggplant, peppers, potatoes and several weeds, are also attacked.

IDENTIFICATION OF THE PEST



Resting pose of Tomato leaf miner (a) and (b) Potato tuber moth, Photos by Marja J. van der Straten, NPPO (The Netherlands).

Tomato leaf miner (*Figure a*) seems most similar to the Potato tuber moth (*Figure b*) primarily because both have light-and-dark banded antennae and up-curved banded labial palpi and because of the colour of the forewings. These two species (Tomato leaf miner and Potato tuber moth) belong in the same family (Gelechiidae) and are similar in appearance. However, the forewings of the Tomato leaf miner have more defined dark patches and males are darker than females. The adult Tomato leaf miner moths are grey-brown; they are approximately 5 to 7 mm in size and have a wing-span of 8 to 10 mm. Newly hatched caterpillars are yellowish and small; they are about 0.5 mm in size. When maturing, caterpillars turn yellow-green and a black band develops on the prothoracic shield behind the head. Fully-grown caterpillars are about 9 mm and have a pinkish colour on their back. Pupae are about 6 mm and are light brown. Male Genitalic dissection is required for accurate of identification of either species.

CONTROL MEASURES

- **Cultural control/ Good agricultural practices:** Rotation of host crops with non-solanaceous crops, irrigation, adequate fertilisation, ploughing, remove and destroy infested plants and post-harvest plant debris can be used to control the pest. Control weeds to prevent multiplication in alternative weed host. Use pest free seedlings and practice field/garden sanitation.
- **Chemical control:** The most common method of controlling *T. absoluta* in South American countries is the application of insecticides, usually pyrethrin, carbaryl and deltamethrin. Several treatments are required per growing season. Use insecticides that are registered for the control of *Tuta absoluta*. The main concern with this pest is that it can rapidly develop resistance to pesticide, so rotating insecticides with different modes of action in controlling the pest is recommended. South Africa has different agricultural remedies with different resistance group and modes of action to control this pest and they are available at various Agrochemical retailers.
- **Biological Control:** There are biological control organisms that can be used to control the pest in South Africa. This includes diseases such as *Beauveria bassiana* (Fungus), *Bacillus thuringiensis* (Bacterium), mirid bugs and several parasitoids of the potato tuber moth.

PATHWAY

Tuta absoluta may spread through wind, infested host material such as seedlings and tomato fruit as well as farm equipment and transport vehicles from infested areas. *Tuta absoluta* does not attack potato tubers and it is not likely to enter with consignments of potato.

ECONOMIC IMPACT

Tuta absoluta is the main pest of tomato both in open field and under protected conditions. The yield and the quality of the fruit can be significantly reduced by the