

below economic injury levels.

- Apply biopesticides based on Azadirachtin (e.g. Magneto 1% EC, Achook 0.15% EC).

Chemical control

Use pesticides containing recommended active ingredients such as Abamectin or Abamectin + Acetamiprid (e.g. Abalone, Abamite, Agrimech, Dynamec, Amazing Top), bifenthrin (e.g. Thiamerin or Foray) or Flubendiamide (e.g. Belt 480SC) at manufacturer's recommendations.

Warning! High concentration of these agrochemicals may cause harm to you (farmer), crop, consumers and the environment.



Compiled by: Odhiambo, H., Ochieng, V., Ndambuki, J., Tabu, R., Orayo, M., Thuranira, D.M., Lelgut, D., Amata, R., Gitonga, C., Too, A.B., Kirigua, V.O. and Wasilwa, L.

Edited by: Kinyua, Z.M., Nyabundi, K.W., Mukundi, K.T., Maina, P., Wanyama, H.N., Kedemi, R.M. and Kibunyi, N.

Design and Layout: Nogrecia N. Mnene

For Further Information contact:

The Director General,
Kenya Agricultural & Livestock Research Organization,
Kaptagat Rd, Loresho Nairobi Kenya
P.O. Box 57811, City Square, Nairobi, 00200, Kenya
Email: info@kalro.org
Safaricom: +254 722206986/722206988
Airtel: +254 733-333-223/4/733333299/4

KALRO/NAVCDP Tomato Brochure No.1045/2024



INTEGRATED MANAGEMENT OF PHTHORIMAEA ABSOLUTA IN TOMATO





INTRODUCTION

The *Phthorimaea absoluta* (formerly *Tuta absoluta*), commonly known as South American tomato moth, is a pest of great economic importance in several countries, including Kenya. Potential yield loss in tomatoes (quantity and quality) is significant and can reach up to 100% if the pest is not managed.

The primary host is tomato, although potato, aubergine, common bean, physalis and various wild solanaceous plants are also suitable hosts.

Life cycle

- *Phthorimaea absoluta* is a micro-lepidopteran insect.
- The adults are silvery brown, 5-7 mm long.
- The total life cycle is completed in an average of 24-38 days, although it can take longer during cold seasons.
- After copulation, females lay up to 300 individual small (0.35 mm long) cylindrical creamy yellow eggs, which are often found alongside the rachis (leaf stalk).
- Freshly hatched larvae are light yellow or green and only 0.5 mm in length.

- As they mature, larvae develop a darker green color and a characteristic dark band posterior to the head capsule.
- Four larval instars develop. Larvae do not enter diapause (resting phase) when food is available.
- Pupation may take place in the soil, on the leaf surface, within mines or in packaging material.
- A cocoon is built if pupation does not take place in the soil.

Damage on tomato crop

- On leaves, the larvae feed on the mesophyll tissue (internal between the two epidermal cell layers of the leaf), forming irregular leaf mines which may later become necrotic (death of tissues).
- Larvae can form extensive galleries in the stems which affect the development of the plants.
- Fruit are also attacked by the larvae, and the entry-ways are used by secondary pathogens, leading to fruit rot.



Adult *Phthorimaea absoluta* (Source: KOPPERT)



Phthorimaea absoluta larvae and its feeding damage on tomato leaf (Source: Amata R.)

Management Strategies

Cultural control

- Check transplants for leaf miners or mines before planting and destroy any plants that are infested; leaf miners reach damaging levels earlier when infestations begin on transplants.
- Reduce early infestations in a new crop by removing old plantings immediately after the last harvest.
- Use pheromone-laced sticky traps to control male adult population.
- Avoid planting susceptible crops in succession.

Natural enemies and biopesticides

- Predators (syrphid flies, ladybird beetles, *Chrysocharis parksii* and *Diglyphus begini*), attack leaf miner larvae; left undisturbed, parasites often keep leaf miners numbers