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Invasive Tomato Pinworm: Diagnosis and Management (An Extension Guide)

D. M. Firake
G. T. Behere
N.U. Singh
A. Roy



भारतीय कृषि अनुसंधान परिषद -

उत्तर पूर्वी पर्वतीय क्षेत्र कृषि अनुसंधान परिसर

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Indian Council of Agricultural Research

ICAR Research Complex for NEH Region,

Umiam, Meghalaya-793 103



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The Director

ICAR Research Complex for NEH Region,

Umiam-793 103, Meghalaya, India.

Telephone: 0364-2570257

Fax: 2570363, Email: director.icar-neh@icar.gov.in

Introduction

- Name: South American Tomato Pinworm
- Scientific name: *Tuta absoluta*
- Order & Family: Lepidoptera: Gelechiidae
- Originating from South America, it has invaded several continents and caused huge economic losses to solanaceous crops mainly Tomato.



- Incidence of this invasive pinworm reported for the first time in **India during 2014** and later it has spread into several Indian states.
- It was reported first in Meghalaya state of northeast India during 2017
- Subsequently detected causing damage to tomato plants in Arunachal Pradesh, Manipur and Sikkim in 2019
- Reported feeding on solanaceous plants viz., Tomato, potato and egg plant



Life stages of Fall Armyworm



Egg

(Incubation period: 4-6 days)



Caterpillar

(Larval period: 10-15 days)



Male & Female moth

(Adult longevity: 7-15 days)

5



Pupa

(Pupal period: 7-8 days)

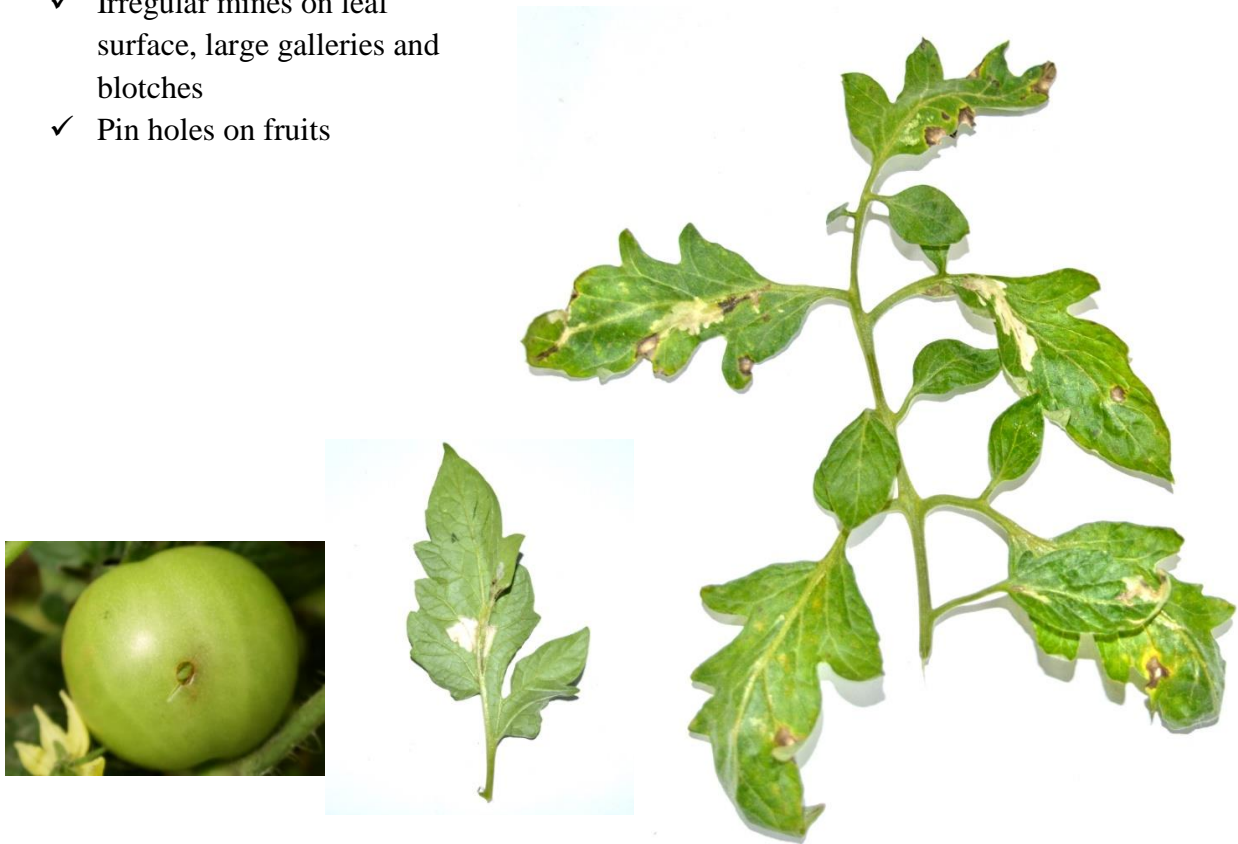
Leaf damage by *Tuta absoluta* larvae

Larvae feed between the upper and lower leaf epidermis, feeding on mesophyll tissues and cause mines or blotches on leaves



Initial sign of infestation

- ✓ Irregular mines on leaf surface, large galleries and blotches
- ✓ Pin holes on fruits



Tuta absoluta infested fruits of tomato

Larvae also feed on the pulp and infested fruits often rot due to secondary infections by pathogens



***Tuta absoluta* larval damage**

Tuta absoluta larva can damage different parts of the tomato plants e.g. apical buds, leaves, and stems, flowers and fruits etc



Infested stems
of tomato



Mirid bug, *Nesidiocoris tenuis*

- ✓ A dominant predator of *Tuta absoluta*
- ✓ Feeds on eggs and early instars of *Tuta absoluta*



Management strategies of *Tuta absoluta* in tomato

Integrated pest management strategies

- Destruction of infested tomato plants and fruits by burying deep inside the soil or by burning.
- Crop rotation with non solanaceous crops.
- Nursery with pest proof net covering and use of pest free seedlings for transplantation



Low cost nursery bed covered with fine net

- Preservation/ augmentation of natural enemies like *Nesidiocoris tenuis*, *Necremnus* sp., *Orius* sp. and *Trichogramma* spp.



Yellow sticky trap placed with pheromone lure

- Installation of *T. absoluta* pheromone traps for monitoring and mass trapping male moths both in nursery and main field (40 traps /ha)
- Light traps are also found to be an excellent option for mass trapping of adults. Light traps may be installed before transplanting to reduce pest pressure in main season
- If the moth catches in the pheromone trap is exceeding 20-30 moths/trap/week, spray Neem formulations (Azadirachtin @ 1% or 5%) @ 2-3 ml/litre or as per label claim) on tomato crop.



Moths trapped in sticky traps