



Farmer FIRST Programme

फार्मर फर्स्ट प्रोग्राम

(Agricultural Extension Division)

(कृषि प्रसार विभाग)

Indian Council of Agricultural Research

भारतीय कृषि अनुसंधान परिषद

PESTS OF TOMATO AND THEIR MANAGEMENT



- Use nitrogen and irrigation judiciously
- Remove alternate weed host *Abutilon indicum*
- Use yellow sticky traps at 12/ha to attract and kill insects
- Apply carbofuran 3% G @ 40 kg /ha

Spray any one of the following insecticides

Insecticide	Dose
Dimethoate 30 % EC	1.0 ml/lit.
Malathion 50 % EC	1.5 ml/ lit.
Methyl demeton 25 % EC	1.0 ml/ lit.
Thiamethoxam 25 % WG	4.0 ml/10 lit.

5. Thrips: *Thrips tabaci*, *Frankliniella schultii*

Symptoms of damage: Silvery streaks on leaf surface, pre-mature dropping of flowers, bud necrosis, Vector of tomato spotted wilt virus.

Identification of pest: Nymph is yellowish. Adult is dark coloured with fringed wings.

Management

- Mechanically uproot the diseased plants and destroy them
- Use yellow sticky traps @ 15/ha
- Release larvae of *Chrysoperla cornea* @10,000/ha
- Spray methyl demeton 25 EC @1lit/ha or dimethoate 30 EC @1lit/ha

6. Striped mealy bug: *Ferrisia virgata*

Symptoms of damage: Presence of white, cottony mealy bugs on the leaves and twigs, stunted growth

Identification of pest: Crawler is yellowish to pale white in colour; Adult females apterous, long, slender covered with white waxy secretion.

Management

- Spray FORS 25g/lit or neem oil 0.5% along with teepol 1 ml/lit
- Spray any following insecticides such as phosphomidon 40 SL 2ml/lit / imidacloprid 80.5 SC 0.6 ml/lit/ chlorpriphos 20 EC 2ml/lit/ thiamethoxam 25 WSG 0.6 mg/lit/ profenophos 2ml/lit

7. Red spider mite: *Tetranychus spp.*

Symptoms of damage: Affected leaves become reddish brown and bronzy, severe infestation larvae silken webbing on the leaves, wither and dry, flower and fruit formation affected.

Identification of pest: Eggs are hyaline, globular, laid in mass. Nymphs are yellowish in colour. Adult is red coloured, small sized.

Management

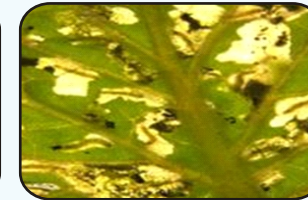
Spray wettable sulphur 50 WP 2g/lit or dicofol 18.5 EC 2.5 ml/lit

8. Pinworm: *Tuta absoluta*

Symptoms damage: Mining of leaves, stem and pinholes on fruits



Tuta larva



Tuta leaf damage

Management

- Collect and destroy the pinworm affected plants and fruits
- Avoid solanaceous crops after tomato
- Use healthy seedlings for transplanting
- Keep pheromone traps @ 16 nos./ac to attract and kill the adult moths
- If needed, spray chlorantraniliprole 18.5% SC @ 60 ml or cyantraniliprole 10% OD @ 60 ml or flubendiamide 20% WG @ 60 ml or indoxacarb 14.5% SC @ 100ml or neem formulation (Azadirachtin 1% or 5%) @ 400-600 ml/ac.

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Published By:-

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Insect pests: Fruit borer, *Helicoverpa armigera* (Lepidoptera:Noctuoidea); serpentine leaf miner, *Liriomyza trifolii* (Diptera:Agromyzidae); whitefly, *Bemisia tabaci* (Homoptera:Aleyrodidae); thrips, *Thrips tabaci*, *Frankliniella schultii* (Tenebrantia:Thripidae); striped mealybug, *Ferrisia virgata* (Homoptera:Coccidae); red spider mite, *Tetranychus* spp. (Trombiformes:Tetranychidae); Pinworm, *Tuta absoluta* (Lepidoptera:Gelechiidae)

1. Fruit Borer: *Helicoverpa armigera*

Symptoms of damage: Young larvae feed on tender foliage. Mature larvae bore circular holes by thrusting part of its body into fruit and eat the inner content.

Identification of pest: Eggs are sculptured and creamy white in color, laid singly. Larva has dark brown grey lines on the body with lateral white lines. Female is light pale brownish yellow stout moth while male is pale greenish moth with V shaped speck. Forewing is olive green to pale brown with a dark brown circular spot in the centre. Hind wing is pale smoky white with a broad blackish outer margin.

Management

- Collect and destroy the infected fruits and grown up larvae
- Grow simultaneously 40 days old American tall marigold and 25 days old tomato seedling at 1:16 rows
- Setup pheromone trap with Helilure at 12/ha
- Collection and destruction of damaged fruits and grown up caterpillars
- Release *Trichogramma chilonis* @ 1 lakh parasitoids/ha/release at an interval of 7 days starting from flower initiation stage based on ETL of 10% damage
- For *Helicoverpa armigera*: HaNPV 1.5×10^{12} POBs/ha i.e. NPV of *H. armigera* 0.43% AS @ 3.0 ml/lit or 2% AS @ 1.0 ml per lit.
- Provide poison bait with carbaryl 50 WP 1.25 kg, rice bran 12.5 kg, jaggery 1.25 kg and water 7.5 lit/ha
- Spray *Bacillus thuringiensis* 2g/lit

Apply any one of the following insecticide

Insecticide	Dose
Azadirachtin 1.0 % EC (10000 ppm)	2.0 ml/ lit
Indoxacarb 14.5 % SC	8 ml/10 lit
Flubendiamide 20 WG	5 g/10 lit
Novaluron 10 % EC	7.5 ml/10 lit
Phosalone 35 % EC	13 ml/10 lit
Quinalphos 25 % EC	1.0 ml/ lit



Whitefly



Thrips damage



Mealy bug



Red spider mite damage

2. Serpentine leaf miner: *Liriomyza trifolii*

Symptoms of damage: Leaves with serpentine mines; drying and dropping of leaves

Identification of pest: Larva is minute orange yellowish apodous maggots. Pupa is yellowish brown pupates within mines. Adult is pale yellow in colour.

Management: Collect and destroy mined leaves; spray NSKE 5%

3. Leaf eating caterpillar: *Spodoptera litura*

Symptoms of damage: Young larva scraps leaves on ventral surface. Grownups defoliate crops.

Identification of pest: Egg masses appear golden brown. Larva is pale greenish with dark markings, gregarious in the early stages. Adult is brownish in colour; forewings are brown colour with wavy white marking. Hind wings are white colour with a brown

patch along the margin.

Management

- Plough the soil to expose and kill the pupae
- Grow castor along border and irrigation channel as trap crop
- Set up light trap @1/ha
- Pheromone traps (Pherodin SL) @15/ ha to attract male moths
- Collect and destroy egg masses in castor and tomato
- Hand pick grown up larvae and kill them
- Spray SI NPV @ 1.5×10^{12} POBs / ha+2.5 Kg crude sugar+0.1 % teepol
- Poison bait: Rice bran 5 Kg + molasses or brown sugar 500g + carbaryl 50 WP 500g+ 3lit of water/ha. Mix the ingredients well and are kept around the field in the evening hours
- Spray chlorpyrifos 20 EC 2 lit/ha or dichlorovos 76 WSC 1 lit/ha



Fruit borer



Cut worm



Leaf miner



Tuta egg

4. Whitefly: *Bemisia tabaci*

Symptoms of damage: Chlorotic spots, yellowing downward curling and drying of leaves, vector of tomato leaf curl disease

Identification of pest: Egg is pear shaped, light yellowish, stalked. Nymph on hatching is oval, scale-like, greenish white. Adult is white, tiny, scale-like adults.

Management

- Uproot and destroy the diseased leaf curl plants