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Fruit and Shoot Borer of Brinjal and their Management

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Introduction

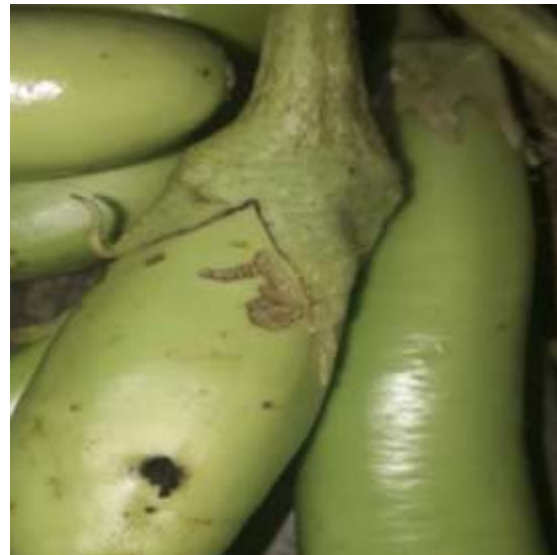
Brinjal (*Solanum melongena* L.) is a purple, green, white and spongy berry type edible fruit. It is commonly known as Eggplant and is grown mostly in tropical and temperate areas of the world. It was originated from India and grown more than 2 million ha with production of 33 million t (Hanson *et al.*, 2006). It contains low amount of essential nutrients and 0.98g Proteins, 3g Dietary fibers, 0.18 g Fat and 5.88g Carbohydrates providing about 104 KJ of energy. It is a perennial crop and is available in all the season and thus is affected by a lots of insect pests like Fruit and Shoot borers (*Leucinodes orbonalis*), Hadda Beetles (*Epilachna vigintioctopunctata*), Brown leafhopper (*Cestius phycitis*) etc., among these pests *Leucinodes orbonalis* most common and destructive in all brinjal growing area of the world (Butani and Jotwani, 1984 and Chattopadhyay, 1987), which can cause a huge loss in the yield about 30 -50% of fruits or more Raju *et al.*, 2007). The pest is spreader to wide areas of eggplant cultivation with India, Bangladesh, China, Burma, Sri Lanka, Philippines, Malaysia, Thailand, etc. It is a major and regular pest of brinjal causing damage up to 80% of fruits (Raju *et al.*, 2007). The Larva of *Leucinodes orbonalis* is the only damaging stage of this pest which feeds inside the fruit and form large exit holes that's why market value of the fruits drastically reduced (Alam *et al.*, 2003).

Causal Agent: *Leucinodes orbonalis*.

Life Cycle of Insect

The adult female laid eggs about 250 or more within two to five days. The eggs are laid singly on the leaves surface and appear in white and flat. Larvae hatch out within 3 to 5 days from the eggs. Immediately after hatching larva enters into the plant tissues and after five moulting it becomes fully matured. The matured larva comes out from the host tissues and forms pupa on the surface of stems, fallen leaves and fruits of the host plant. After 6 to 8 days pupal stage lasts and adult moth appears and it lives for 2 to 5 days. The life cycle of *Leucinodes orbonalis* completed within 21 to 23 days.

Symptoms



1. The initial symptoms are appeared as the presence of an insect is shown in wilting on apical shoots,
2. Terminal shoots and flowers are dropped.
3. Leaves may dry and fall off.
4. Dead heart symptoms can be seen.
5. Holes pierced by pests are present on shoots and fruits having their excreta extruding out of it.
6. Larva bores and enters into tender shoots and causes withering of terminal shoots and also bores petioles of leaves. Attacked fruits are with boreholes plugged with excreta. The shape of fruits may change also.



Management

1. Deep ploughing in summer seasons.
2. Should uproot and destroy old plants before planting new plants since they harbour pest and carry over infestation.
3. Avoid continuous cropping and rationing of brinjal in same field.
4. Should grow some resistance varieties like Pusa purple round, Annamalai, Arka Kusumakar, Chaklasi, Pusa Purple Round etc.
5. Affected fruits and shoots having boreholes should be removed. & destroyed.
6. Apply light traps @ 1/ha to attract and kill the insect.
7. Disperse egg parasitoids i.e. *Trichogramma chilonis* about 1.0 lakh/ha.
8. 5% Solution of Neem Seed Kernel extracts can be sprayed.
9. Azadirachtin 1.0% EC @3.0 ml/lit., or Chloropyrifos 20% EC @ 1.0ml/lit., or Dimethoate 30% EC 7.0 ml/10 lit., can be sprayed at 12-15 days interval starting from one month of the planting.

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