



Introduction and Management of Shoot and Fruit Borer (*Earias Vittella* and *Earias Insulana*) in Okra

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Every farmer uses irrational insecticide sprays on vegetable crops, which has negative repercussions for the environment and human health. Okra plays a critical part in supplying the country's vegetable requirement. In the reproductive stage, larvae bore into flower buds and fruits, feeding on interior tissues.

Okra, *Abelmoschus esculentus* (L.) Moench; Malvaceae, is a well-known vegetable crop grown in sub-tropical and tropical regions. It is best grown in the summer (warm season), but it can also be grown in late spring (Pandita *et al.*, 2010). Okra contains vitamin C, Niacin, Vitamin A, Riboflavin, B complex, calcium, iron, and thiamin, with a higher proportion of calcium (90mg), vitamin A (0.1mg), riboflavin (0.08mg), vitamin C (18mg), thiamin (0.07mg), niacin (0.08mg), potassium, and phosphorus (100g) than any other vegetable. It is also a good source of potassium and (Saifullah and Rabbani, 2009). Fruit borer attacks the okra crop, reducing the quality and quantity of the crop's fruit (Bohmfolk *et al.*, 2001). Fruit and branch borer, *Earias vitella*, causes direct damage to fruits as a result of infection. Okra crop losses range from 88 to 100 percent (Sinha *et al.*, 1978) only the fruit and shoot borer, *Earias vitella*, damages 57 percent of the fruits and has a substantial effect in okra (Chaudhary and Daheech, 1989).

Damage

Spotted bollworms are active all year, with peaks in March and May and August and October. On buds, flowers, and fruits, the female lays green coloured eggs with longitudinal ridges. The infestation, like the brinjal shoot and fruit borer, appears on shoots before and after flowering and feeds solely on fruits. Shoots that have been infected wither and wilt.

Life-history

Around 200 to 400 eggs can be laid by a female moth in one night; they tenderize flower buds and leaves due to the blue colour of the lady's finger; they hatch their eggs in three to four days; their caterpillars morphologically consist of six stages; and they reach the larval stage after ten to sixteen days. The third stage is the pupal stage, which occurs on the soil, plants, cocoons, fallen leaves, and infected pods. Moths emerge after 8 to 14 days and finish their life cycle between 17 and 29 days (Kedar *et al.*, 2014).



Management

- Avoid planting in a staggered pattern.
- Set up a pheromone trap at a rate of 12 per hectare.
- Fruits that have been harmed are being collected and destroyed.
- Parasite egg release 1.0 lakh/ha *Trichogramma chilonis*.
- Green lacewing predator *Chrysoperla carnea* 1st instar larvae released at 10,000/ha.
- After germination, apply neem cake @ 250 kg/ha and repeat two more times at 30-day intervals, spraying with neem soap 1% or NSPE 4%.
- Dust carbaryl 10 percent DP at a rate of 25 kg/ha, or spray *Bacillus thuringiensis* at a rate of 2 g/lit or spray any of the insecticides below.

0.03 % WSP Azadirachtin (300 ppm) 5.0 g per litre or 5.0 ml/10 lit Azadirachtin 5 percent Neem Extract Concentrate or 5 percent SG Emamectin benzoate 3.0 g/100 ml or Phosalone has a 35 % EC content or 1.5 ml per litre 10 percent EC Pyridalyl 1.0 ml per litre or Quinalphos has a 25% EC or 8.0 milliliters/10 litres or Indoxacarb 14.5 SC @ 0.75 ml/l.

Conclusion

The chewing type of various insects, notably *Earias vittella*, find okra to be a lucrative crop. These chewing complexes infest the crop from the beginning to the end. Under natural conditions, *Earias vittella* is polyphagous in feeding behaviour, resulting in significant mortality of up to 80% of dependents across a wide range of host fruits.

References

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