

Lecture 5: Insect Pests of Leafy vegetables and their Management

Learning Objectives

● Distribution, biology, nature and symptoms of damage and management strategies of

- I. Amaranthus stem weevil, *Hypolixustruncatulus* (Curculionidae: Coleoptera)
- II. Amaranthus leaf caterpillar, *Hymenia recurvalis*
- III. Leaf caterpillar, *Eretmoceraimpectella* (Heliodinidae: Lepidoptera)
- IV. Spinach blue beetle, *Alticacaerulescens* (Alticidae: Coleoptera)

I. Amaranthus stem weevil, *Hypolixustruncatulus* (Curculionidae: Coleoptera)

Distribution: India and neighboring countries

Host range: Amaranthus (both wild and cultivated)

Damage:

- Newly emerged grubs tunnels the stem
- The affected stems become weak and often split longitudinally due to excessive transpiration and evaporation
- The plants desiccate and ultimately dry up completely
- Adults feed on tender leaves and stems but the loss caused by them is negligible.

Identification

- Eggs are smooth, oval, about 1 mm, pale yellow
- Grubs are stout, curved, legless, white and about 13-17 mm long
- Pupae are yellowish brown in colour
- Adult weevils are ash-grey, 10-15 mm long

Life cycle

- Eggs hatch in about 2-4 days during summer and 10-12 days during winter
- Grub stage lasts for about 12 days during summer and 20-24 days during winter
- Pupate inside the stem
- Adults on emergence remain inside the stem for 5-6 days

- Adult longevity varies from 12-66 days.

Management

- Destroy all wild amaranthus plants in the vicinity
- As soon as infestation is observed, remove and destroy promptly all the affected plants with grubs inside.
- Spraying with malathion @ 0.05% or dichlorvos @ 0.05% is also effective.
- After spraying the crop with insecticides observe a waiting period of 7-10 days.

II. Amaranthus leaf caterpillar, *Hymenia recurvalis*

Distribution: Tropical and sub-tropical regions of Africa, Asia, Australia and Hawali Islands.

Host range: Grasslands and pastures, beans, Coleus, Luffaspp, melons, spinach, amaranthus, etc.

Damage:

- Young caterpillars feed on epidermis and palisade tissues of leaves.
- Older ones web the leaves together and feed with in.
- Webbed leaves become completely devoid of chlorophyll and dry up.

Identification

- Eggs are spherical in shape and snow white in colour.
- Caterpillars are greenish in colour with white lines.
- Full grown larva measures 17-20 mm in length.
- Pupae are 10-14 mm long and brownish in colour.
- Adults are black coloured.
- Both pairs of wings are dark fuscous in colour, outer margins are fringed with short hairs.
- Wing expanse is 15-20 mm.

Life cycle:

- Eggs hatch in about 3-4 days
- Larval period is 12-16 days
- Pupal period lasts for 8-12 days
- Total life cycle is completed in 3-4 weeks.

Control:

- Spray with malathion @ 0.05%
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III. Leaf caterpillar, *Eretmocera impactella* (Heliodinidae: Lepidoptera)

Distribution: Distributed in the Indian subcontinent

Hosts: It is a sporadic pest of amaranthus

Damage

- Caterpillars web the leaves and feed inside

Identification

- Full grown caterpillars are 9-12 mm long, cylindrical, brownish yellow to brownish grey in colour
- Pupae are about 6 mm long and uniformly brown in colour
- Moths have cupreous head and thorax and yellow abdomen with second, third and terminal segments cupreous in colour
- Fore wings are also cupreous with yellow spots, hind wings are pale in colour.
- Wing expanse is 14-18 mm.

Life cycle

- Eggs are laid on leaves preferably on top shoots
- Pupation takes place in white silken cocoons attached to the leaves
- Life cycle is completed in 3-4 weeks.

Control:

- Same as described under *Hymenia recurvalis*

IV. Spinach blue beetle, *Altica caerulescens* (Alticidae: Coleoptera)

Hosts: Spinach, cabbage, strawberry and plums

Damage

- Freshly emerged grubs scrap and feed on chlorophyll containing tissues
- Later grubs mine inside the leaves and feed on the mesophyll tissue
- Adults nibble the leaf margins causing very little damage.

Identification

- Grubs are 5-10 mm long, dark brown in colour
- Pupae are 12-15 mm long and brown in colour when freshly formed and turns blackish brown later on
- Adults are 5-7 mm long steel blue in colour

Management

- Spray carbaryl @ 0.1% or malathion @ 0.05%
- Observe a waiting period of about 10 days

Study Questions

1. Write down the distribution, biology, nature and symptoms of damage and management strategies of pests of Leafy Vegetables?