

DIPPARTMENT OF AGRICULTURAL

CLASS- 2ND YEAR 4TH SEM.

SUBJECT- INSECT PESTS CONTROL AND THEIR MANAGEMENT

Date- 23-03-2020 (LECTURE- 7)

Insect Pests of Vegetables

Pests of Cruciferous Vegetables

Pests of cole crops (cabbage and cauliflower)

Diamondback moth (*Plutella xylostella* (L.) Lepidoptera: Plutellidae)

Key Identification-:

P. xylostella is considered as the main insect pest of crucifers, particularly cabbage, broccoli and cauliflower. The moths are brown or gray, with distinct white spots on the forewings. They measure about 8-12 mm in length. When the wings are folded on its body at rest, three white diamond shaped median dorsal patches are seen and hence the name "diamondback moth".

Life-cycle-:

The female lays minute yellowish – white eggs singly or in batches of 2-40 on the underside of leaves. A single female lays about 50 eggs. The eggs hatch in 3-6 days. The freshly hatched larvae move to the under surface of the leaf, mine into the leaf tissue. The three later instars feed on the underside of the leaf making holes. The full- grown larvae are pale yellow-green with fine black hairs all over the body and measure about 8 mm in length. The larval development is completed in 14-21 days. Pupation takes place inside a barrel- shaped, loose silken cocoon constructed by the larva. Normally, the cocoon is attached to the leaf surface. The pupal period is 4-5 days. The moths may live up to 20 days, The total life cycle is completed in 2-3 weeks. There are 8 to 12 generations in a year.

Damage-:

The newly hatched larvae cause serious damage to crops like cabbage, cauliflower by scraping the leaf tissues, and they grow older, bite holes in them and render the vegetables unfit for human consumption. A severe infestation results in the formation of under-sized curds in cauliflower and in cabbage, head formation does not take place when the infestation is severe during primordial stage.

Management:-

- Avoidance of early and late planting in the pest endemic.
- areas Intercropping of Cole crops with tomato or carrot.
- Growing of 2 rows of mustard as trap crop after every rows of cabbage (sowing of first row of mustard 15 days to cabbage planting and second row 25 days after cabbage planting).
- Spraying of the mustard crop with 0.02% lambda cyhaloth 5 EC or flubendiamide 39.35 SC @ 0.0015% or Novalur. 10 Ec @ 0.02% to kill the pest.
- Spraying of neem seed kernel extract 5% or Bt formulation a 500 g/ha twice during primordial stage at 10 days interval.
- The larvae are parasitized by *Cotesia plutellae*, *Diadegon semiclaudeum*, *Oomyzus sokolowskii* and the pupae parasitized by *Brachymeria excarinata*.



Leaf Webber (*Crocidolomia pavonana* (F.) Lepidoptera : Pyralidae)

Key Identification:-

The major host plants of this pest are Cabbage, cauliflower and mustard. *C. pavonana* is of great economic importance in central and southern India. The larva is green with red head with

longitudinal red stripes on the body. It is about 2 cm in length. The moths are small with light-brownish forewings.

Life-cycle:-

The moth lays eggs in masses of 40-100 each, on the lower surface of the leaves. The eggs hatch in 5-15 days. Young larvae feed gregariously on the leaf tissues. As they grow older, they start webbing the leaves and feeding on them. The larval stage is completed in 24-27 days in summer and in about 50 days in winter. The pupation takes place in the soil in an earthen cocoon. In central and northern India, the pest undergoes diapause in summer (39-45° C). The adult emergence is 14-40 days. The total life cycle is completed in 43-82 days. There may be more than one generation in a year.

Damage:-

The larvae web the leaves with silken stands and feed on the lower surface of the leaves and completely skeletonize them. In cauliflower, larvae nibble the growing tip of seedlings and bore into the curd resulting in discoloration of curd. Even a single mature larva per plant is capable of causing economic loss to cabbage at pre and post-heading stages.

Management:-

- ★ Removal and destruction of webbed leaves along with larva.
- ★ Intercropping of mustard (trap crop) in the same way, indicated for DBM management.
- ★ Foliar spray of neem seed kernel extract (4%) along with sticker (0.5 ml/lit of water) or Bt formulations; SD) with initiation of infestation in early stages of CTOO outbreaks.
- ★ Need based application of cartap hydrochloride 50 SPG 002 % or malathion 50 EC 0.04 %
- ★ Microbranon mellus, Apanteles crocidolomide, Palernista solennis are the parasitoids on the larvae of this pest.



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