Volume 3, Issue 12
December I 2025

Agri Roots
e- Magazine

www.agrirootsmagazine.in

ISSN: 2583-9071

Identification and Management of Cabbage Pests

ARTICLE ID: 0305

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Cabbage (*Brassica oleracea* var. *capitata*) is an important vegetable crop rich in essential nutrients but highly susceptible to insect pests. These pests cause significant losses in yield and quality if not properly managed. The major pests include the diamondback moth, aphids, cabbage butterfly, leaf webber, and cutworms. This article focuses on the identification, damage symptoms, and management strategies of major cabbage pests, emphasizing integrated pest management (IPM) techniques.

Cabbage is a vital vegetable crop grown globally for its edible leaves. However, pest infestations pose a major challenge to achieving optimum yield and market quality. Early identification of pests and the adoption of eco-friendly management practices are essential for sustainable production. Integrated Pest Management (IPM) provides a holistic approach to managing pests while minimizing environmental impact.

Major Pests of Cabbage

1. Diamondback Moth (*Plutella xylostella*)

- Adult moths are small and greyish-brown with a distinctive diamond-shaped pattern on folded wings.
- Larvae feed on the underside of leaves, creating small holes.
- Severe infestations result in skeletonized leaves and reduced head formation.

2. Cabbage Aphid (*Brevicoryne brassicae*)

- Soft-bodied, grey-green aphids that form dense clusters on young leaves and shoots.
- They suck plant sap, causing yellowing, curling, and stunted growth.
- Honeydew secretion favors the development of sooty mold.

3. Cabbage Butterfly (*Pieris brassicae*)

- White butterfly with characteristic black spots on the wings.

- Larvae are greenish with black hairs and feed on leaf margins.
- Heavy feeding leads to irregular holes and defoliation.

4. Cabbage Head Borer (*Hellula undalis*)

- Larvae bore into cabbage heads, damaging internal tissues.
- Infestation leads to rotting, contamination, and unmarketable produce.

5. Leaf Webber (*Crocidolomia binotalis*)

- Green caterpillars web leaves together and feed from within.
- Affects leaf expansion and head formation, especially in young plants.

6. Cutworm (*Agrotis ipsilon*)

- Dark brown larvae that remain in the soil and cut seedlings at the base during nighttime.
- Causes plant wilting and death, particularly in nursery and early field stages.

Integrated Pest Management (IPM) Strategies

1. Cultural Practices

- Rotate cabbage with non-cruciferous crops.
- Remove plant residues and deep plough fields before sowing to expose and kill pupae.
- Maintain overall field sanitation to reduce pest carryover.

2. Mechanical and Physical Control

- Handpick larger larvae when feasible.
- Install light traps and sticky traps to monitor and reduce adult moth populations.
- Use protective nets in nurseries and around young plants.

3. Biological Control

- Release *Trichogramma chilonis* to parasitize eggs of major pests.
- Apply *Bacillus thuringiensis* (Bt) formulations for effective caterpillar control.
- Conserve natural predators such as ladybird beetles, lacewings, and spiders.

4. Botanical Control

- Apply Neem Seed Kernel Extract (NSKE) 5%.
- Use Azadirachtin (1500 ppm) for aphid and caterpillar suppression.

5. Chemical Control *(Use only as a last resort)*

- Spinosad 45 SC @ 0.3 ml/L or Emamectin benzoate 5 SG @ 0.4 g/L for caterpillars.
- Imidacloprid 17.8 SL @ 0.3 ml/L for aphids.
- Follow proper waiting periods and avoid excessive chemical use.

Conclusion

Cabbage is highly vulnerable to a wide range of insect pests that cause heavy economic losses. Accurate pest identification and timely adoption of IPM strategies ensure increased yield and better crop quality. Combining cultural, mechanical, biological, and botanical methods reduces the reliance on chemical pesticides and promotes sustainable cabbage cultivation.

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