

Cabbage semi looper (*Achaea Janata*)

MANAGEMENT :

- Conserve natural enemies. These caterpillars are attacked by a large numbers of natural enemies, including parasitic wasps and flies.
- Birds and bats feed on the adults (moths).
- Pick caterpillars by hand and destroy them.
- When control is necessary use biopesticides such as neem-based products or Bt.
- Neem products control cabbage looper by interfering with the growth of the young caterpillar.
- Bt and neem should be applied when caterpillars (larvae) are still in the early growth stages.



Semilooper

Thrips (*Thrips tabaci*)

MANAGEMENT:

- Plough and harrow before transplanting.
- This can be useful in reducing thrips attacks by killing pupae in the soil.
- Conservation of natural enemies, such as predatory bugs, predatory mites and predatory thrips are important.

White fly (*Bemisia tabaci*)

MANAGEMENT:

- Natural enemies such as ladybird beetles, predatory mites and lacewings can play an important role in reducing whiteflies.
- The application of high doses of nitrogen fertilizer favours development of the pest.
- Use neem based products.



Thrips



White fly

Leaf miner (*Lyriomiza brassicae*)

- Leafminers are usually well controlled by existing natural enemies, particularly parasitic wasps.
- Spraying of systemic insecticide 'Confidor' @ 0.5ml/litre water at 15 days interval.



Leaf miner

Mustard saw fly (*Athalia spp*)

- Destruction of wild plants of the family of cabbages in the vicinity of the crop.
- Ploughing in of volunteer plants at the end of the season help reduce sawfly populations.
- Manual collection and destruction of larvae is feasible when there are few sawflies on the crop



Mustard saw fly

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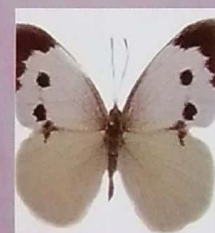
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**INSECT PEST MANAGEMENT
IN CABBAGE**



कृषि विज्ञान केन्द्र-फेक

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MAJOR INSECT PESTS

Cabbage butterfly (*Peiris brassicae*)

MANAGEMENT:

- Hand picking can be done when small area is cultivated.
- Moth can be trapped using net.
- Large pieces of egg shell can be scattered among the cabbage in the cabbage field to confuse the cabbage butterfly
- Mosquito net can also be used to prevent egg laying
- Lady bird beetle eat moth eggs
- Garlic spray can be used as repellent or to kill caterpillar.
- Dipel (Bt) can be used against caterpillar. Spray with neem extracts



Moth



Larvae

Leaf webber (*Crocidolomia binolatz*)

MANAGEMENT:

- Hand picking can be done when small area is cultivated.
- Moth can be trapped using net.
- Mosquito net can also be used to prevent egg laying
- Garlic spray can be used as repellent or to kill caterpillar
- Dipel (Bt) can be used against caterpillar.
- Spray with neem extracts.



Webber moth



larvae

Flea beetle (*Phyllotreta cruciferae*)

MANAGEMENT:

- Remove damaged plants
- Spray neem oil @ 5ml/litre water
- Spray endosulfan 1ml/litre water

Aphids (*Brevicoryne brassicae*)

MANAGEMENT:

- Spray neem oil @ 5ml/litre water
- Spray other neem products eg. neem seed kernel extract, neem cake (They have a repellent effect)
- Spray tobacco formulation. (Boil 1kg tobacco leaf powder + 5litre water till black colour develops. Cool it over night. Mix 100ml of the solution + 2 litre water for spraying in 50sqm area.)
- This solution is effective against all sucking type of insects.



Aphids

Cabbage head borer (*Hellula undalis*)

MANAGEMENT:

- Hand picking can be done when small area is cultivated
- Moth can be trapped using net.
- Mosquito net can also be used to prevent egg laying
- Lady bird beetle eat moth eggs
- Garlic spray can be used as repellent or to kill caterpillar.
- Dipel (Bt) can be used against caterpillar.
- Spray with neem extracts.



Borer larvae

Cutworm (*Agrotis* spp)

MANAGEMENT:

- Soil solarisation with polythene sheet during land preparation to kill the hibernating insect.
- When damaged plants are detected, the cutworms normally can be found near the damaged plant and can be removed by hand.



Sandhill cutworm



Variegated cutworm



Black cutworm



Dingy cutworm



Claybacked cutworm