

Integrated Management of Major Pests in Cruciferous Crops

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DOI: 10.31080/ASAG.2022.06.1187

Received: July 21, 2022

Published: September 21, 2022

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Abstract

Cruciferous crops are rich in vitamin C, beta carotene, fibre, antioxidants, and phytochemicals which help in preventing cancer and heart diseases. These crops are grown in well drained loamy soil with adequate organic matter (> 2.0%). There are many constraints for cultivation of Cruciferous crops but insect-pests play major role for reduction in yield and quality of crop. Therefore, some facts about maintain ace of crop are given in this editorial

Cruciferous crops include cabbage, broccoli cauliflower, brussels sprouts, chinese cabbage, and kohlrabi. These vegetable crops well grown at mild temperature (16- 20°C). All these crops lose quality when temperatures exceed 27 °C. These climatic conditions are very convenient for development of insect-pests infestation on cole crops. Among these pests the butterflies are more serious those cause in huge monetary loss to Cruciferous crops. Therefore, the description of major butterflies is given in this editorial.

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Paeridae

This family is found everywhere in Asia and Europe. The butterflies are small to medium size and fly is numerously available especially during late spring and summer months. The front legs of butterflies are well developed with bifid clause the pupae are often elongate chrysalis. These butterflies are most serious defoliators of Cruciferous crops in nursery as well as in main crop. Female adults lay yellowish eggs on the leaves in clusters. The young larvae are greenish to velvety, with yellowish lateral stripes and black spots and white hairs. Grown up larvae appear in clubby form on plants

and defoliates it. The butterflies making, the conditions hell for vegetable crops by making the holes in greens leaves and shoots of the plants. The larvae excrete their feecal matters on leaves and flowers, which also reduced market value of vegetables. The leaves of ornamental plants like *Tropaeo lummajus* (Indian cress) is also infested by *Pieris* species. This family includes two species: *Pieris brassicae nepalensis* (Large cabbage white) and *Pieris canidia indica* (Common cabbage white) (Figure 1 and 2).



Figure 1: *Pieris brassicae nepalensis*.



Figure 2: *Pieris canidia indica*.

Plutellidae

It includes *Plutella xylostella* (diamond back moth) pest (Figure 3). Small Larvae has many instars and abundantly found on host plants. Moths are small-medium in size with wingspans ranging from 7 to 12 mm. The head normally bears smooth scales, and the antennae are often thickened in the middle. The wings are elongated, and the hind wings often bear long fringes. The forewings often appear to be sickle-shaped because of the arrangement of the fringes. The coloring is generally drab, with various banding and marking. The adults are mostly night-loving or crepuscular. The larvae feed on the surfaces of leaves which they skeletonise. The different host plants as quoted above in Paeridae family are also most preferred by this family.



Figure 3: *Plutella xylostella*.

Management

- Do Deep ploughing in summer months before planting to expose, underdeveloped stages butterflies.
- Hand picking and destruction of eggs and larvae in nursery as well as main crop to reduce the pest multiplication.
- Grow African bold seeded mustard as trap crop at 22:2 (cabbage: mustard) to attract diamond back Moth for oviposition at least 10 days ahead of planting of main crop.
- Grow red or purple color Cruciferous crops around green crops to detect early swarm of pests.
- Lavender, marigold are choices to grow along Cruciferous crops to distract the pest from infesting main crops.
- Do Intercropping with mint (smelling) crops also help in decrease the incidence of different insect-pests.
- Make Application of homemade neem extract @ 2.0 litres in per acre may also reduce the insect-pests infestation.