

Major Insect Pest of Cucurbitaceous Vegetable and Their Management

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ARTICLE ID: 40

Abstract

About 30 insect and nematodes pest damage cucurbit crops in India. Fortunately, only three of them- fruit fly, red pumpkin beetle, and epilachna beetle- are widely prevalent. The damage caused by others is not economically significant. The fruits flies can cause 40-100 percent damage due to red pumpkin beetle can be 50 per cent (Kapoor, 1970) most of the insect pest damage more than one cucurbit species. IPM is a pest management system that in the context of associated environment and population dynamic of the pest species, utilize all suitable techniques and methods in as compatible manner as possible and maintain pest populations at level below those causing economic injury. It is not the juxtaposition or superimposition of two control measure techniques but the integration of all suitable management techniques with natural regulating and limiting elements of the environment.

Keywords: Cucurbitaceous pest, Identification, Management.

(1) **Red pumpkin beetle:** *Aulacophora foveicollis* (order: Coleoptera)

Crop damaged: Pumpkin, bottle gourd, cucumber, muskmelon, watermelon, beans and other cucurbits.

Pest status: A common and occasionally serious pest of a wide range of cucurbitaceous vegetables.

Identification of pest: Red pumpkin beetle adults are oblong and 5-8mm long. Their dorsal body surface is brilliant orange red ventral surface is black, which is covered with soft whitish hairs. Blue pumpkin beetle is smaller than red pumpkin beetle and metallic blue in color with brown head and thorax.

Nature of damage: Both grubs and adults cause damage.

Symptoms: The beetles are very destructive during in March-April. When the creepers are very young. Grubs develop in the soil and feed on underground parts, causing wilting of plants. Grubs enter into the root and underground stem or sometimes the fruits touching the ground. The underground portion start rotting due to saprophytic fungi at the injury site and the fruits become unfit for consumption. Whereas the adults feed the initial stages of crop growth and sometime attack is so severe that the entire crop requires re-sowing.



Fig. Attack of red pumpkin beetle

Control measures:

- Collection of beetles in the early morning when the insect is sluggish.
- Early sowing of the crop during February escapes the pest damage.
- Creeper should be removed and burnt the end of the season so that the adults are unable to over-winter among them.
- Plants products like leaf extract of *Ageratum conyzoides* @ 0.06% and oil of basil @ 1.5ml/liter of water acts as repellent.
- Foliar spray of carbaryl 0.1 %.
- Soil drenching with Phorate granules (10G) @ 3kg/acre can be incorporated in the soil around the base of the vines.

(2) Hadda beetle: *Henosepilachna vigintioctopunctata* (order: Coleoptera)

Crop damaged: Brinjal, potato, tomato.

Identification of pest: Adults are medium in size (8-10 mm), copper colored which bear 7- 14 black spots on each elytron. The full-grown grubs (6-7 mm) are yellow, hump shaped and spiny. The yellow-coloured pupa is 6-7 mm in length and hemispherical in shape.

Nature of damage: Both grub and adults.

Symptoms: both stages cause damage by scrapping green matter from leaves which dry and die up. The adults feed on flowers parts. Sever infestation take in early stages can kill the plants, whereas the older vines show stunted growth and poor yield.



Fig. Attack of Hadda beetle

Control measures:

- Hand picking of egg mass, grubs, pupae and adults.
- Dusting the crop with 5% carbaryl or spraying 0.1% dichlorvos or 0.05 % malathion.

(3) Fruit fly: *Bactocera dorsalis* (order: Diptera)

Crop damaged: Polyphagous

Identification of pest: Medium sized 6-8 mm flies, reddish brown with lemon yellow curved vertical markings on the thorax. The maggots are creamy white and measure 9-10 mm when full red. The puparium is barrel shaped, light brown, turning to dark brown as it develops.

Nature of damage: Maggots

Symptoms: The most common pest throughout in India. It causes damage by puncturing tender fruits. The female fly thrusts 20-30 white, cigarette shaped egg into the tissues of the both tender and ripening fruits using its conical ovipositor. The white maggots that hatch insides the fruits cause deformity, rotting, and dropping. The flies are most active after summer rains (June) and the rainy season (July - August).



Fig. Attack of fruit fly

Control measures:

- Regular removal and destruction of infested fruits.
- Light ploughing after lifting the crop.
- Cultivation of early maturing varieties.
- Methyl eugenol 1% solution to trap large numbers of adults flies. The solution should be put in container and hang in the field. Optimum @ 100 trap/ha.
- Maize as trap crop-8-10 meters away from the main crop.
- Soil application of neem cake @ 50 gm/plant at flowering.
- Spray the crop with malathion 0.05%+ 1% gur (jaggery) in water.

(4) Aphid: *Aphis gossypii* (order: Hemiptera)

Crop damaged: Cucurbits, melons malvaceous and solanaceous

Identification of pest: The pest is a soft bodied and pear-shaped insect. it measures about 1.25mm and is yellowish dark green. Nymphs are greenish to brownish in colors and are wingless. (Nayar and more, 1998).

Nature of damage: Both nymph and adult.

Symptoms: It is the most important of aphids infesting cucurbits. They are colonizing on leaves and tender fruits and feed mostly on the undersides of tender leaves. Both nymph and adults suck sap, exuding honey dew and causing crinkling, curling, and yellowing of leaves. As results of the attack, plants become weaker. In addition to the above damage aphids act as vectors of the mosaic disease in cucumber, melon, and gourds. They are most active from April to June.



Fig. Attack of aphids

Control measures:

Lady bird beetles like *Menichilus sexmaculatus*, *Coccinellia transversalis*, Syrphid flies and chrysopids are the predators. In the case of severe infestation spray the crop with 0.05 % dimethoate, monocrotophos.

Spray neem formulation like, neemark, neemabecidine etc. @ 3-4 ml/l of water.

Conclusion:

The pest of cucurbitaceous crops can be controlled or the damage reduced considerably by the use of chemicals, growing of resistant varieties, biological control, or some time crop management practices.

