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**Hadda Beetles (Epilachna):**

**Distribution in India, Life cycle and Control:**

**Systematic Position:**

Class – Insecta

Order – Coleoptera

family – Coccinellidae

Genus – *Epilachna*

Species – *vigintioctopunctata and E. dodecastigma*

**Distribution:**

Hadda beetles are universally distributed. In India they are commonly found all over the country.

**Food Plants and Nature of Damage:**

Both larvae and adults are destructive. It is a serious pest of brinjal, but have also liking for potato and tomato. In general they are pests of cucurbitaceous and solanaceous vegetable plants. The grubs and adults scrap out and feed on the green tissues of the leaves and skeletonize it, which ultimately dries up.

**Marks of Identification:**

Two types of hadda beetles are commonly found in India-Epilachnavigintioctopunctata and Epilachnadodecastigma. The E. dodecastigma is 12 spotted and E. vigintictopunctata is 28 spotted beetles. The black dark spots are present on the elytron. These two species can interbreed among themselves.

Adult beetles are about 8 mm in length and 5-6 mm in breadth. E. dodecastigma is copper coloured while the E. vigintioctopunctata is deep red coloured. The body is hemispherical and smooth. Adults are good fliers and moves from plant to plant.

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**Life Cycle:**

After copulation female start laying eggs in the month of March-April. A female lay about 120-180 eggs. Eggs are laid in the cluster of 45 (average) on the lower surface of the leaves. The eggs are cigar shaped yellowish in colour and are arranged side to side on the surface of the leave in erect position.

The larva hatches in 3- 4 days in summer months and in 4-9 days in winter. However, it has been reported that larval period may prolong up to 15 days when it grows on potato leaves or it may extend up to 32 days when grows on certain cucurbits.

The grubs are oval, fleshy, and yellow in colour bearing hairs and spines on the body surface. 1 he grubs restrict their feeding to the epidermis of the leaves. A fully grown larva measures about 8 nm in length. The larval period lasts for 9-18 days during which it passes through four different stars.

The larva changes into pupa. The pupation takes place on leaf surface or on stem or at the base of the plants. During pupation the larva attaches its last abdominal segment to the surface of host plant by means of sticky secretion.

The last larval skin acts as pupal case. Pupa is oval in shape and dark in colour. The pupal period lasts for 3-6 days but in certain cases it may extend further. Life cycle is completed in 17-18 days in summer but in winter it may prolong up to 50 days.

The pest completes 7-8 generations during March-October. During hot summer days their population declines considerably, whereas in winter the beetle hibernates inside soil or in the heap of dry leaves around the field. The adults are voracious eaters and lives up to one to two months.

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**Prevention and Control:**

1. The beetles, larvae and eggs can be hand collected and destroyed.

2. Spraying calcium arsonate and lime carbaryl (0.1%), parathion (0.025%), malathion (0.1%), fenitrothion (0.05%), DDT (0.1%), diazinon (0.02%) etc. is quite effective in keeping the pest population under control.

3. Thorough irrigation of infested crop can minimize the increase in pest population.

4. Introduction of TetrastichusovulorumFerr. and Achrysocharisappannai to the crop to parasitize the eggs of hadda beetle. The grubs are parasitized by Solindeniavermai, Pleurotropisepilachinae, Tetrastichussps, Ugamenoni, while pupa is parasitized by Pleurotropisfoveolatus.

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