



Legume pod borer

Maruca vitrata



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The adult moth has brown forewings with white markings.



Photo: Merle Shepard, Gerald R. Carner, and P.A.C Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, CC BY 3.0 US, www.bugwood.org

Caterpillars are whitish to pale green in colour with irregular brown-black spots. The head is dark brown.

SUMMARY: The legume pod borer, a moth, is a prominent pest of cowpeas and other beans throughout East and West Africa. The caterpillars feed on buds and flowers, and bore into the bean pods, eating the seeds and leaving a hole in the pod. Preventive approaches include early planting, use of resistant/tolerant and early maturing varieties, removal of alternative legume hosts, intercropping and crop rotation. Control options include handpicking and destroying eggs and larvae.

KEY SIGNS

The adult moths lay eggs one-by-one or in small groups on the flowers or flower buds and also on the terminal shoots of young plants. The eggs are oval, clear and light yellowish-white in colour; a single egg looks like a small drop of water.

The larvae, or caterpillars, can grow up to 17-20 mm long. They are whitish to pale green in colour with irregular brown-black spots and the head is dark brown. The young larvae can often be found in groups at this stage, but tend to be found individually later. Young larvae feed on the flowers and foliage, but older larvae are more mobile and more likely to be found feeding on and boring into the pods and eating the developing seeds. Once mature the larva drops from the plant to the soil where it pupates beneath plant litter.

The moth wings are blackish-brown with white markings on the forewings and a wingspan of 20-25 mm. The moths are active at night. During the day they can be found resting with their wings spread out on the undersides of leaves.

Cowpeas can be attacked by the legume pod borer from early budding through to harvest. Look for round holes on the flowers and also folded leaves that are stuck together. Open the flowers to look for larvae. The pods will have a distinct hole where the larva entered. Look for yellowish-brown balls on the outside of the pods; these are the droppings (faecal matter) left behind by the larvae as they bore into the pod.

MANAGEMENT

Prevention – what to do before signs are seen

Cultural approaches: Plant early to avoid the period of heavy infestation.

Use resistant/tolerant varieties and/or early maturing varieties if they are available in the area.

Remove alternate hosts such as common beans, kudzu, lima beans, green gram and other leguminous plants from in and around the field.

Intercropping cowpeas with sorghum or maize reduces the populations of the pod boring pests and decreases yield losses. Rotate cowpea with maize.

Control – what to do after signs are seen

Cultural approaches: Hand-pick eggs and larvae from the plants and crush them. Prune leaves with white silk threads that stick together and also remove older leaves to allow more sunlight to reach the leaves and stems of the plants.

Chemical approaches: Pod borers are difficult to control with insecticides because they remain hidden in the pod/bean. However, neem products have proven to be effective against the larvae and are more cost-effective than synthetic insecticides. *Bacillus thuringiensis (Bt)* is also effective against the larvae.

CAUSE

Maruca vitrata was formerly classified as *Maruca testulalis* Geyer and *Crochiphora testulalis* Geyer. Common names include legume pod borer, bean pod borer, lima bean pod borer, mung moth or maruca.

Host plants include beans, cowpeas and other legumes like lablab and kudzu.

There are four stages in the life cycle: egg, pupae, larva and the adult moth. Egg development lasts an average of 3 days, the larva stage lasts an average of 13-14 days, the pupa stage 6-7 days and adults can live an average of 6-10 days.

IMPACT

Legume pod borers can cause yield losses of up to 80%. The legume pod borer causes the most damage to beans (*Phaseolus vulgaris*), cowpea (*Vigna unguiculata*), pigeonpea (*Cajanus cajan*) and green gram (*Vigna radiata*).

DISTRIBUTION

The legume pod borer is found throughout the tropics and subtropics, especially in East and West Africa, but cannot survive in temperate climates. It can be spread from country to country through exported legumes.

FURTHER READING

Plantwise Knowledge Bank www.plantwise.org/knowledgebank