

AULACOPHORA FOVEICOLLIS

Defoliating coleoptera

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IDENTITY

| | |
|---------------------------------|--|
| Latin name | <i>Aulacophora foveicollis</i> |
| Common name | Defoliating coleoptera, Red pumpkin beetle |
| Taxonomic classification | <i>Insecta: Coleoptera: Chrysomelidae: Aulacophora foveicollis</i> |

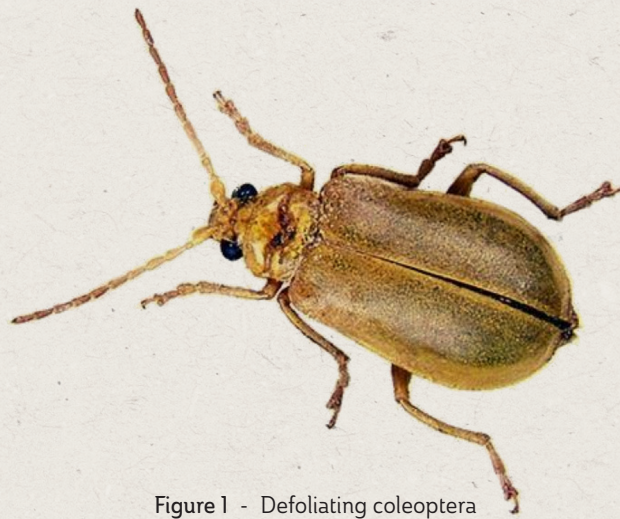


Figure 1 - Defoliating coleoptera

MORPHOLOGY

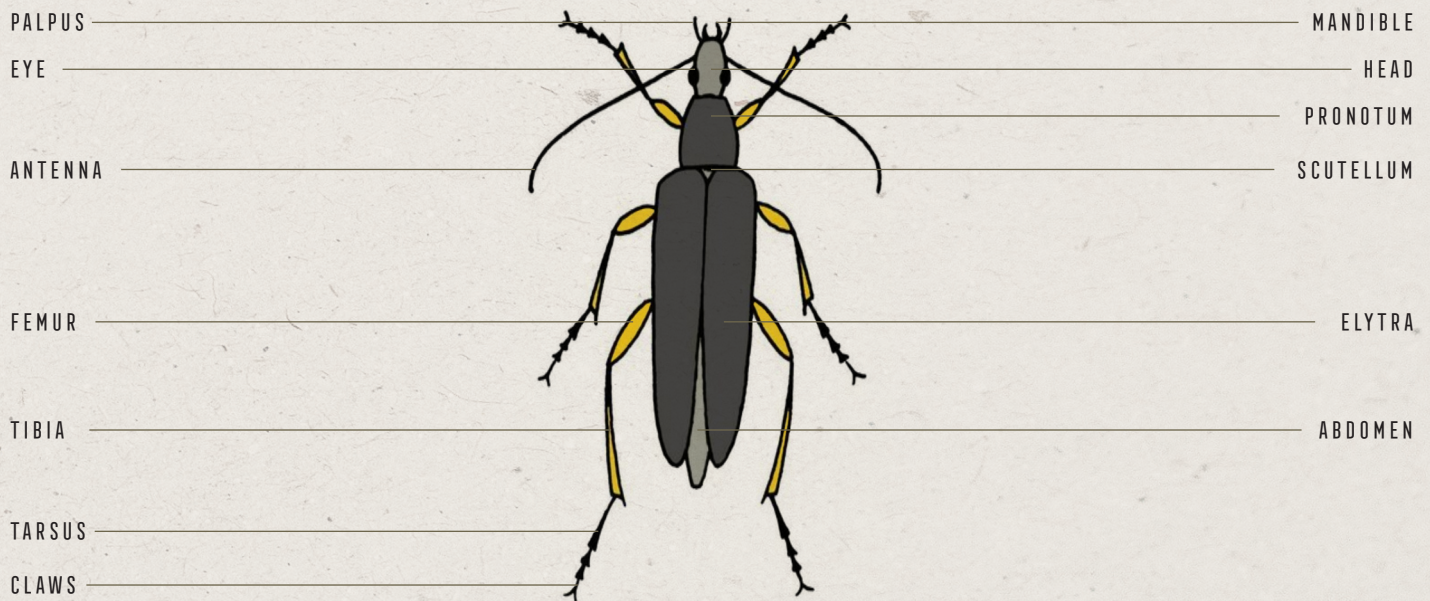


Figure 2 - Anatomy of a coleoptera

Description:

- Body made up of three main parts: head, thorax and abdomen.
- Colours:
 - Brown head and thorax.
 - Black underbody.
 - Shiny purplish-blue elytra (hard wings), which vary from golden metallic green to light or dark blue with flashes of gold.
 - Reddish-brown femurs, black at the base.
 - Black tibia and tarsi, brown at the ends.
- Average size of adult: length 5mm to 8mm, width 3.5mm.
- Average adult life span: Around 10 months.

DEVELOPMENT CYCLE

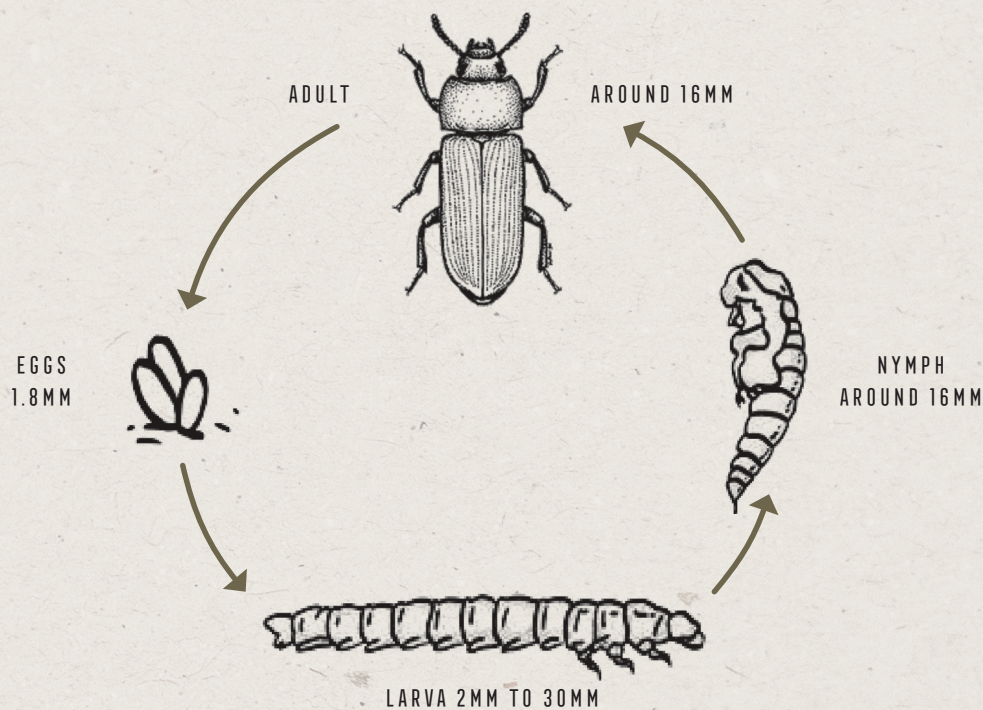


Figure 3 - *Aulacophora foveicollis* development cycle

- Eggs:
 - Maximum fertility: 500 eggs on average (laid individually or in bunches of 10).
 - Shape: oval.
 - Colour: orange.
 - Size: around 1.8mm.
 - Period between eggs being laid and hatching: 4 to 18 days.
 - Length of maturation from egg to larva: 1 month.
 - Length of maturation from egg to adult: around 60 days depending on the temperature.



Figure 4 - Coleoptera eggs



Figure 5 - Coleoptera larva



Figure 6 - Coleoptera nymph



Figure 7 - Adult coleoptera

- Larvae:
 - Colour: yellowish-white (body); dark brown head with a hint of yellowish-gold.
 - Size: around 2mm to 30mm.
 - Number of ecdyses during development: 10 to 16.
 - Larva to adult: Around 1 month.
- Nymph:
 - Looks like the adult.
 - Various parts of the adult's body take shape.
 - Legs and antennae are gathered in close to the body.
 - No mandibles.
 - Colour: pale yellow.
 - Nymph to adult: 2 to 3 weeks.

HABITAT AND CONDITIONS CONDUCIVE TO ITS DEVELOPMENT

- Habitat: among pepper plants and their support trees.
- Period: dry season (May to July) and rainy season in the Penja region.
- Climatic conditions: 28°C to 30°C.

SYMPTOMS AND DAMAGE



Figure 8 - Defoliation caused by an adult defoliating coleoptera *Aulacophora foveicollis*



Figure 9 - Severe invasion of defoliating coleoptera on green stalks of pepper plant support trees

A polyphagous insect which attacks over 80 plant species. The adults and larvae feed voraciously on the leaves of support trees and tender buds of pepper plants, causing serious damage. During serious infestations, they also feed on the epidermis of support trees' young branches and on old support trees which have been pruned. When feeding, they deposit a glue-like liquid onto the damaged buds, which prevents them from developing, thus leading to dieback.

This dieback can then attract termites, which can lead to the death of pepper plants and support trees if left uncontrolled.

MONITORING STRATEGY

Pepper producers must inspect their orchards once a month to detect any damage caused by coleoptera and take timely decisions to reduce the damage to the trees.

Although yellow sticky traps are recommended for improved monitoring, it is not practical to use them in the pepper plant industry at present.

- ▶ **Penja pepper producers are advised to carry out this inspection using an observation and monitoring sheet provided in the appendix.**

GOOD FARMING PRACTICES TO COMBAT PROBLEM

- **Crop control:** the following crop techniques should be implemented to ensure optimal management of coleoptera attacks in pepper plant orchards:
 - Keep the orchard free from any alternative hosts.
 - Collect and burn plant debris.
 - Regularly prune pepper plants and support trees.
 - Keep the plots and border of the farm clean.
- **Organic control:** *Aulacophora foveicollis* has natural enemies, including members of the *Destachinidae* family and the reduviidae *Rhynocoris fuscipes*. It is important to keep these predators and parasitoids in the orchard if they are naturally present. Laboratory tests have shown that bacteria, nematodes and the entomopathogenic fungus *Beauveria bassiana* can also kill *R. fuscipes*.

- **Control using plant protection products:** Control using plant protection products: insecticides recommended for combating coleoptera must be wide-reaching. Treatment should be carried out during the larval stage. It should be noted that no product is currently approved to combat coleoptera on pepper plants (List of pesticides approved in Cameroon consulted on 4 March 2021). However, there are some commercially-available solutions authorised for other crops (see table below) that could be used on Penja pepper plants subject to prior authorisation from the competent authorities.

| Solutions | Method of use | Status as per Regulation (EC) No 1107/2009 | Crop-pest combination for which the active substance is approved in Cameroon | EU MRL for pepper |
|--|--------------------------------------|--|--|--|
| Imidacloprid 30g/l + Lambda-cyhalothrin 60g/l | 0.75L cp*/ha | Imidacloprid: Not approved Lambda-cyhalothrin: Approved | Fruit flies and other insects harmful to cacao trees | Imidacloprid: 0.05* Lambda-cyhalothrin: 0.3 |
| Cypermethrin 12g/l | 4L cp*/ha | Cypermethrin: Approved | Caterpillars, lepidoptera and fruit flies on cacao trees | Cypermethrin: 0.1* |
| Abamectin 1.8% | 0.5L cp/ha (25ml cp/15l spray) | Abamectin: Approved | Harmful insects on various crops | Abamectin: 0.05* |

(*) cp: Commercial product

(*) Indicates the lower limit of the analytical determination

APPENDIX: OBSERVATION AND MONITORING SHEET

Campaign:

Date:

Plot code:

Vegetative stage:

Date of last treatment:

Product(s) used:

Observations:

INFESTATION LEVEL

Defoliating coleoptera:

Comments: