

## Pomegranate Insects

### 1. Carob Moth, *Ectomyelois ceratoniae*(Zeller)

Lepidoptera :Pyrilidae



**Host plants:** Pomegranate, apple, pear, quince citrus, walnut, almond and Fig.

#### Life cycle

The Carob moth spends winter as a larva in damaged pomegranate fruits, plant remains and other plant hosts like fig, pistachio, almond and date. The females lay many eggs in the calyx (crown top) of the pomegranate. Every female lays 20-25 eggs in the calyx. Eggs hatch after 8–10 days and pale pink larvae enter the fruit where they feed for 18–30 days. They then either grow inside the fruit or come out and grow in the calyx or under the bark and plant remains. Adult moths come out to produce more generations.

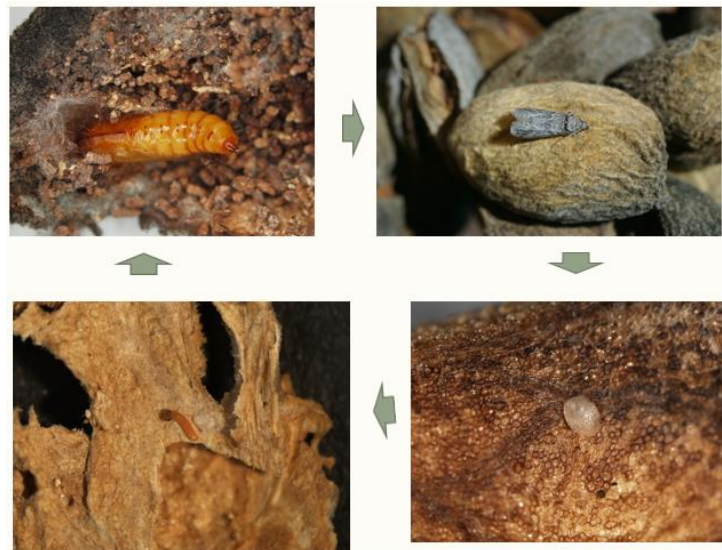


Fig 1: Life cycle of Carob moth, *Ectomyelois ceratoniae*

**Damage:**

Carob moth damage to Pomegranate is a result of feeding by the developing larvae inside the Pomegranate fruit, leaving a residue of frass and webbing, then infect the fruit by fungus.



Fig: Caterpillar and its damage to a Pomegranate

**How to manage Carob moth?****1- Cultural control.**

- If possible, avoid cultivation of pomegranate trees with other host plants such as pistachio, fig and date in the same orchard.
- Observe sanitation by collecting and destroying infected fruits and plant remains during the season.
- Pack the fruits into bags when the fruit is about the size of a black cherry. These bags can be paper or any material.

**2- Biological control.**

- *Bacillus thuringiensis* is a bacterium that produces toxic proteins that control larvae. *Bt* spraying needs to occur before the smaller larvae mature and migrate into the fruit.

**3-Monitoring and treatment.**

- Spinosad is the best choice for insecticide control in an IPM program.
- Spray insecticides 5-7 days after first catch of moths in spring.

**2.Pomegranate white fly, *Siphoninus granati***

Homoptera: Aleyrodidae

**Host Plants:** Pomegranate, pear, quince some Vegetables and some ornamental Plants.

**Life cycle**

Adult females lay eggs on the underside of the leaf. The oval eggs are laid on their sides but may have a peg at one end that is inserted into the leaf.

The first larva to hatch from the egg has three pairs of legs and is usually called a crawler. It walks away from the egg and settles at a suitable feeding site, usually above or close to a leaf vein with phloem ducts (tubes that transmit nutrients from the leaf to other parts of the plant).

There are four larval stages called instars. The larvae grow by moulting, (i.e. changing skin).

When the fourth instar larva reaches full size, it pupates inside the larval skin, which is now called a puparium. When the adult is almost ready to emerge, dark eyespots can be seen through the walls of the puparium. A T-shaped split occurs in the skin of the puparium which splits the front part of the wax on top of the body. The adult pulls itself out. Its body and wings harden, and become covered in white wax.

**Damage:**

- Nymphs and adults suck the sap from leaves.
- Honey dew - development of sooty mould fungus.
- Yellowing of leaves.
- Dropping of affected leaves.



Fig: damage to a Pomegranate

**Management**

- ✓ Parasites control low to moderate infestations in most orchards, particularly for ash whitefly. However, pesticide applications may be necessary.

**Biological Control**

- ✓ The parasite *Encarsia inaron* is the most effective biological control agent of ash whitefly. Generalist predators such as lacewings and lady beetles will prey on whiteflies but are not as reliable at reducing whitefly numbers as parasites.

**Monitoring and Treatment Decisions**

- ✓ Whiteflies are present at any time of year, but they tend to reach high numbers in July and August. Watch for the tiny, fluttering adults, for the nymphs and pupae on the undersides of leaves, and for honeydew and sooty mold on fruit and leaves. Check also for the presence of parasites.
- ✓ Treat in late summer or early fall only if numbers are threatening economic damage due to sooty mold and parasites are not adequate for control. In this case, whiteflies can be controlled with buprofezin, foliar imidacloprid (fall only), or soft chemicals with short residuals such as neem (Trilogy).
- ✓

**3. Pomegranate Aphid, *Aphis punicae* Passerini**  
(Homoptera: Aphididae)

**Host Plants:** pomegranate and some weeds.

**Biology:**

- Eggs hatch after one or two days. Young aphids, called nymphs.
- Nymph: Oval or slightly elongated, reddish brown with six segmented antennae
- Small yellowish-green aphids typically colonizing the upper sides of leaves of pomegranate, winged and wingless aphids.
- It has 12-14 generations per year.



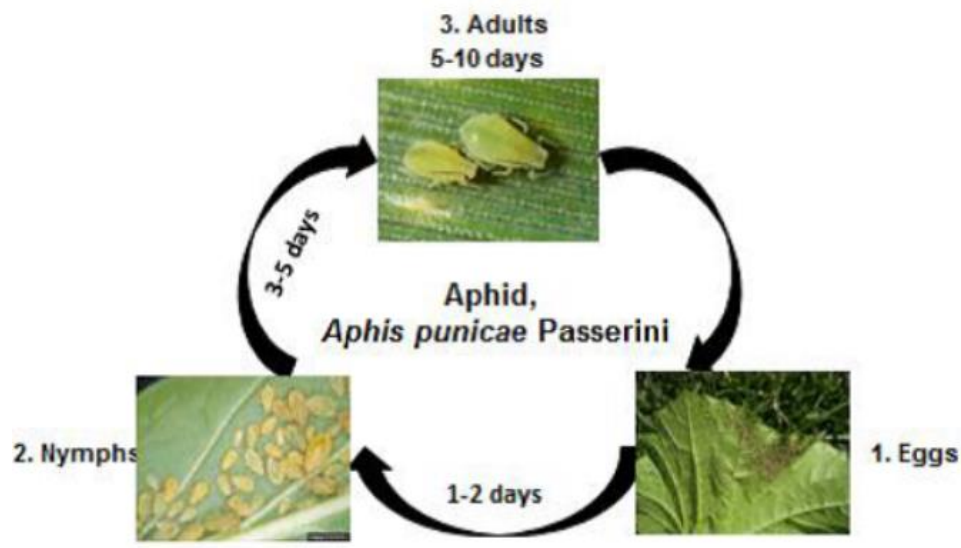


Fig: Life cycle of *Aphis punicae*

**Damage:**

- Nymphs and adults suck the sap from leaves, shoots and fruits.
- Yellowing of leaves.
- Wilting of terminal shoots.



Fig: damage to a Pomegranate by aphids

Aphids on fruits and flower of pomegranate



### Control

#### Biological control

- 1- *Aphidius* sp. lays its eggs in aphids and the larvae develop within the aphid.
- 2- Also, Predator such as *coccinella septumpunctata* and *syrphus corolla* are effective against the aphid.

#### Insecticides

Selective insecticides such as actellic and malathion.