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Carob moth

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Introduction

The carob moth, *Ectomyelois ceratoniae*, is also known as the date, knot-horn, blunt-winged, and locust bean moth. The pest is of Mediterranean origin where it is an economic and sometimes major pest of crops such as carob (also known as locust bean and St. John's bread). In Turkey it is mainly found attacking pomegranates. It is also a well-known pest of pomegranates and pistachios in Iran. The larvae continue to eat and damage fruit after harvest.

Under Western Australian conditions carob moth is mainly a pest of almonds and carobs but it occasionally attacks other fruits.

The insect is abundant in the Perth area but is uncommon in south-west orchards. Local host plants are carob beans, almonds, oranges, apples, figs, and pomegranates, while elsewhere quinces, pears, loquats, peaches, and apricots are recognised hosts.



Figure 1. Carob moth damage on carobs.

Description and life history

The greyish adult moth has a wing span of approximately 20 mm. After mating during spring, the female moths find suitable fruit or nuts on which to lay their eggs. On almonds, for instance, the eggs are laid on the splitting hulls.

The females are attracted to the odour of fungi that grow on splitting fruits or nuts. Summer rains, which result in fruit cracking and fungal infections, invite an increase in carob moth infestations.

The pale pink larvae or caterpillars are frequently confused with the larvae of the codling moth. After hatching they feed until fully grown (at about 20 mm long), then pupate. Generally this occurs inside the fruit; however, pupation sometimes occurs under the bark of trees or under litter on the ground.



Figure 2. Carob moth larva.



Figure 3. Carob moth pupa in cocoon.

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There may be up to three further generations a year before the cool weather induces a diapause (a period of suspended or retarded development) in the remaining larvae. The annual cycle is completed when warmer spring temperatures encourage the over-wintering caterpillars to pupate and emerge as moths in time to attack the new season's fruit.



Figure 4. Exposed pupa in almond.

Nature of damage

Almonds become vulnerable to attack as soon as the green hulls begin to split; the caterpillars then feed on the shell or penetrate to the kernel in soft-shelled varieties.

Navel oranges are the most commonly attacked citrus fruit; grubs usually bore into the navel end causing premature ripening and fruit drop. Other fleshy fruits are damaged by the caterpillars feeding on the seeds or near the stone.

Damage caused by the carob moth may closely resemble that caused by several other superficially similar insects. Infestations found in stored nuts are often confused with storage moth damage, but both may be present and, if nuts are to be stored for a period, they should be heat treated before storing in insect-proof containers.



Figure 5. Damage to almond.



Figure 6. Carob moth entry into carob.

To heat treat harvested nuts, place them in an oven and slowly increase the temperature to 60°C; keep the nuts in the oven at that temperature for one hour.

Natural enemies

Several natural enemies such as parasitoids and predators attack the carob moth in Australia. For further information contact the Pest and Disease Information centre on 1800 084 881.

Chemical control

In Western Australia both almond and carob crops may need treatment against carob moth. Routine spray schedules prevent build-up in commercial orchards, but backyard trees on which some of the crop may be left during the winter are very susceptible to attack. When the pods or nuts have matured, infested material should be removed from the tree and destroyed. This practice will reduce the severity of an early infestation the following season, and provide some protection to other susceptible fruits.

Chemical registrations change constantly, so this Gardennote does not recommend any specific chemicals. Consult your local plant nursery or chemical reseller on registered chemicals to control carob moth in home gardens. Two sprays should be applied a month apart, with sufficient volume to ensure that the fruit is covered. The timing of the first spray is critical and should coincide with the splitting of the hulls of the early fruit.

Mating disruption

Trials in California are underway to determine whether a pheromone mimic can be used to disrupt the mating cycle of the carob moth. Mating disruption will provide an additional method of control.

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