



Carob moth

What is the Carob moth?

The Carob Moth (*Ectomyelois ceratoniae*) is a major problem in Pomegranate orchards in Afghanistan. It also can attack crops like Pistachio, Fig, Almond, Date and Citrus.

What is the damage caused?

In spring, the female moths lay eggs on the stamen of the flower. After hatching, the the second or third instar larvae enter and feed from within the fruit. This feeding can improve the growth of fungi. Infested fruit either rots and drops, or it may remain on the trees until the end of the season.

The insect may have up to three generations a year, before cool weather limits its growth and development.

How to manage Carob moth?

- **Cultural control.**
 - Remove infested fruit and nuts, and mummified fruit in winter.
 - Clean and remove the mass of old stamens after flowering to deter egg-laying. Blocking the flowering end of the fruit with mud can lead to disease.
- **Biological control.**
 - *Bacillus thuringiensis* (Bt) 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.
 - Pheromone dispensers disrupt moth mating by preventing males from finding females. In palm dates orchards in California, a single application of pheromone mating disruptants appeared to be effective for season long-trap shut-down.
 - Essential oil of *Ferula assafoetida* (Devil's Dung) can be used as repellent. A 4-mL equal part solution of oil and ethanol (used as a solvent) is applied to a piece of a woolen fabric, which is then inserted into a polycarbonate tube that hangs from a tree. The solutions should be reapplied monthly. Apparently, the *F. assafoetida* oil also disrupts egg laying of the female carob moths.
- **Monitoring and treatment.**
 - Spinosad is the best choice for insecticide control in an IPM program. Fenoxycarb or similar Insect Growth Regulator insecticides may also be effective.
 - Spray insecticides 5-7 days after first catch of moths in spring. Avoid spraying when bees are foraging - especially with spinosad or older insecticides that are organophosphates or pyrethroids. Always follow label and safety instructions.



Carob moth larva inside the fruit (picture UC IPM)

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Reference: Carob moth UC IPM Fact Sheet <http://eafghanag.ucdavis.edu>

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Peyrovi, M., Goldansaz S.H., and Jahromi, Kh. T. 2011. Using *Ferula assafoetida* essential oil as adult carob moth repellent in Qom pomegranate orchards (Iran). African Journal of Biotechnology 10(3): 380-385.

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