

Q: My apples have been getting more worms in them every year. How can I have decent apples again?

A: It is frustrating to take care of a tree all year and to then have the fruit invaded by worms. The worms you are seeing are most likely the larvae of Codling moth, *Cydia (Laspeyresia) pomonella*, a common pest on apples, pears and walnuts. The adult moth can be difficult to see, with a 0.5 to 0.75 inch (12-18 mm) wingspan, and colors that blend in well with the bark of the apple tree. If you are trapping the adults, codling moths can be distinguished from other moths by the dark, coppery brown band at the tip of their wings. Traps need to be set to determine when the moths are flying, and in our mild climate, that may occur two to four times a year.

The fertile females lay solitary eggs on leaves and sometimes directly on the fruit. The eggs are tiny, smaller than the head of a pin, and hatch into pinkish-white larvae with dark brown heads that bore into developing fruit. The larvae cause two kinds of damage. A 'sting' occurs when the larvae burrow into the skin in a short distance and die. 'Deep entry' is when the core is bored into and feeding occurs. The larvae can penetrate the fruit from any side, with tiny holes plugged with crumbly reddish-brown droppings (frass) indicating their presence. After completing their development they leave the fruit and drop from the tree to pupate in the soil or debris at the base of the tree, occasionally climbing up the trunk to pupate under the loose bark.

The moths can be controlled in gardens by using a combination of insecticides, mating disruption, cultural controls, and parasite releases. Mating disruption has the least negative impact on beneficial insects, and is the preferred method for home gardens, combined with cultural controls. Pheromones are chemicals that mimic the scent of mating moths. Hand applied dispensers can be placed in the upper canopy of the trees in early March to early April as the first moths emerge from overwintered larvae. The moths are only active a few hours before and after sunset and they mate when the sunset temperatures exceed 62°F.

Cultural controls include removing all fallen fruit, and debris from under the trees, pruning trees to increase light availability and hand thinning fruit to remove any infested fruit before the larvae can mature. Banding the trunks to prevent the larvae from climbing is recommended, as is bagging the fruit to prevent infestation.

Complete instructions on codling moth control are available at the Master Gardener office, or on line at the UC Davis IPM website at <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7412.html>.