

Control of Codling Moth

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What's worse than finding a worm in an apple? Finding half of a worm in an apple!

Apples are not actually infected by worms, but by larval forms of insects that look like worms. One such "worm" found in Washington apple orchards is the larva of the codling moth.

Codling moth larvae damage apples by tunneling through the flesh to the core. Characteristic findings include entry holes on the fruit marked by reddish-brown droppings (called frass) and dirty brown or rotten-looking cores. The tunnels serve as portals of entry for rot-producing fungi and bacteria.

Understanding the life cycle of the codling moth is critical to its control. Adult codling moths emerge in the spring and lay eggs about the size of a pin head on young apple leaves or fruit. In about a week, the eggs hatch into tiny larvae that tunnel their way into the core of the apple where they feed on the seeds. After a month, the larvae (now about half of an inch long) burrow out of the apple and drop to the ground. The larvae crawl up the trunk of the tree where they hide under loose bark. The larvae then spin cocoons and transform into adult moths, a process that takes several weeks. Once the adults emerge, the cycle starts again.

In Washington this cycle (called a generation) happens two to three times each summer. Toward the end of the growing season, mature larvae do not transform into adults but overwinter in cocoons under the bark of the tree or in the ground or debris beneath the tree.

Control of the larvae is the best way for homeowners to suppress codling moth populations. To destroy larvae that are already in the fruit, inspect your trees weekly and remove and destroy apples with entry holes. This will prevent the larvae from burrowing out of the fruit and continuing their life cycle. Also, remove culled fruit and debris from under the tree where larvae can hide.

To trap larvae that climb up the tree trunk to spin cocoons, place a narrow strip of corrugated cardboard around the base of the tree. The larvae will crawl into the corrugations and start spinning cocoons. You can then remove and destroy the cardboard and the cocoons.

Pesticides are only effective against the newly hatched larvae, before they burrow into the fruit. Applications have to be carefully timed and repeated at certain intervals to get all of the newly hatched larvae. They also must be repeated as each new generation emerges. Read the pesticide label and follow the recommended days between applications and between applications and fruit harvest.

The hardest stage to control is the adult moth; various traps are used commercially, but they usually are not successful for homeowners.

Worms in apples are no laughing matter. If you see signs of codling moth in your orchard, take steps immediately. If you don't, within two to three years 85-90% of your apple crop will be affected.

Larvae entry holes on the fruit surface, an obvious sign that you have codling moth in your orchard.



Photo courtesy of Jay Brunner, Washington State University, Tree Fruit Research and Extension Center

Codling moth larva found in the core of apple. The larva must eat a certain protein found in the seed in order to complete its development.



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