

Codling moth

GWF 201
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Codling moth is very common, mainly in the south, west and the Midlands. The caterpillar tunnels into fruit, spoiling apples and pears. It can also attack walnuts and quince.

Q What is codling moth?

A A nondescript moth (*Cydia pomonella*) which is seldom noticed as it flies in the evening. It is about 8mm long, with grey/brown wings, and when at rest it resembles a paper dart. There is a slightly shiny red patch near the ends of its wings. Codling-moth caterpillars eat into immature apples and, to a lesser extent, pears. They can also have a go at walnuts and quince.

Q How do I recognise codling-moth damage?

A Codling moth mostly affects apples but can also affect pears. In ripe fruit, the first tell-tale sign is a small hole, surrounded by an area of reddish or purplish discoloration, where the codling-moth grub ate its way out of the fruit. Inside, a tunnel leads to the core, which will have been eaten away, and there will be brown droppings known as frass. There may be a grub too, from a later generation. In unripe fruit, there may be no signs until the fruit is cut open and the grub revealed.

Q Could I mistake it for anything else?

A Apple sawfly and fruitlet-mining tortrix moth damage the fruit in a similar way to the codling moth.

Apple sawfly feeds in June,

leaving a tunnel into the core filled with wet, red/brown frass. The young caterpillar also causes a scar as it tunnels under the skin in search of a route to the core. This larva is off-white with seven pairs of sucker-like legs.

The fruitlet-mining tortrix moth tunnels randomly into the fruit in June and early July. Typically, there are several of these tunnels, mostly shallow, but sometimes going deeper into the fruit.

Controls for codling moth won't stop these two pests. If you think you might have these in your fruit, see *Gardening Which?* factsheet GWF203 Apple sawfly or GWF214 Fruit tree caterpillars.

Q Can the fruit be used?

A Yes. The undamaged parts are perfectly edible, and codling-moth-infected fruit is usually the first to ripen. The damaged areas are prone to rotting so the fruit cannot be stored.

Q Where are they likely to turn up?

A Unsprayed trees are very likely to have codling moths, especially if they are near your fruit store. Hot, dry years are high-risk times, particularly in the South. The South West and West Midlands seem to be the worst affected areas of the country.

Q How do the grubs get into the apples?

A Adult moths appear in June and July, but a few early ones are on the wing in late May, and some late ones are still about until early August. The female lays eggs singly on the young fruitlets on her evening flights. They are round and scale-like, very small (about 1mm in diameter), and hatch in about two weeks. The tiny caterpillars tunnel into the fruits. Early caterpillars often go for the 'eye' opposite the stalk. They stay there feeding for a month or so, at first near the surface, then in the core. Sometimes they go to a second fruit. When they are mature, they eat their way out and head off to look for a pupating site.

Q What happens next?

A Their usual haunt is under loose bark, where they spin a cocoon. But they will also pupate under tree ties and in any splits in tree stakes. Most stay there overwinter and do not emerge as adults until the following year. However, some moths may appear in September, and produce a second infestation. These arise from the earliest moths which formed cocoons in June. They don't leave the fruits until after picking. In the absence

of bark, they spin their cocoons in the fruit store under shelves and on boxes. When they hatch they will be in pole position to infest trees near the store.

Q How do I control them?

A There are several options, tailored to the different stages in the moth's life cycle. You can use home-made traps to collect pupae, chemical traps to lure the male adult moths, or chemical sprays to control caterpillars. You can also use a biological control.

Q How do I trap the pupae?

A Sacking or corrugated cardboard tied around main branches in mid-July provides a suitable hiding place for pupating caterpillars. It can be removed and burned or consigned to the dustbin in mid-September. Don't forget that they can bypass traps on the trunk via tree stakes! Unfortunately this approach is not very effective as not all caterpillars will choose to use the traps. Nevertheless, you can limit their options by scraping off loose bark and filling in any splits on your tree stakes with putty or mastic. Also, other moths can easily fly in from other trees. However, the females don't usually travel more than about 100 metres, so isolated plots may survive unscathed.

Q Are sprays worth considering?

A Only as a last resort. The timing is critical, as you have to catch the young caterpillars before they tunnel into the fruit. Spray with an insecticide approved for caterpillar control on fruit containing bifenthrin or pyrethrins. Apply it to the fruit in mid- to late June and again in

early to mid-July. This will also help control tortrix moth. You will need sophisticated spraying equipment to cover big trees. Another drawback is that the sprays can wipe out beneficial insects who otherwise keep down spider mites and pear-suckers.

Q Are there any organic sprays I can use to control codling moth?

A Not really - organic growers should use traps for the adults and pupating caterpillars. You might think that the selective caterpillar killers containing the bacterium *Bacillus thuringiensis* are ideal. They kill caterpillars, but spare helpful insects. But the drawback with the bacterium is that it takes time to work, it breaks down in sunlight and the caterpillars must eat it, so it needs to cover the fruit. This makes timing extremely difficult. It might be worth a try as a back-up to traps, and applied at the same times as the other sprays.

Q What about the adults?

A You can hang up traps to catch male moths and prevent them fertilising the females. The traps contain a pheromone scent which attracts the males which are then caught on a sticky pad. Put the traps up at the end of May; one trap will serve five trees. Initially, the traps were used by growers to monitor the moth's numbers, so they could time their spray programmes most effectively. However, they can significantly reduce the moth population and the amount of damage.

Codling-moth traps come in two parts and you will need to buy refills of the pheromone each season. You may find them in garden centres. They are also available by mail order.

Q Can I use the traps to know when to spray?

A Yes. If five or more male moths are caught in two weeks it's time to spray. These need not be consecutive weeks. Wait 7-10 days after the last lot of five moths, then spray. The drawback is that the traps will also catch fruitlet-mining tortrix moths, so you have to be able to recognise the codling moths. Also, you need to monitor all through the codling-moth season, making sure you don't count the same moth twice.

Suppliers of codling-moth traps

Agralan Ltd
The Old Brick Yard,
Ashton Keynes, Swindon,
Wiltshire SN6 6QR
01285 860015
www.agralan.co.uk

Defenders Ltd
Occupation Road, Wye,
Ashford, Kent TN25 5EN
01233 813121
www.defenders.co.uk

The Organic Gardening Catalogue
Riverdene Business Park,
Molesey Road, Hersham, Surrey
KT12 4RG 0845 130 1304
www.organiccatalog.com

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