

# Leaf miners

GWF245

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**Wiggly lines or blisters on leaves are tell-tale signs of a leaf-miner attack. There are many different species but the damage is rarely serious enough to warrant any action.**

## **Q** What are leaf miners?

**A** Many insect larvae produce mines by burrowing, and feeding between the upper and lower leaf surfaces. This lets in air, so mines are often pale or silvery. Mines vary in shape from wiggly lines to blisters according to the miner involved. Affected plants look bad, but the long-term damage is usually slight. There are exceptions, though eg if seedlings are affected, they can die.

## **Q** Which species am I likely to come across outdoors?

**A** **Celery-leaf miner** (*Euleia heraclei*) often attacks celery, celeriac and parsnip leaves, and less commonly, parsley and carrots. Affected plants are stunted and don't crop well. The tiny, 5mm-long fly lays about 100 eggs inserted into the leaf in spring and early summer. They hatch in 1-2 weeks. After 2-3 weeks burrowing in the leaves the larvae pupate. The pupae may be in the leaf or the soil. The second generation of adults emerges 3-4 weeks later, and this can be followed with a third generation in late summer. It survives the winter as pupae in the soil. As the second and third generations overlap, attacks can be expected at any time during the summer.

**Beet-leaf miner** (*Pegomya hyoscyami*) is a small, 6mm-long

fly. Its larvae tunnel into beetroot-family plants like spinach, and weeds, such as fat hen. It lays up to 20 eggs in spring and early summer. The white larvae or maggots feed for about two weeks making pale leaf blisters. They pupate in the soil for 2-3 weeks. The pupae from the last generation overwinter in the soil. Like celery fly, there are up to three generations each summer. The later ones can be very numerous if the late summer weather is hot and dry. Usually the damage is only cosmetic and the plants recover, but you might have to discard some parts, like spinach leaves, for example.

**Apple-leaf-mining moth** (*Lyonetia clerkella*) attacks apple, cherries, birch and hawthorn trees from late spring. When the eggs hatch, the caterpillars fill the leaves with winding mines, until the fully grown green caterpillar pupates. The chrysalids are formed in the foliage in a mass of webbing. There may be several generations per year. The damage can look spectacular, but, with the exception of young trees, it does no real long-term damage.

**Holly-leaf miner** (*Phytomyza ilicis*) can attack most hollies. The tiny fly emerges in late spring and lays eggs in slits beneath the leaf. The larvae or maggots disfigure the leaves with yellow or brown meandering mines that eventually

turn into blotches. Unlike the other leaf miners there is only one generation per year. They overwinter in the mines, so it is worth picking off infested leaves on precious plants.

**Lilac-leaf miner** (*Caloptilia syringella*) lays eggs on the leaf undersides of lilacs, ash and privet in late spring and early summer. The caterpillars hatch and begin life as leaf miners, blistering the leaves. As they grow, they feed outside the leaves, inside rolled-up leaves and webbing. After pupating, the second generation of moths emerges in late summer. The pupae from these overwinter beneath trees, hedges and on garden fences.

**Laburnum leaf miner** (*Leucoptera laburnella*) lays eggs on the leaf undersides of laburnums in late spring and early summer. These hatch into leaf-mining caterpillars that bore spiral mines in the leaves, until the whole mine is a single blotch. A second generation emerges during late summer which feeds until early autumn, when it produces the cocoons that overwinter in the fallen leaves or on the twigs.

## **Q** What are the common greenhouse ones?

**A** **Chrysanthemum-leaf miner** (*Chromatomyia syngenesiae*), a

3mm-long fly, is a common chrysanthemum pest also found on related plants such as cinerarias, lettuce, and groundsel. The adult fly lays its eggs inside the leaf. The puncture marks could be mistaken for the early stages of white rust, and eggs, laid in about 10 per cent of them, hatch into larvae after a week. The larvae produce thin mines wandering over the leaves. These take about ten days to mature. Several mines together on a leaf looks like one large blotch. This resembles the damage caused by **chrysanthemum-blotch miner** (*Trypeta zoe*), this causes blister-like mines. Affected leaves wither and die. After pupating as a white blister beneath the leaf, the adult fly hatches and lays about 75 eggs during its 2-3-week lifetime. Summer is the usual time for attacks, but in a heated greenhouse they occur at any time. **Tomato-leaf miner** (*Liriomyza bryoniae*) is a tiny, 3mm-long, black fly, similar to the chrysanthemum-leaf miner, but pupates outside the leaf.

**Q Are there any others I should be on the lookout for?**

**A** Imported plants, especially chrysanthemum cuttings, can carry the **South American leaf miner** (*Liriomyza huidobrensis*), **American serpentine leaf miner** (*Liriomyza trifolii*), **American vegetable-leaf miner** (*Liriomyza sativae*) and the **North American cabbage-leaf miner** (*Liriomyza brassicae*). None of these are established in the UK, and stringent quarantine measures are taken to keep them from getting into the country.

**Q What do they look like?**

**A** Although the damage they cause is obvious, the adults

themselves are inconspicuous flies, beetles or moths. Gardeners seldom notice them, and identification is a job for experts.

**Q How do I know if they are present?**

**A** The mines can wander aimlessly about the leaf, spiralling round the leaves or look like blotches. The miners' black droppings can be seen in the mines. When the mines are small they are hard to see, but they rapidly get larger. When fully developed, the whole leaf is brown and dead. The miner can usually be seen as a dark patch in the mine. When you open up the patch, it turns out to be a grub, caterpillar or pupa.

**Q Can they be mistaken for anything else?**

**A** Eelworms will produce darkened leaf areas, but there are no mines or miners.

**Q What can I do about leaf miners?**

**A** Discourage them by getting rid of weeds that they feed on. Compost or burn infested foliage. Prevent further attacks by squashing the leaf miner as soon as the mines are seen. Picking off affected leaves and destroying them will also help. Digging the affected sites may bury any pests overwintering in the soil, either preventing them reaching the surface or exposing them to birds and other predators.

**Q Can they be sprayed?**

**A** Contact insecticides containing bifenthrin, pyrethrins or rotenone may help control leaf miners. Don't spray if you are using biological controls.

**Q What should organic growers use?**

**A** Organic insecticides might give some control, if applied in the early stages of an attack. Using fleece or insect-proof mesh over celery and parsley, for example, will keep off celery fly, as well as greenfly and carrot fly. In greenhouses, consider using a biological control.

**Q Tell me about biological controls.**

**A** Greenhouse leaf miners can be controlled by the parasitic wasp *Diglyphus isaea*. This wasp thrives in summer, and can quickly eliminate leaf miners in greenhouses or conservatories. Supplies can be obtained from **Biowise** 01798 867574 **Defenders** 01233 813121 **Harrod Horticultural** 0845 402 5300 **Just Green** 01621 785088 **Scarletts** 01206 240466

**Q Can they be trapped?**

**A** Sticky yellow traps used for whitefly control will catch many adult greenhouse leaf-miner moths and flies. They are hard to recognise, and look like tiny flies.

**Q Can leaf miners be avoided?**

**A** Sadly, they are so mobile that there seems to be no way to avoid these pests.

## Chemical information

Brand names of garden products change frequently, whereas the active chemical ingredient in them usually doesn't. Because of this, we list the active chemical ingredient recommended for a given problem, rather than the brand name of the product. The only exception is when we have tested a brand and chosen it as a **Best Buy**. If you need any more information on chemicals, please ask for our factsheet GWF281.