

# *Liriomyza* leaf miners

## What are they?

*Liriomyza* species are leaf mining flies. The adults have a characteristic yellow spot on the back (the scutellum) but laboratory analysis is required to confirm the identification of each species.

They cause damage by puncturing the leaf surface to feed on the leaf tissue and also to lay eggs. When the eggs hatch, the larvae tunnel within the leaf tissue forming damaging and disfiguring mines. Leaf mines and punctures reduce the quality of high value horticultural crops in addition to reducing the photosynthetic ability of the plant.

There are over 370 species of *Liriomyza* known worldwide, of which 39 are found in the UK. However, the majority are not considered as pests because they each have a restricted host range and do not feed on plant species that are of economic importance.



*L. sativae* adult



## Which species are quarantine pests?

The South American leaf miner (*Liriomyza huidobrensis*), the American serpentine leaf miner (*L. trifolii*) and the vegetable leaf miner (*L. sativae*) are all quarantine species that are not native to the UK. They are notifiable to Defra whenever found. They are all highly polyphagous, feeding on a wide range of plant species, including economically important vegetable and ornamental plants.

The tomato leaf miner (*L. bryoniae*) is closely related to the South American leaf miner, but is established in the UK as an important pest of tomatoes. It is, however, a regulated pest for Ireland and Northern Ireland, and is included in passporting controls within the European Union.

## How do I recognise them?

Different species of leaf miners often produce mines of characteristic shape, but this feature can only be used as a very general guide because variation in the appearance of the mines of the quarantine species can be seen, particularly when comparing mines from different host plants. Laboratory analysis is required to confirm species identification.

- The chrysanthemum leaf miner (*Chromatomyia syngenesiae*, formerly known as *Phytomyza syngenesiae*) is a native pest species that can generally be distinguished from *Liriomyza* leaf miners because it produces relatively clean mines, usually whiter in appearance, which tend to be more linear and less convoluted.
- Quarantine *Liriomyza* leaf miners all produce broken trails of insect debris within the mine, which may sometimes appear almost continuous and the mines often appear browner and dirtier than the mines of *C. syngenesiae*.
- *L. trifolii* often produces a particularly convoluted, tightly coiled mine, which is usually found towards the top of the leaf.
- When the larvae of the quarantine species are fully mature, they leave the mine and usually fall to the ground to pupate, whereas the larvae of *Chromatomyia* species pupate within the leaf.



*L. huidobrensis* mines on chrysanthemum



*L. huidobrensis* mine on cinneraria



*L. sativae* mine on pepper

## Which crops are at risk?

Ornamentals from most of the economically important plant families have been reported as hosts and represent the main means of introduction of quarantine leaf miners, on imported plant material. Leaf miners are also seen on imported produce.

Outbreaks in the UK have occurred on cut flower crops such as **chrysanthemum** and **gypsophila** and on an increasing range of bedding and pot plants, including **Verbena**, **Viola** and **Primula**. Although outdoor crops may be attacked during the summer, heated protected crops, such as **cucumbers** and **tomatoes** are most at risk because quarantine *Liriomyza* species are not well adapted to cooler UK conditions. Nevertheless, *L. huidobrensis* will continue its development at lower temperatures than *L. trifolii* and *L. sativae* and so unheated vegetable crops, particularly **lettuce**, **brassicas** and **celery**, are also at risk.

Damage in severe infestations from both adults puncturing the leaves and larval mining can lead to total crop losses. Leaf miners are difficult to control as the larvae are protected within leaf tissue and the pupae remain unseen in the growing medium. Control on edible crops is particularly difficult due to the limited availability of effective treatments and the potential for rapid and explosive development of the pest population.

## What should I do?

- Seek assurance from your plant suppliers that plants are free from this pest as part of any commercial contract.
- Check plants carefully on arrival and monitor your crop during the growing season using yellow sticky cards to trap adults. Look out for punctures and mines on the crop.
- Act promptly if you see signs of leaf miners. Contact PHSI to confirm the identity of the species.
- Use a thorough clean-up programme between crops. Pupae can remain viable in the soil or substrate for several months at low temperatures and cause re-infestation in the following crop.



*L. huidobrensis* adults on a sticky trap

## Keep a good look out

**These are notifiable pests. If you suspect the presence of these pests on your nursery** you should immediately inform your local Defra Plant Health and Seeds Inspector (PHSI) or the PHSI HQ, York:

**Tel:** 01904 455174

**Fax:** 01904 455197

**Email:** [planthealth.info@defra.gsi.gov.uk](mailto:planthealth.info@defra.gsi.gov.uk)

**Website:** [www.defra.gov.uk/planth/ph.htm](http://www.defra.gov.uk/planth/ph.htm)

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