

# New Pest Alert: Serpentine leafminer

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Plant Biosecurity & Product Integrity, Orange

Serpentine leafminer (*Liriomyza huidobrensis*) is an insect pest that has been detected in NSW. It is now considered to be established in NSW and QLD.

This insect pest poses a serious threat to Australian **agricultural and horticultural industries**.

## Serpentine leafminer

Serpentine leafminer was detected in an area of western Sydney on 22 October 2020 and is now considered established in NSW and QLD.

Serpentine leafminer is a small fly whose larvae feed internally on plant tissue, particularly the leaf.

It affects a number of vegetable crops as well as a number of ornamental plants including cut flowers.

## What should I look for?

A serpentine leafminer infestation would most likely be detected through the presence of the mines in leaf tissue. Adult flies and larvae are not likely to be seen due to their size.



Figure 1 Mining damage caused by serpentine leafminer larvae on cucumber leaf



Figure 2 Mining damage caused by serpentine leafminer larvae on tomato leaf



Figure 3 Mining damage caused by serpentine leafminer larvae on cos lettuce



Figure 4 Exotic serpentine leafminer adult fly

## Description

### Larvae

The larvae of *Liriomyza* species are yellow to white and usually concealed beneath the leaf surface in tunnels where they feed.

More visible than the larvae themselves are the patterns created in the surface of infested leaves by their tunnelling (Figure 1, 2 & 3). The twisting trails appear whitish on the surface of the leaf and become longer and wider as the larva grows.

### Adults

The adult flies of *Liriomyza* species are very similar in appearance. The flies are small (<3 mm) and grey-black with yellow markings. Usually there is a prominent yellow area at the base of the wings (Figure 4).

## Damage

The larvae of all *Liriomyza* species 'mine' the leaves of host plants. The larvae feed by tunnelling through the leaf tissue.

Extensive tunnelling across leaf surfaces reduces the ability of the plant to photosynthesise and produce energy. Feeding and egg laying damage can also create small wounds across the leaf surface. Severe damage can result in leaf death or premature leaf drop.

If severe mining occurs early in the fruiting period, defoliation can reduce yield and fruit size and expose fruit to sunburn. Damaged leafy vegetables are unmarketable to supermarkets.

## Lifecycle

Female flies use their ovipositor to puncture the leaves of host plants and deposit eggs. The eggs are inserted just below the leaf surface. Many eggs may be laid on a single leaf.

There are three larval stages that feed within the leaves. The larvae usually fall from the plant to the soil to pupate.

The entire life cycle can be completed in as little as two weeks. If conditions are favourable, the flies can reproduce all year round and sustain five to ten generations per year.

## Spread

Spread of leafminer flies is most likely to occur with the transport of plant host material containing eggs or larvae.

The adults are capable of flight but are not very active fliers. They tend to fly within a crop but rarely between crops. Localised

spread of the pest is most likely to occur through wind dispersal or on contaminated plant material or equipment.

## Hosts

Serpentine leafminer is a significant pest of a number of vegetable crops including beans, cabbage, capsicum, celery, chilli, cucumber, eggplant, lettuce, onions, peas, potatoes and tomatoes.

Ornamental plants including cut flowers are also hosts as are some weed species.

## Distribution

*Liriomyza huidobrensis* was found in western Sydney in 2020. Queensland reported a detection in the Fassifern Valley in November 2020. Due to the extent of the infestation discovered through surveillance activities at the time it is now considered established in NSW and QLD.

*Liriomyza trifolii* is found worldwide except for Australia. *Liriomyza bryoniae* is present in Europe, Asia and North Africa and *L. cicerina* is present in Africa, Europe and the Middle East.

*Liriomyza sativae* was found on Cape York, Queensland in 2015 and is under management to prevent further spread.

## Actions to minimise risk

Production nurseries and growers should check their crops regularly for signs of plant pests and disease.

Good on-farm biosecurity practices are vital to preventing incursions of plant pests and diseases. Put in place biosecurity best practice actions to prevent entry, establishment and spread of pests and diseases:

- o practise "Come clean, Go clean"
- o ensure all staff and visitors are instructed in and adhere to your business management hygiene requirements
- o monitor your crops regularly
- o monitor and control volunteer plants that can harbour the pest
- o source plant material of a known high health status from reputable suppliers
- o keep records

## Reporting

There is no obligation to report a suspect serpentine leafminer, however if you would like submit samples for testing or send in a sticky trap for identification you can do so. [Please note: you are responsible for paying for postage and processing costs of any sample you submit for testing].

Details on how to submit samples are on our SLM webpage.

## Acknowledgements

Figure 4 Photo Merle Shepard, Gerald R. Carner, and P.A.C Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, Bugwood.org

All other images NSW DPI

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