

Allium leaf miner – beware!

Allium leaf miner (*Phytomyza gymnostoma*) is a relatively new pest to the UK – first found on a Wolverhampton allotment in 2003 – and has been gradually spreading since then. It is not known how the pest was introduced to the UK, but it is widespread in central Europe, and was first recorded as causing significant damage to a leek crop in Hungary in 1988. It is now a major pest in Slovakia, Serbia, Slovenia, Austria, Poland and Germany. It can affect onions, garlic, shallots, leeks and chives. It is likely to be controlled in conventional allium crops by pesticides routinely used to control other pests, so it is of particular concern to organic growers where this is not possible. Damage is caused by the maggots of the leaf mining fly feeding on the plant. It is capable of severely infesting 100% of a crop.

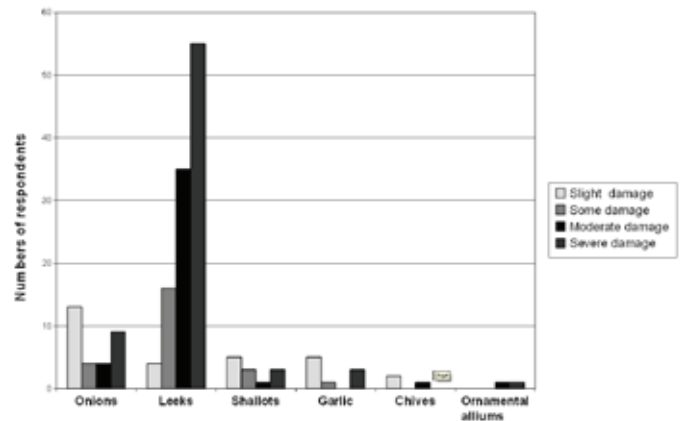
The symptoms you may see are:

- Lines of white punctures on leaves – the first sign that the flies are active. Leaves and plant distorted.
- Creamy white, legless maggots, 5-8mm long in leaves and bulbs
- Brown orange pupae, 3-4mm long, in leaves and bulbs
- Plant rotting

Last year the pest reached Ryton Gardens for the first time and various staff members reported it on gardens and allotments in the Coventry and Leamington area. We decided to carry out a survey, which went out primarily to Garden Organic members by email, but also to OGA members and others, to see how far it had spread. We received 113 responses or positive sightings of the pest, primarily in the Midlands, spreading east to Coventry and north to Stoke and Nottingham. There was also a cluster in the London area, and scattered reports from Norwich to Devon. Although damage was recorded on all allium crops, leeks were by far the worst affected; garlic seemed to be the least affected. Many were experiencing the pest for the first time and crops had been devastated. One grower wrote: “It was amazing how quick the damage spread – within a few days a healthy crop was blasted, and this was true across the seven-acre allotment site.”



Distribution of reported sightings of allium leaf miner



Crops affected and severity of damage recorded.



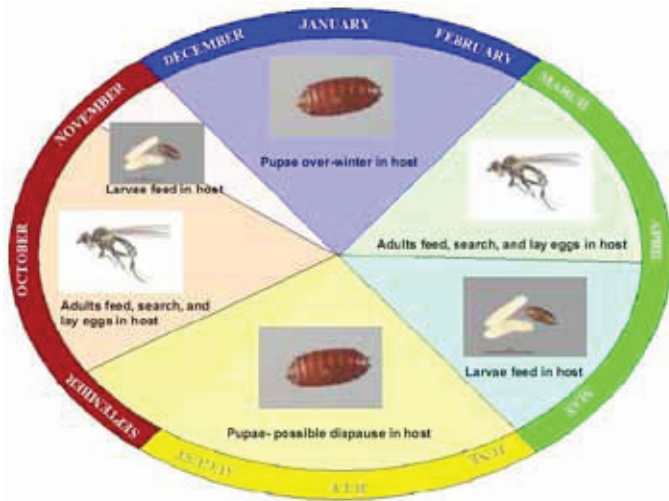
Photo: Ulrich Schmutz / Garden Organic

Allium leaf miner pupae on leeks

Others who had previous experience tried crop covers, but some still had damage when the covers were not secured properly or the mesh used was not fine enough, or not put on at the right time. Many allotment holders in the worst affected areas of the Midlands around Wolverhampton have stopped growing leeks, onions and shallots all together. Others are succeeding with a fine mesh. Some are cutting the leeks down to the ground and allowing them to grow back successfully free of the pest. Composting is not recommended, unless hot temperatures can be achieved, so domestic gardeners are advised to dispose of infected plants in their green waste collection.

About the pest

Allium leaf miner should not be confused with the leek moth (*Acrolepiopsis assectella*). The pupal stages are quite different: the leek moth pupa is about 10mm long and cream, the allium leaf miner pupa is about half this size and orange-brown in colour (see photo). The larvae of the leek moth are from 1-10mm long, yellowish-green in colour, with brown head capsules and legs on the thorax, and pro-legs on the abdominal segments. The larvae of the leaf miner are white/cream in colour with no head capsule and no legs.



Adult Allium leaf miner fly



Allium leaf miner - larva (left) and pupa (above right)

Allium leaf miner has two generations per year in the rest of Europe and it appears likely to be the same here. The adults emerge in the spring from pupae that overwintered in host plants (other alliums) and the females lay their eggs at the base of host plant stems, with the first generation larvae developing

in April and May (peaks late April in Austria). The pupae may diapause (delay development) during the summer before adults emerge and lay eggs on leeks and other alliums in the autumn for the second generation (peaks mid-September). The damage is most obvious once secondary rotting takes place, usually on leeks between December and February, and on onions in June.

How to minimise impact

Check alliums regularly for mining damage and split leaves. Peel back leaf layers to check for pupae, or slicing leeks, onions or garlic longitudinally in November to March, which may reveal the larvae or pupae. Adults may be observed on yellow sticky traps, placed just above the plants, during March/April and September/October.

Cover susceptible plants with horticultural fleece or ultra-fine mesh (the fly is only 3mm long) during vulnerable periods (from mid-February to end of April and from September to November). One of our survey respondents claimed that "a new mesh called Filbio is better than enviromesh or fleece for keeping out very small flying insects." You could in theory remove the cover in June until August when the fly should not be active, but that is a period when leek moth is also active, if that is also present in your area! Remember that plants in module trays and seedbeds are at risk, if outside. Therefore raise plants inside or cover seedbeds outside with fleece.

Be careful about buying in transplants, sets etc. from areas where the fly is active.

Avoid planting alliums until after the first threat of adult emergence is past (after April); however this is likely to be too much of a yield hit for onions, even for late maturing varieties.

In Austria organic farmers are advised to grow leeks as far as possible away from chives, and to cover leeks with mesh before the autumn generation emerges. They are also advised to bury plant remains as deeply as possible in the soil.

In Slovenia, crop covers are used to prevent egg-laying. Several organic farmers in Slovenia are spraying whey (non diluted), which seems to be very effective. Spraying would need to take place when adults are active and females egg-laying (March/April and October/November) and when larvae are found feeding in the upper parts of the leaves.

With leek moth steadily spreading up from the south coast into the Midlands, and allium leaf miner apparently spreading out from the west Midlands, it appears that growers in many parts of the country are going to have to accept that crop covers are every bit as necessary for leeks as they are for carrots - a substantial growing cost to be added to these crops.

Phil Sumption

Pest and Disease Management for Organic Farmers, Growers and Smallholders (2010), Gareth Davies, Phil Sumption and Anton Rosenfeld. Crowood Books.

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