



Pest Alert – Allium Leafminer

The allium leafminer (also known as the onion leafminer) (*Phytomyza gymnostoma*) has recently been confirmed from infested leeks and onions in Lancaster County, PA. This is the first confirmed infestation in the Western Hemisphere.

Host Plants and Damage Symptoms: The allium leafminer infest species in the genus *Allium*. Leeks tend to be described as the most damaged host, which may be influenced by the timing of the second generation and the planting of leeks. Infestations have also been reported in onion, garlic, chive, shallot, and green onion. Ornamental and weedy species of *Allium* may also be at risk.

Adult females make repeated punctures in a linear pattern towards the upper end of leaves and both females and males feed on the plant sap. Leaves of infested plants can be wavy, curled and distorted. Larvae mine leaves and move towards and into bulbs and leaf sheaths where they pupate. It is often necessary to peel back the leaves to find the insect. Both the leaf punctures and mines serve as entry routes for pathogens. High rates of infestation have been reported, and leafminers as a pest in *Allium* crops has rapidly increased following introduction of this insect in other areas.

Distribution: The allium leafminer is native to Poland and Germany. Recently, the geographic range has been rapidly expanding. It is now present throughout Europe and into southwestern Asia.

Identification: Small (~ 3 mm/ 1/8 inch) long grey or matte-black colored flies with a distinctive yellow or orange patch on the top and front. Yellow color also present on sides of abdomen. Wings held horizontally over abdomen when at rest. Legs with distinctive yellow “knees” (at femur-tibia junction). White halteres. Eggs are white, 0.5 mm long, and slightly curved. Larvae are white, cream, or yellowish maggots, headless, up to 8 mm long. Pupae are dark brown, 3.5 mm long.



Allium Leafminer adult



Infested plants (top) and pupae (middle and bottom). Photo: L. Donovall

Life History: Allium leafminers overwinter as pupae in plant tissue or soil. Adults emerge in late winter (March) into spring (April, perhaps May) and lay eggs at the base of plant leaves. Larvae mine leaves and move downward into the base of leaves or into bulbs where they pupate. Pupae may move into soil. 1st generation pupae undergo a resting period throughout the summer and emerge as adults in the autumn (September / October). This 2nd generation of adults lay eggs into *Allium* spp. which develop through the larval and into the pupal stage which then overwinter.

Monitoring and Management: Adults have been captured using yellow sticky cards or yellow plastic bowls containing soapy water. Covering plants in February, prior to the emergence of adults, and keeping plants covered during spring emergence can be used to exclude the pest. Avoiding the adult egg-laying period by delaying planting (after mid-May in Poland) has also been suggested. Covering fall plantings during the 2nd generation flight can be effective. Continuous cultivation of *Allium* species (such as chives) provides the pest with an endless food source. Systemic and contact insecticides can be effective. EPA registrations vary, however, among *Allium* crops.

Check labels to ensure the crop is listed and for rates and days-to-harvest intervals. Options labelled for leafminers or dipteran leafminers that may be effective include azadirachtin (Aza-Direct or other formulations), cyromazine (Triguard), dinotefuran (Scorpion), lambda-cyhalothrin (Warrior II or other formulations), spinetoram (Radiant), spinosad (Entrust or other formulations), and zeta-cypermethrin (Mustang or other formulations). Other materials labelled for *Liriomyza* leafminers or thrips that may be effective include abamectin (Agri-Mek or other formulations), acetamiprid (Assail), and cyantraniliprole (Exirel). The Entrust formulation of spinosad is allowable for certified organic production if allowed by your certifying organization.

Reporting a Possible Detection: If you suspect damage or a life stage of the allium leafminer, please contact the plant inspector in your regional office of the Pennsylvania Department of Agriculture (<http://goo.gl/wd8Sg9>) or an Extension Educator in the local Penn State Extension office (<http://extension.psu.edu/counties>).

For more information, see <http://ento.psu.edu/extension/vegetables/pest-alert-allium-leafminer>

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Feeding punctures from Allium Leafminer adult along side of leaf

PENNSYLVANIA ALLIUM LEAF MINER DETECTIONS AS OF November 15, 2016

