Quarantine Pest Alert: *Allium* or onion leafminer

Phytomyza gymnostoma

OREGON DEPARTMENT OF AGRICULTURE

INTRODUCTION

Allium leafminer (ALM) or onion leafminer, *Phytomyza gymnostoma* (Diptera, Agromyzidae), is one of the most important *Allium* (garlic, leek and onion) pests in Europe. In 2015, ALM was found for the first time in North America in Pennsylvania. It has since spread to Connecticut, Maryland, Massachusetts, New Jersey and New York. ALM has been moved throughout Europe but is native to Germany and Poland.

ALM is a threat to Oregon's onions, one of Oregon's top 20 agricultural commodities valued at over $118 million in 2020. ALM also threatens Oregon's garlic and leek production valued at over one million dollars in 2014. Home and organic *Allium* production are likely at the greatest risk.

There is a high risk of importing ALM in host plant material, including bulbs with no vegetative growth due to ALM's habit of pupating in bulbs. The highest risk is from *Allium* imported from infested states. The US continues to import fresh onions and other *Allium* from infested areas of Europe, including Belgium, Netherlands, and Spain.

The USDA has deregulated this pest, so there are no longer federal restrictions on the movement of this pest. OR has a quarantine in place. ID, OR and TX have temporary and CA have an active Federally Recognized State Managed Phytosanitary Program (FRSMP) with USDA so that infested *Allium* will be prohibited entry to the states from shipments to international ports. Other states are not protected.

HOST RANGE

All members of the genus *Allium* are potential hosts, including leeks, onions, garlic, chives, shallots and green onions. Leeks and chives appear to be preferred hosts. Ornamental plants are also at risk as are the many native *Allium* in Oregon.

Damaged onions due to ALM larval feeding.
Modified from image by Sven-Erik Spichiger, Pennsylania Department of Agriculture

PEST STATUS

Larval feeding can cause twisted and curled leaves and the death of small plants. Severe infestations have resulted in 100% crop loss. The pest is most damaging to organic and backyard *Allium*, but damage is also reported from commercial farms.

Fall populations overwinter as pupae. Two generations are expected: one in spring, possibly March to May, and another in fall, possibly September to October.

QUARANTINE

A quarantine is in place. **Oregon's Quarantine Against Allium Leafminer** (ORS 603-052-1400) prohibits the importation of untreated host material from infested states.

Adult *Allium* leafminer. Modified from image by Sven-Erik Spichiger, Pennsylania Department of Agriculture

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IDENTIFICATION

The most obvious signs are feeding punctures made by the female and the curling of the leaves caused by larval feeding. Feeding punctures appear as pale spots, typically in a row down the leaf.

Adults can be found on host plants. They are gray flies about 3mm (1/8 inch) long with mostly yellow heads and yellow markings on the sides of their abdomen. There are other species of leafminers that attack *Allium*.

Larvae are yellowish white maggots up to 8mm (5/16 inch) long. Larvae feed down toward the base of the leaf and their "mine" becomes wider as they grow. Pupae are reddish brown to dark brown and about 3.5mm (little over 1/8 inch) long. They will be found at the end of mines and can be down in the bulb. It may be necessary to peel back the leaves to see them

REFERENCES

Quarantine Against Allium Leafminer, ORS 603-052-1400: https://oda.direct/quarantines

Fleischer, S. and Elkner, T. 2016. Pest Alert: Allium leafminer. PennState College of Agricultural Sciences Department of Entomology.

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New Jersey Agricultural Experiment Station. 2017 Critical Updates: Mid Atlantic Vegetable Recommendations. https://nj-vegetable-crops-online-resources.rutgers.edu/2017-critical-updates-mid-atlantic-vegetable-recommendations/ accessed February 15, 2022

FIELD IDENTIFICATION

Look for:

- Feeding punctures along leaves
- Curling and distorted leaves
- Mines and pupae in leaves
- Black and yellow adults on host plants

Female feeding punctures (left) and pupae in leak leaves (right). Image by Sven-Erik Spichiger, Pennsylania Department of Agriculture

WHAT CAN YOU DO?

The Oregon Department of Agriculture is not offering control suggestions due to our intention to eradicate this pest. If you believe you have found ALM, notify ODA immediately. Early detection is vital.

Email: plant-entomologists@oda.oregon.gov
Phone: (503)986-4636

MORE INFORMATION

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