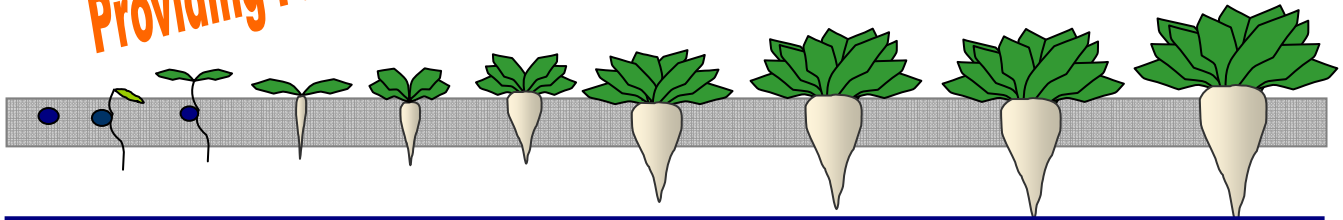


From the Field

Providing Practical, Timely, Useful Crop Production Information

Gregory M. Clark, Agronomist



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Spinach Leafminer (*Pegomya hyoscyami*)

Over the past few days there have been several sightings of leafminer eggs on sugarbeet leaves.

The spinach leafminer attacks sugarbeet and other various crops such as spinach and swiss chard and some weed species including lambsquarters and chickweed. The maggots (larvae) feed between the upper and lower leaf surfaces of the sugarbeet plants mining out the tissue in between (Image 1). As the maggot grows, the mines combine with other tunnels and blotches are seen on the affected leaves.

Image 1



Spinach Leafminer Damage

Adults are small (0.25 inch long), clear-winged flies with dark gray to greenish gray bodies (Image 2). They look like small hunchbacked house flies with numerous hairlike spines and finer-textured hairs on their backs. They hold their wings above their backs while at rest. The adults may be seen flying near the ground between the plants.

The females lay tiny (0.04 inch long) white cigar-shaped eggs, often arranged rows in groups of two to 10, on the undersides of sugarbeet leaves (Image 3). The resting stage for the leafminer is a hard, brown structure about 1/5 inch in length.

Image 2



Spinach Leafminer Adult

In May adult flies of the spinach leafminer appear in sugarbeet fields. Feeding continues until the larvae are fully grown (0.3 to 0.38 inch long) (Image 4). They then molt into pupae and drop to the soil below the sugarbeet canopy. The leafminers molt once more and emerge as adults.

Bay City Ag Office and General Ag Offices – 2600 S. Euclid Ave., Bay City, MI 48706
Phone: (989) 686-1549 Ext 267 - FAX: (989) 686-3204 – Cell: (989) 891-6785

Email: greg.clark@michigansugar.com



Leafminers can produce up to three generations per year in Michigan, although first-generation larvae are more likely to cause economic damage than later generations. The leafminer overwinters as a chrysalis (cocoon) in the soil.

Because the leafminer overwinters as a chrysalis in the soil near where the crop was infested the previous year, crop rotation should be practiced. Destruction of weed hosts, including common lambsquarters, redroot pigweed and other related *Amaranthus* species, may reduce the likelihood and severity of leafminer problems in sugarbeets.

Although chemical control of leafminers rarely is necessary in Michigan, foliar insecticides are effective management tools if applied within a few days of the first appearance of the mines or before most eggs hatch. Applying insecticide shortly after most larvae have tunneled into leaves also can have satisfactory performance. Planting time application of systemic soil insecticides probably provides supplementary control of early season leafminer infestations. However, this is not a recommend practice for leafminer management because economically damaging infestations are rare and the insects can be controlled easily with a curative foliar insecticide treatment or with seed treatments like Ponch Beta.

Scouting is an important Integrated Pest Management practice because leafminer infestation levels can vary within fields. Early detection of a leafminer infestation will increase the likelihood of successful control. Mines and eggs are visible without the assistance of a hand lens. To see leafminer larvae inside the leaf layers, hold the leaf toward the sun. Growers should scout a field and check 5 sets of 20 plants for egg masses or small mines.

An insecticide application may be justified if the combined number of eggs and live larvae exceeds the square of the number of true leaves on plants. Treat if 50% or more of plants have egg masses and small mines are present. For example, a sugarbeet field with most plants in the four-leaf stage would need to average more than 16 eggs and larvae per plant before the insecticide treatment would be necessary.

Chemicals:

- Lorsban 4E (1 pt./acre)
- Mustang Max (2.24-4.0 oz./acre) – **ADULTS ONLY**

Image 3



**Spinach Leafminer
Eggs**

Image 4



**Spinach Leafminer
Larvae**