

Sugar beet—Leafminer

Beet leafminer (*Pegomya betae*)

Spinach leafminer (*Pegomya hyoscyami*)

Pest description and crop damage Legless maggots, 0.5 inch long when mature, feed between the upper and lower leaf surfaces, leaving irregular transparent windows, blotches, and winding tunnels. Historically a common pest that rarely reached economically damaging levels, it is now an increasingly important pest in some local areas.

Scouting and thresholds No formal economic thresholds exist for leafminer insecticide treatment decisions.

Management—biological control

Larvae often are highly parasitized.

Management—chemical control

1. aldicarb (Temik 15G, Temik 15G Lock'n Load) at 2.1 to 3 lb ai/a. PHI 90 days, 120 days if tops are fed to livestock. Do not use tops as food for humans. Do not make more than one at-planting and two postemergence applications per crop. Do not exceed a total of 4.95 lb ai/a per season.

At planting (or within 1 week prior)—Drill granules 1 to 3 inches below seedline. Granules can be placed into the seed furrow if rate does not exceed 1.05 lb ai/a.

Postemergence—Apply granules to both sides of plant row and immediately work into the soil or cover with soil, or, for furrow irrigation, side-dress granules 4 to 8 inches to water furrow side of plant row and at furrow depth. Irrigate soon after application. Apply within 60 days after planting. Do not make any postemergence applications if 4.05 to 4.95 lb ai/a was applied at planting or within 1 week before planting.

2. azadiractin—
 - a. (Aza-Direct) at 0.0123 to 0.0247 lb ai/a and up to 0.0432 lb ai/a under extremely heavy pest infestation.
 - b. (Azatin XL) at 0.02 to 0.033 lb ai/a. Foliar application to larvae.
 - c. (Ecozin Plus) at 0.012 to 0.023 lb ai/acre. Spray when pests first appear and repeat after 7-10 days.
3. chlorpyrifos (Chlorpyrifos 4E AG, Eraser, Govern, Lorsban 4E, Lorsban 75WG, Nufos 4E, Pilot 4E, Warhawk,

Whirlwind, Yuma 4E and others) at 0.5 lb ai/a broadcast application OR Lorsban Advanced at 0.469 lb ai/a broadcast application. PHI 30 days. Do not let livestock graze in treated areas or harvest treated beet tops as feed for meat or dairy animals within 30 days after last treatment.

4. chlorpyrifos (Chlorpyrifos 4E AG, Eraser, Govern, Lorsban 4E, Lorsban 75WG, Nufos 4E, Pilot 4E, Warhawk, Whirlwind, Yuma 4E and others) at 0.335 lb ai/a band application OR Lorsban Advanced at 0.313 lb ai/a band application. Apply as 5- to 7-inch band, lightly incorporated mechanically or with irrigation.
5. clothianidin (NipsIt INSIDE). Application only by commercial seed treaters; no on-farm seed-treatment application.
6. clothianidin + beta-cyfluthrin (Poncho Beta). Application only by commercial seed treaters; no on-farm seed-treatment application.
7. diazinon (Diazinon AG500, Diazinon 5WB) at 0.375 to 0.5 lb ai/a. Repeat as necessary every 7 days. Do not make more than 5 applications per season. PHI 14 days.
8. garlic oil (Garlic Barrier AG+). See label for rates. Apply as preventive repellent treatment prior to insect infestation. Make first application at foliar emergences and repeat on a 10 to 14 spray schedule to maintain repellency effect.
9. horticultural oil (BioCover, JMS Stylet Oil, Purespray and others)—See label for rates. PHI 0 days.
10. phorate (Phorate 20G, Thimet 20G) at 0.9 oz ai per 1,000 row ft at planting. PHI 30 days. Do not place granules in direct contact with seed. Drill to side of seed or band over seed. Do not feed sugar beet tops or silage to dairy cattle. No more than one application per cropping season.
11. potassium salts of fatty acids (AllPro, Des-X, M-Pede)—see label for rates. Apply M-Pede only in tank mix with labeled companion insecticide; see label about tank mixing. PHI 0 days.
12. thiamethoxam (Cruiser 5FS). Application only by commercial seed treaters; no on-farm seed-treatment application.
13. zeta-cypermethrin—
 - a. (Mustang) at 0.028 to 0.05 lb ai/a. PHI 50 days. Adult control only. Do not apply more than 0.15 lb ai/a per season (at planting + foliar applications). Apply with ground or air equipment using enough water to fully cover foliage.
 - b. (Mustang Max EW) at 0.014 to 0.025 lb ai/a. PHI 50 days. Adult control only. Do not apply more than 0.075 lb ai/a per season (at planting + foliar applications). Apply with ground or air equipment using enough water to fully cover foliage.