

Leaf Miners



Leaf Miner Types



serpentine



blotch

Leaf Miner or Scorch?



Managing Leaf Miners

- Identify- Is it a fly, moth, wasp or beetle?
 - Foliar acephate kills all 4 kinds
 - Spinosad kills flies, moths, and wasps.
 - Soil applied imidacloprid kills wasps, beetles and flies
- Learn life cycle
- Target newly hatched larvae with insecticide
 - Timing differs for contact, systemic foliar and soil applied systemic insecticides
- Conserve natural enemies
- Nematodes

Insecticide Application Targets

- **Contact Insecticide (Adults)**
 - Adults pick up insecticide as they walk on leaves in search of egg laying sites
(eg. Pyrethroids – permethrin, bifenthrin, deltamethrin etc)
- **Foliar systemic insecticide (Larvae)**
 - Material penetrates leaf tissue
 - Direct toward egg hatch and young larvae
(eg. acephate, spinosad)
- **Soil applied insecticide (Larvae)**
 - Apply in fall or early spring to soil
 - Young leaf tissue in contains insecticide that kills larvae
(eg. Imidacloprid)

Birch Leaf Miner; *Fenusa pusilla*



Birch Leaf Miner Mines



Birch Leaf Miner and Egg Laying Sites



Hawthorn Leaf Miner (Sawfly)



Native Holly Leaf Miner (Serpentine Mine)



Oviposition Scars by Native Holly Leaf Miner



Inkberry Holly Leaf Miner
Phytomyza glabricola



Adult Black Locust Leaf Miner



Vegetable Leaf Miners



Flea Weevils - Defoliate and Mine

- Magnolia Flea Weevil
- Elm Flea Weevil



Leaf mining

Adult feeding

Photo by Steve Mayer



Elm Flea Weevil *Orchestes alni*

- First found in 2003 in multiple locations of Midwest including West Lafayette
- OW adults emerge in May to feed on Elms through early June
- Eggs laid in leaves produce June mines
- Adults emerge in late July and feed on leaves till they overwinter.

Adult European Pine Shoot Moth



European Pine Shoot Moth Damage



European Pine Shoot Moth

