



TREES & SHRUBS

Leafmining Insects

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Quick Facts...

Leafminers develop and live within leaves, where they feed on the soft interior tissues.

Broadly categorized by the shape of “mines” produced by their feeding, leafminers include many different insects.

Leafminers rarely are abundant enough to injure the plants they infest.

The more common leafminers in Colorado are spinach leafminer, cottonwood blackmine blotch leafminer, lilac leafminer, birch leafminer and ponderosa pine needle miner.

Leafminers are insects that develop and live within the leaves of plants. Typically, the leaves are injured by the insect feeding on the soft interior tissues so that only the papery, thin covering of the exterior leaf surfaces remain.

The leafminers often are categorized by the shape of the “mines” produced by their feeding. Serpentine leafminers make mines that zigzag through the leaf and gradually enlarge from beginning to end (Figure 2). Blotch leafminers make large, indistinctly shaped mines (Figure 3). Blotch leafminer injury often is mistaken for leaf spot diseases.

Many different insects are leafminers, including certain flies, wasps, moths and beetles. The immature (larval) stage of these insects produces the distinctive mines.

For some leafminers, the pupal stage also takes place within the leaf. More commonly, the insect larva, after it completes feeding, cuts a hole in the mined leaf and drops to the ground to pupate. Adults move about freely to mate, lay eggs and feed. They lay eggs on the leaves or insert them just under the leaf surface.

Leafminers rarely are abundant enough to injure the plants they infest. However, leafminer injury often is conspicuous and can make plants unattractive. Leafy vegetables, such as spinach, swiss chard or beets, often are considered more heavily injured by leafminers because edible parts are directly damaged. On woody plants, certain leafminers, such as the blackmine blotch leafminer of cottonwood, are a chronic and severe problem in parts of Colorado.

Colorado Leafminers

Dozens of leafminers occur in Colorado. Among the more common are:

Spinach leafminer: This is a small fly larva commonly found infesting spinach, swiss chard, beets and lambsquarters. Several generations occur during the year. They are particularly common during the cooler months of the growing season.

Cottonwood blackmine blotch leafminer: This beetle larva produces an unusually dark and distinctive blotch leafmine. The yellow and black adult beetle can be found chewing and skeletonizing small areas in the exterior leaf surface from late June through July. They also lay eggs during this period. Later the larvae initiate mines.

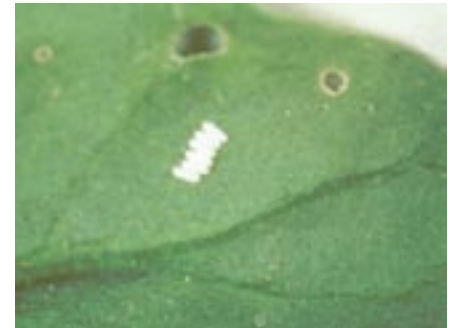


Figure 1: Egg mass of the spinach leafminer.

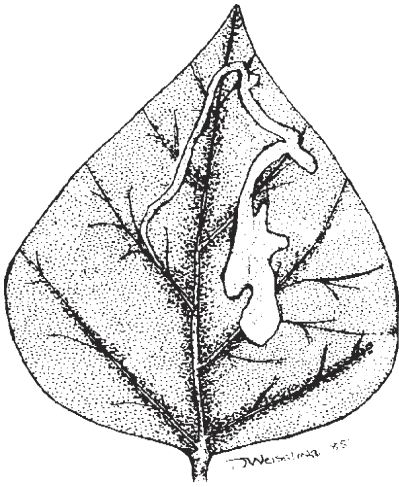


Figure 2: Serpentine leafmine.

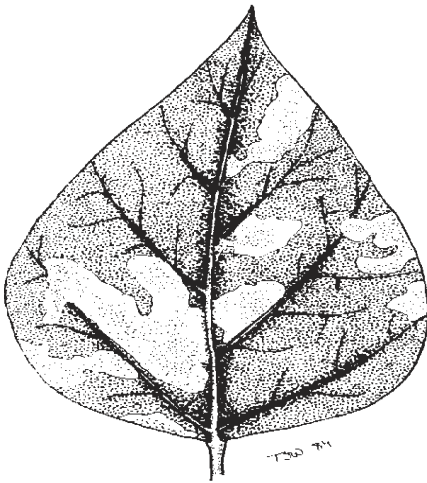


Figure 3: Blotch leafmine.



Figure 4: Spinach leafminer larvae exposed from leafmine.

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Lilac leafminer: A small moth larva is the common leafminer of lilac. Its injury is unusual because the older larvae often move out of the mines to fold and web together the leaf. There are several generations of the lilac leafminer each year.

Birch leafminer: The birch leafminer is a small wasp, called a sawfly, with two generations per season. Many kinds of birch are susceptible, but most cultivars grown in Colorado are somewhat resistant. A related insect produces similar injury to alder.

Ponderosa pine needle miner: Larvae of this tiny silver moth tunnel down the needles. They start near the needle tips in September and, by the following July, make it two-thirds of the way to the needle bases. The result is brown needles with green bases. Heavily-infested trees can look quite sickly in early summer, but studies have shown the impact to be only temporary. See fact sheet 5.544, *Ponderosa Pine Needle Miners*.

Aspen leafminer: Several insects mine the leaves of aspen. The most common ones produce long, twisting, serpentine mines. This insect does not seriously affect the tree, although the pattern of the mine attracts attention. The adult stage is a small moth.

Tentiform leafminers: Cottonwood, poplar, willow and apple often have leaves mined in a “tentiform” pattern. These are produced by small caterpillars that first feed on the sap, producing a series of small dots visible on the upper leaf surface. They then produce a more blotch-like mine that, as it dries, forms a peak resembling a pup tent. This type of leafminer is most common at higher elevations. Outbreaks are sporadic and do not appear to cause any significant plant injury.

Vegetable leafminer: This common leafminer can be found on almost all vegetable and flower crops. The serpentine mines are produced by the larva of a small fly. This insect has many natural enemies. Outbreaks are usually associated with heavy use of insecticides that disrupt biological controls.

Control of Leafminers

Leafminer control is rarely justified on ornamentals. Although unattractive, little or no damage to the plants occur with the leafminers common in Colorado. Also, there is little relationship between injury from one season to the next, because many natural controls effectively regulate leafminer populations.

When necessary, leafminers on ornamentals are best controlled with applications of insecticides that are carried systemically throughout the plant. This activity allows the insecticide to be carried to the insect larvae, which otherwise are effectively protected within leaves. Make these applications during the egg hatch period or shortly afterwards, before the larvae and mines get very big. Insecticides with systemic activity include acephate (Orthene) and imidacloprid. Carefully read label instructions — certain insecticides can injure plants. None of the systemic insecticides available to homeowners may be used on food crops.

Control also can be achieved with an insecticide applied when eggs are being laid. Adults and newly emerged larvae can be controlled with these treatments, but they are ineffective after tunneling begins. On trees and shrubs, carbaryl (Sevin) or permethrin is used most often for these treatments.