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# Leafmining insects— characteristics and control

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## Quick Facts

- Leafminers develop and live within leaves of plants and injure the leaves by feeding 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 be injurious to 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 rarely are abundant enough to be injurious to 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 since 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 fry larva commonly found infesting spinach, swiss chard, beets and lambsquarters. Several generations occur during the year, but are particularly common during the growing season's cooler months.

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

**Lilac leafminer:** A small moth larva produces the common leafminer of lilac. Its injury is rather unusual since 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 very susceptible to the injury of this insect, but most cultivars grown in Colorado are somewhat resistant. Birch leafminer only recently has been recorded in the state.

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 broadly by the shape of "mines" produced by their feeding. Serpentine leafminers make mines that zig-zag through the leaf and gradually enlarge from beginning to end. Blotch leafminers make large indistinctly shaped mines (Figure 1). 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. Leafminer eggs are laid on the leaves or are inserted just under the leaf surface.

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**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 most needle miner impacts to be only temporary. (See Service in Action sheet no. 5.544.)

### Control of Leafminers

On ornamentals, leafminer control is rarely justified. Although unattractive, little or no damage to the plants occurs from the mining. Also, there is little relationship between injury from one season to the next since many natural controls effectively regulate leafminer populations.

When necessary, leafminers on ornamentals are controlled best 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 protected effectively within leaves. These applications should be made during the egg hatch period or shortly afterwards, before the larvae

and mines get very big. Insecticides with systemic activity include acephate (Orthene), dimethoate (Cygon) or oxydemetonmethyl (Metasystox-R). Carefully read labelled instructions since certain insecticides can cause injury to plants. None of the systemic insecticides available to homeowners can be used on food crops.

Control also can be achieved with an insecticide that is 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, diazinon and carbaryl (Sevin, Sevimol) is used most often for these treatments.

On leafy vegetables damaged by the spinach leafminer, regular sprays of diazinon applied at two-week intervals can limit injury. Systemic insecticides can not be used on these edible crops. Closely follow labelled instructions for application rates and observe required preharvest intervals (10 days, spinach; 12 days, swiss chard; 14 days, beet greens). Malathion also may be used for these treatments if applied at more frequent intervals. Preharvest intervals on these crops are seven days.

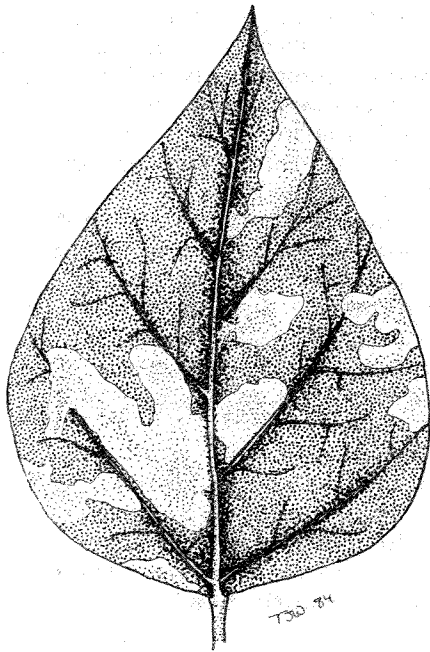


Figure 1: Blotch leafminer.

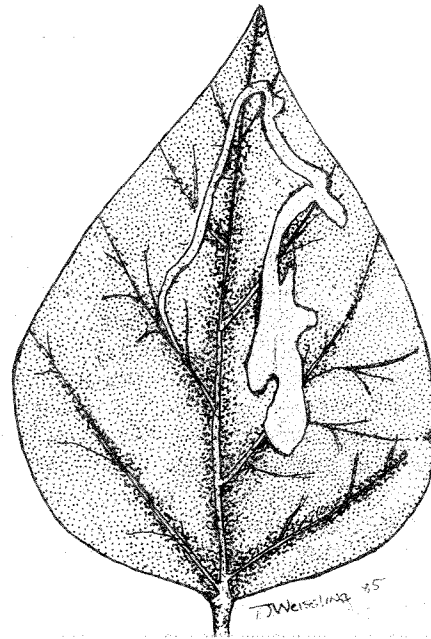


Figure 2: Serpentine leafminer.