



# HOME & GARDEN

## Flea Beetles

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### Quick Facts...

Flea beetles are small beetles that jump when disturbed.

They damage plants by chewing small “shotholes” in the foliage.

Flea beetles can be found on a wide variety of plants. However, most flea beetles attack only a few, closely related plant species.

Flea beetle injury is most important when seedlings are becoming established or in the production of leafy vegetables. Injuries are usually minor and easily outgrown on established plants.

Flea beetles are common pests of many vegetable crops. They occasionally damage flowers, shrubs and even trees. Adult beetles, which produce most plant injuries, are typically small, often shiny, and have large rear legs that allow them to jump like a flea when disturbed.

Flea beetles produce a characteristic injury known as “shotholing.” The adults chew many small holes or pits in the leaves, which make them look as if they have been damaged by fine buckshot. Young plants and seedlings are particularly susceptible. Growth may be seriously retarded and plants even killed. Leaf feeding also damages plant appearance. This can be important among certain ornamentals and for leafy vegetable crops.

Dozens of species of flea beetles are found in Colorado (Table 1). Although there is some overlap of tastes, each type of flea beetle has a decided preference for certain plants. For example, some flea beetles feed only on potatoes, tomatoes and other members of the nightshade family. Others have a taste for broccoli, cabbage and other cole crops.



Figure 1: Tobacco flea beetle.

### Life History and Habits

Flea beetles spend the winter in the adult stage, hidden under leaves, dirt clods or in other protected sites. They typically begin to become active during warm days in midspring but may straggle out over several weeks. Many flea beetles are strong fliers and seek out emerging host plants, which they locate by chemical cues the plants produce.

The adults feed for several weeks. Soon the females intersperse feeding with some egg laying. They lay eggs in soil cracks around the base of the plants. The minute, worm-like larvae then move to feed on small roots and root hairs. With the exception of the tuber flea beetle, an occasional pest of potato tubers, larval feeding is not considered to cause significant plant injury. The larval stage is typically completed in about a month. The insects pupate, then emerge from the soil as adults. There may be a second generation during the summer and, with a few species, a third generation.

### Control

Although flea beetles are common, injuries often are insignificant to plant health. On established plants, 10 to 20 percent or more of the leaf area must be destroyed before there is any effect on yields. The plants most likely to benefit from treatment are more sensitive seedlings, plants grown for ornamental purposes or for edible greens, and potatoes that may be affected by tuber flea beetle larvae.



Figure 2: Crucifer flea beetle damage to broccoli.



Figure 3: Apple flea beetle.

## Cultural Controls

Because seedlings are most at risk, use transplants or plant seeds in a well-prepared seedbed to hasten growth and allow plants to overcome injury. In home gardens, try high seeding rates. Thin the plants once they are established.

“Trap crops” work in some situations. Plant a highly favored crop to attract flea beetles away from the main crop. Radish or daikon can protect other seedling crucifers (e.g., broccoli, cabbage, Brussels sprouts) that are more sensitive to western cabbage flea beetle. The trap crop may then be harvested or destroyed after the main crop has established itself sufficiently to outgrow flea beetle injury.

It may also be possible to avoid injury by scheduling plantings so that seedlings are emerging during periods of low flea beetle activity.

## Mechanical and Physical Controls

Floating row covers or other screening can exclude the beetles during seedling establishment. In isolated plantings, thick mulches may also help reduce the number of flea beetles by interfering with activity of the root and soil stages.

Flea beetles can be vacuumed off foliage, but this practice must be repeated frequently. Reinvasion of plants can be rapid.



Figure 4: Potato flea beetles on tomato.

## Chemical Controls

Garden insecticides containing carbaryl (Sevin), spinosad, bifenthrin, and permethrin can provide fairly good control for about a week. However, to protect seedlings, applications usually must be reapplied. The plants produce continuous new growth and the highly mobile beetles may rapidly reinvade plantings. As with all pesticides, carefully read and follow all label directions. Pay particular attention to ensure that any flea beetle insecticides being considered are properly registered for use on the crop.

Diatomaceous earth is one of the more effective repellents, applied as a dry powder to the plants. Horticultural oils and some neem insecticides also have some repellent effect on this insect.

**Table 1: Some common flea beetles found in Colorado.**

Common name	Scientific names	Host plants, comments
Cabbage flea beetle	<i>P. cruciferae</i>	Wide host range, primarily of cabbage family plants (Cruciferae family). The most damaging species in the state. Two and occasionally three generations are typical.
Palestriped flea beetle	<i>Systema blanda</i>	Has the widest host range of all flea beetles including squash, beans, corn, sunflowers, lettuce, potatoes and many weeds.
Potato flea beetles	<i>Epitrix cucumeris</i> , <i>E. subcrinita</i> , <i>E. parvula</i>	Tomato, potato and other nightshade family plants.
Tobacco flea beetle	<i>Epitrix hirtipennis</i>	Eggplant and some other nightshade family plants. Most common in warmer areas of the state.
Tuber flea beetle	<i>Epitrix tuberis</i>	Potatoes. Larvae are associated with tuber injuries.
Horseradish flea beetles	<i>Phyllotreta armoraciae</i> , <i>P. albionica</i>	Horseradish, occasionally other mustards.
*Apple flea beetle	<i>Haltica foliaceae</i>	Larvae feed on evening primrose ( <i>Oenothera</i> ); Grape, epilobium, crabapple, zauschneria and other plants are occasionally damaged by the adults.
*Sumac flea beetle	<i>Blepharida rhois</i>	Currants, sumac, skunkbrush.
*Willow flea beetles	<i>Disonycha</i> spp.	Willow.

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