

## Flea Beetles

Karen Delahaut, UW-Madison Fresh Market Vegetable Program

Flea beetles are early season pests commonly found on cole crops (e.g., cabbage, broccoli, Brussels sprouts, cauliflower, and rutabaga), as well as spinach, beets, potatoes, and eggplant. Flea beetles are often considered occasional pests, but several different species can pose problems early in the season. Host plants of many of the flea beetles are easily identified by the common name of the beetle. For example, the crucifer flea beetle attacks cole crops and mustards, while the eggplant flea beetle typically occurs on eggplant.

**Appearance:** All flea beetles have large hind legs that give the adult beetles the ability to jump. Adult flea beetles range in size from about  $\frac{1}{16}$  to  $\frac{1}{8}$  inches in size. Larvae are delicate and threadlike with white bodies and brown heads. Flea beetles commonly found in Wisconsin are described in the following table.

Common Name	Scientific Name	Description	Host Plant(s)
Crucifer flea beetle	<u><i>Phyllotreta cruciferae</i></u>	greenish or bluish-black	cabbage and other crucifers including horseradish
Eggplant flea beetle	<u><i>Epitris fuscula</i></u>	black, $\frac{1}{16}$ inch	eggplant
Horseradish flea beetle	<u><i>Phyllotreta armoraciae</i></u>	black with yellow stripes, $\frac{1}{8}$ inch	horseradish and other mustards
Pale-striped flea beetle	<u><i>Systema blanda</i></u>	dark brown with two broad white stripes down its back, $\frac{1}{8}$ inch	bean, beet, eggplant, lettuce, melon, pea, pepper, pumpkin, radish
Potato flea beetle	<u><i>Epitrix cucumeris</i></u>	dull black, $\frac{1}{16}$ inch	potatoes, tomato, eggplant, pepper
Spinach flea beetle	<u><i>Disonycha xanthomeles</i></u>	greenish-black with a yellow thorax, $\frac{1}{8}$ inch	spinach and beets
Striped flea beetle	<u><i>Phyllotreta striolata</i></u>	black with two crooked yellow strips running down its back, $\frac{1}{12}$ inch	cabbage

**Symptoms and Effects:** Adult flea beetles feed on both upper and lower leaf surfaces, but most often occur on the undersides of leaves where they chew small, circular holes through to the upper cuticle. Cut tissue often remains in place for some time before drying and falling out. The circular holes give the plant a "shotgun" appearance. Heavy feeding on young plants may reduce yields, or in sever cases, even kill plants. Crops grown for their foliage (e.g., kale, bok choy, spinach or mustards) may be rendered unmarketable by flea beetle damage. Larvae feed on the roots and tubers of susceptible plants, but often don't cause economic damage. Larvae of the horseradish flea beetle will also mine into the stem and leaf veins. Many flea beetles can transmit plant pathogens.

**Life Cycle:** Flea beetles overwinter as adults in the soil or beneath plant debris. They become active in early spring when temperatures reach 50°F, and begin feeding on weeds or early-planted crops. Adults lay eggs in the soil at the base of host plants in May. Eggs hatch in seven to 14 days and larvae feed on various plant parts until fully grown. Larvae pupate in earthen cells for 11 to 13 days before emerging as adults. Adult flea beetles are particularly active on warm, calm, sunny days. Depending upon the species, there may be one to three generations per year.



Flea beetle damage on Swiss chard.

Crop	Threshold
Beets	Treat when beetles cause stand reduction on small plants
Cole crops	Undetermined
Eggplant	<3 inches = 2 beetles/plant 3-6 inches = 4 beetles/plant >6 inches = 8 beetles/plant
Horseradish	Treat only if beetles are found in high numbers early in the season
Potato	>2 beetles/sweep
Tomato	>2 beetles/plant

### Control

**Cultural:** Adjusting planting dates to avoid damage caused by flea beetles may be useful in some situations. Enclosing seed beds with floating row covers will protect plants from egg-laying adults. Removing alternate weed hosts, deep plowing of crop residues in the spring and crop rotation will help reduce populations.

**Chemical:** Chemical control is recommended when flea beetle populations exceed threshold levels particularly early in the season. Established flea beetle thresholds for various crops are listed in the table above. Commercial fields should be scouted for adults with an insect sweep net. Because flea beetles can move into a field quickly, newly planted fields should be scouted for insects or damage every one to two days while plants are small and unable to withstand much damage. Soil-applied insecticides at planting will provide season-long control. Foliar insecticides provide quick control of large populations of adult flea beetles. When selecting foliar insecticides, choose products that will not disrupt natural enemies of other pests such as lepidoptera on cole crops. Insecticides with a short residual are recommended.

**For more information on flea beetles:** See UW-Extension Bulletin A3422, or contact your county Extension agent.