



## Flea Beetles

Flea beetles are small insects, 1/8 inch long or shorter, which can be found on a variety of garden vegetable plants. In our area, they particularly impact young plants in the Solanaceae (peppers, tomatoes, potatoes, and eggplants) and cole crops (cabbage, broccoli, kale, arugula, etc.). They get their name from their well-developed hind legs and when disturbed they jump like fleas. Flea beetles can overwinter on weed hosts surrounding the field, on residues of previous crops, or in the soil if the previous crop was a flea beetle host. In small garden plots, this can make them a yearly problem.



Adult flea beetles; Colorado State University, Whitney Cranshaw.

Flea beetles produce a characteristic injury known as "shot-holing". The adults chew many small holes or pits in the leaves, which make them look as if they have been damaged by fine buckshot. As mentioned above, young plants and seedlings are particularly susceptible. Growth may be seriously retarded and plants even killed. Leaf feeding also damages plant appearance. In some cases, adults may feed directly on ripe fruits such as tomatoes. Flea beetle larvae are very small grubs which live in the soil. The larvae can also feed on plant roots, but the damage is usually minimal except on potatoes.

Treat for flea beetles when small holes show on seedlings or on new transplants. Damage thresholds for treating established plants are when 10 to 20% of the foliage is destroyed. Cultural controls and pyrethrin insecticides are the favored organic treatments. Pyrethrin insecticides are not effective for more than a day or so and repeat applications will probably be necessary. Cultural controls include crop rotation, high seeding rates (to provide lots of sacrificial plants which can be thinned to desired density), and use of transplants (rather than direct seeding). "Least toxic" repellents can also be used which include: diatomaceous earth, kaolin clay, and neem insecticide.

Some growers manage flea beetles by using a trap crop. This is done by planting a highly favored crop before you plant your main crop, in an effort to attract flea beetles away from the main crop. Radish is often used to trap cole crop feeders. Adult flea beetles will be attracted to the tallest, earliest crops available. Once beetles are actively feeding in the trap crop, they can be sprayed with an insecticide, or simply harvested. The effectiveness of this is questionable in our area given the relative abundance of London rocket and other weedy cole crop relatives.

Conventional insecticides can also be used on flea beetles. These include: carbaryl, permethrin, spinosad, and bifenthrin. Applications of these insecticides will be effective for about 7 to 10 days. For transplants, one insecticide treatment is usually all that is required. For seedlings, two applications may be needed. 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.

Flea beetles are usually an early season pest and it is best to try and manage their populations prior to flowering. The insecticides recommended above can negatively impact bees and other beneficial insects (pollinators and predators). Application prior to flowering will minimize risk to beneficial insects.

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Adapted from original Backyard Gardener publications by Jeff Schalau, Agent, Agriculture & Natural Resources, University of Arizona Cooperative Extension, Yavapai County

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