

Flea beetle damage



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QUESTION: Lately I have noticed tiny holes on the leaves of my tomato plants. What is causing this?

ANSWER: The damage to your tomato plants is likely caused by flea beetles. The flea beetle is a small, jumping beetle of the leaf beetle family (chrysomelidae). There are many species of flea beetles. Some species attack a wide range of plants, while others target only certain plant families. The three most common flea beetle species found in the Pacific Northwest are the crucifer flea beetle (*phyllotreta cruciferae*) on plants in the brassicaceae family (e.g., broccoli, kale, cabbage, collards), the tuber flea beetle (*epitrix tuberis*) on potato tubers and foliage, and the western potato flea beetle (*E. subcrinata*) on solanaceous crops that include tomatoes, potatoes, eggplant and peppers.

Flea beetle adults are shiny, oval, blue-black beetles, from 0.06 to 0.12 inch long. These insects derive their name from their well-developed hind legs; when disturbed they jump like fleas. Flea beetles prefer hot and dry conditions. Both larval and adult stages have chewing mouthparts, which they use effectively below ground (larvae) and above ground



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A flea beetle eating the leaf of a plant, causing damage.

(adults). Below and above-ground feeding damage can kill seedlings and small transplants. Adult flea beetles chew leaves, leaving pits or small holes in the foliage. Older plants can withstand some damage, however, younger transplants may dry out and die from the many holes riddling their leaves. Jumping from plant to plant, flea beetles also spread diseases such as early blight and bacterial wilt. Tomatoes are often a victim of this.

Adult beetles overwinter in the soil, leaf debris, grassy borders of the garden or field and on residues of a previous tomato crop, including potatoes, eggplants and peppers. At just about the same time when we begin to emerge from our homes in spring-time, so do they. As temperatures warm, they get busy. Preventing flea

beetle infestations can be helped by cleaning up the garden to remove havens for overwintering adults. In late spring they lay tiny white eggs under the soil around the host plants. Larvae feed and pupate underground. There are one to four generations per year. Because flea beetle eggs are deposited in the soil, frequent cultivation will cut down on the number of eggs, larvae, and pupa in the soil. It is a good gardening practice to eliminate weeds in the garden area, as these insects thrive on them. Make sure to rotate your crops.

To protect seedlings from flea beetles in the spring, use floating row covers. Keep garden beds well irrigated in the summer. Mulches like straw can be used to interfere with or inhibit flea beetle oviposition (i.e., egg laying). Lightly misting the leaves of vegetables under siege may make foliage less attractive to flea beetles. You can kill adult beetles by spraying with an insecticidal soap or pyrethrins. Wood ashes repel flea

beetles and can be used in two ways: either place a mixture of equal parts of ashes and agricultural lime in small containers around the plants, or simply sprinkle a spoonful of ashes on each plant two to three times per week. You can also repel the flea beetles with a spray made from garlic. Bulbs or whole garlic plants are minced in an electric blender with a cup of water, and the resulting brew is strained, diluted, and sprayed on the plants. In a short time, the flea beetles should be on their way.

Living mulches are crops that can be interplanted with or under sown in your vegetable garden to interfere with the flea beetle's ability to locate host plants. Just as with companion plants, living mulches will obscure host plants from flea beetles. Living mulches also provide habitat for ground-dwelling beneficial insects such as predatory ground beetles which can feed on the larval and adult stages of flea beetles. Although little research has been done to identify specific living mulches and ground covers that are effective in flea beetle suppression, in general, living mulches can consist of legumes such as clover and vetch. It is important to note that living mulches can compete for nutrients, space, and water, sometimes reducing yield, and thus it may be best to plant living mulches in alleyways between crop beds. Yellow sticky traps and sticky tape will physically capture flea beetles, but also beneficial insects. To manage adults, place yellow sticky cards throughout the garden to trap and kill the flea beetles.

Young and recently transplanted plants are particularly susceptible. For the fastidious gardener, this little beetle can cause a lot of frustration!

Do you have a gardening question? Please email, call, or visit the Douglas County Master Gardener Plant Clinic at douglasmg@oregonstate.edu, 541-672-4461, or 1134 SE Douglas Ave., Roseburg. Douglas County Master Gardeners are trained volunteers who help the OSU Extension Service serve the people of Douglas County.



An up close look at a flea beetle.
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