



Extension

UNIVERSITY OF WISCONSIN-MADISON

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University of Wisconsin Pest Alert

Cranberry Flea Beetle

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The cranberry flea beetle (CFB) or redheaded flea beetle, *Systema frontalis*, is native to the United States ranging in the east from Maine to Florida and in the west from Texas to Montana. CFB has historically been an important pest in nurseries, greenhouses and agricultural crops. In the last decade, the insect has become an emerging, sporadic pest on cranberries. CFB has likely always been present in cranberry marshes in Wisconsin but probably was not a problem in the past because of widespread use of broad-spectrum insecticides for control of other cranberry insect pests. The relatively recent appearance of problems with CFB may be a consequence of growers using more selective insecticides for pest control.



A cranberry flea beetle adult (left) and larva (right). Note the fleshy projection at the rear end of the larva (white arrow). Photos courtesy of Shannon Schade (left) and Tim Dittl, UW-Madison (right).

Appearance: Adult CFBs are shiny, black beetles with a reddish head. They are approximately $\frac{1}{10}$ to $\frac{1}{4}$ inch long with antennae nearly half as long as their bodies. They also have enlarged hind legs, which they use for jumping when disturbed. Adult females are slightly larger than males. Larvae are $\frac{1}{5}$ to $\frac{1}{4}$ inch long with a fleshy projection at the tip of their rear ends.

Host Range: CFB has a very broad host range that includes many woody and herbaceous plants. In cranberry production areas, the insect prefers to feed on weeds such as marsh St. John's-wort, Joe-pye weed, smartweed, jewelweed, and hardhack spirea. If these weedy species are not present or are kept mowed, CFB will move to cranberry beds and feed on cranberry foliage and fruits. CFB is also an occasional pest of other commercial crops, including alfalfa, beans, beets, blueberries, cruciferous vegetables, eggplant, grapes, horseradish, potato and sweet potatoes.

Symptoms and Effects: CFB larvae feed on cranberry roots and underground runners. When CFB infestations are severe, larval feeding can lead to girdled roots and vine death. Adult CFBs feed on foliage and on the surface of cranberry fruit. Severe adult infestations can lead to skeletonization of leaves (i.e., loss of the tissue between veins) and death of upright vines. Heavy feeding by adults can also impact bud development, leading to yield reductions the year following an infestation. Because adults prefer areas of lush growth, adult CFB populations and damage are usually patchy.

Life Cycle: In Wisconsin, female CFBs deposit single eggs into the soil in late summer through early fall, and the eggs serve as the overwintering stage of the insect. In the spring, the eggs hatch, and CFB larvae feed on roots from June through August. Larvae eventually pupate (this stage of the insect's life cycle has not been formally described) and adults begin to emerge in July and are present through September. In Wisconsin, CFB has one generation per year.



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Scouting Suggestions: Monitoring for CFB focuses on adult beetles, because finding larvae in the soil is difficult. To evaluate CFB numbers, use a sweep net to capture adults. Be sure to sample thoroughly across different areas within a cranberry bed to account for the patchy distribution of CFB adults. There is no established action threshold for CFB in cranberry. However, University of Maine Extension recommends taking action if you find more than 15 CFB per 25 sweeps in a cranberry bed.



Leaf damage with skeletonization (left) and root damage (right) due to cranberry flea beetle feeding. Photos courtesy of Tim Dittl, UW-Madison.

Control: Current management of CFB targets the adult stage. If scouting indicates significant numbers of adult CFBs, consider using insecticide sprays for control. Products that are effective against CFB adults include neonicotinoids (e.g., clothianidin, thiamethoxam, acetamiprid, dinotefuran), diamides (e.g., chlorantraniliprole, cyantraniliprole), spinosyns (e.g., spinetoram), organophosphates (e.g., chlorpyrifos, phosmet, diazinon) and carbamates (e.g., carbaryl). When using insecticides, be sure to alternate use of at least two active ingredients in different IRAC chemical classes to help delay the development of insecticide resistance. Also be sure to consider any adverse effects that the insecticides you use may have on non-target and beneficial insects. Check University of Wisconsin Bulletin A3276 (*Cranberry Pest Management in Wisconsin*), available at <https://learningstore.extension.wisc.edu/>, for additional insecticide recommendations.

DO NOT use soil insecticide applications in an attempt to target CFB larvae. Such treatments are not effective.

Alternative management strategies for CFB have not been adequately researched. Because CFBs prefer to feed on weed species, researchers speculate that use of trap crops may eventually become a useful management strategy. In the area of biocontrol, current research at the University of Wisconsin-Madison indicates that native Wisconsin entomopathogenic nematodes significantly suppressed CFB larvae populations in soil. At this time however, these nematodes are not available commercially. In addition, work is needed to identify natural enemies of CFB that might be used to help manage the pest.

For more information on cranberry flea beetle: Contact your county Extension agent.