REDHEADED FLEA BEETLE

Common Names: Cranberry flea beetle, Redheaded flea beetle
Scientific Name: *Systena frontalis*
Order: Coleoptera (the beetles and weevils)
Family: Chrysomelidae (the leaf beetle family)

Redheaded flea beetle is a common Wisconsin insect that is an occasional pest of many crops, including corn and alfalfa. Although commonly seen at low numbers in Wisconsin cranberry beds, it rarely occurs in large enough numbers to cause significant injury. Larvae feed on roots and stems in the soil; adults feed on leaves. When controls are needed, the adult stage is readily controlled by many cranberry insecticides.

Biology and Damage

Host Plants:
40 different host plants including cultivated crops, native plants, and weeds.
Cranberry, *Vaccinium macrocarpon*
Highbush blueberry, *Vaccinium corymbosus*
Alfalfa, *Medicago sativa*
Among cranberry weeds attacked include marsh st. johnswort, *Triadenum virginicum*; joe-pye weed, *Eupatorium maculatum*; smartweed, *Polygonum* spp.; jewelweed, *Impatiens biflora*; and hardhack, *Spirea tomentosa*.

Description and Diagnosis:
Eggs are deposited singly in the soil on the cranberry beds. They are pale yellow, 0.7-0.9 mm, and oval-shaped with a roughened surface. The larvae are creamy-white with a brown head, cylindrical, reaching 5.1-10.0 mm in length, and have numerous fine hairs covering the body. There is a fleshy projection on the top of the last abdominal segment with a tuft of fine hairs at the tip which is a diagnostic character for the larvae. There are three larval instars. The pupal stage has not been described in the literature. The adults are shiny black with a reddish head, oval, 3.0-6.25 mm long, and have antennae nearly half as long as the body. Their hind legs are enlarged and they are capable of jumping, hence the name flea beetle.

Adults (leaf feeders).

Larva (in soil).

Economic Importance:
The cranberry flea beetle (adult) feeds on a wide variety of host plants and weeds and would prefer to feed on certain weed species over cranberry. However, if no favored weeds are available, they will feed on the foliage and the berry itself. Larvae feed in the soil on the runners, and do damage similar to cranberry girdler. Severe infestations can result in vine death. Although flea beetles are occasionally found during routine sweep sampling, populations large enough to cause damage are relatively uncommon.

Life Cycle:
Cranberry flea beetle overwinters in the egg stage in the soil. Eggs hatch in June and the larvae begin to feed on the roots. They are found just below the trash layer down to 10". It is not known exactly when the pupal period occurs or how long it lasts, but the adults become active in July. The adults feed on cranberry foliage and the berries until mid-September. During this time, eggs are deposited in the soil where they will remain until the following year. There is only one generation of cranberry flea beetle per year.

Environmental Factors:
The eggs and larvae are not susceptible to flooding and can remain submerged for long periods of time. No information is available on the role of predators or insect pathogens.

Damage/Symptoms:
The larvae feed on the roots and underground runners of the cranberry. This can result in girdled roots and vine death if the infestation is severe. Damage is similar to that of cranberry girdler, but occurs earlier in the growing season. Damaged roots attempt to callous and also frequently send up weak upright growth; these symptoms are diagnostic for flea beetle but not for girdler. The adults feed on the upper and lower leaf surface and skeletonize them. This causes a browning of the leaf similar to fireworm, but no webbing is involved. Individual uprights may be killed. They will also take bites from the surface of the berries.

Foliage feeding causes leaves to brown, similar to fireworm but without webbing.

Larval feeding on horizontal stems and runners, similar to cranberry girdler, but earlier in the growing season.

Stem feeding causes (skeletonizing) vine death and thinning.

Monitoring and Controls

Scouting Procedure/Economic Threshold:
Adults are easily picked up during routine sweep net sampling. Finding larvae in the soil is a very difficult and time-consuming process, as they are quite small and can be several inches deep. No economic thresholds have been developed for larvae or adults.

Natural Control:
Nothing is known of potential natural controls of flea beetles in cranberry.

Cultural Control:
None known.

Biological Control:
No research has been done in this area. However, based on our knowledge of commercially-available insect-parasitic nematodes, these may control flea beetle larvae.

Chemical Control:
Adult flea beetles are readily killed by most broad spectrum cranberry insecticides. No information is available about chemical control of larvae.

References:

Dittl, T. 1988. A survey of insects found on cranberry in Wisconsin. M.S. Thesis, University of Wisconsin, Madison.

Jacques, R. L. Jr. and D. C. Peters. 1971. Biology of *Systena frontalis* with special reference to corn. J. Econ. Ent. 64: 135-138.

This information was prepared by Daniel L. Mahr, Professor and Extension Fruit Crops Entomologist, University of Wisconsin – Madison. It is revised and modified from the Pest Profiles section of University of Wisconsin Cranberry Crop Management software (CCM). November, 2005.

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