BROWN CRANBERRY SPANWORM

Common Name: Brown cranberry spanworm
Scientific Name: *Ematurga amitaria*
Order: Lepidoptera (butterflies and moths)
Family: Geometridae (the inchworm or looper family)

Several species of spanworms can be found in Wisconsin cranberry beds. They feed on foliage, buds, flowers, and/or fruit. If left uncontrolled they can be quite damaging. Brown spanworm is one of the more common species.

Biology and Damage

Host Plants:
Cranberry, *Vaccinium macrocarpon*.
Additional hosts include a number of cultivated crops, native plants, and weeds.

Description and Diagnosis:
Eggs are deposited singly in the leaf litter. They are light green to a yellowish-orange, 0.7-0.8 mm long, and are elliptically shaped with rows of hexagonal pits. The larvae are caterpillar-shaped, with two pairs of prolegs at the hind end of the body. They move by "inching" or "looping" forward by stretching their bodies out, grasping an object with their front legs, and pulling their hindquarters forward. They are pale to light green on the top and brown below in the early instars but turn completely brown in the later instars. There are five instars. They have a smooth integument and reach 18-23 mm in length. The pupae are 9-10 mm long, and are light to dark brown. The adult males have a grayish brown head and body with the front wings white to yellow with brown markings; the females are slightly lighter in color. The wingspread is 23-28 mm.

Half-grown larva.

Adult moths. Female (left) with paler wings, more robust abdomen, and thinner antennae. Male (right) with darker wings, more slender abdomen, and feathery antennae.

Economic Importance:
This is the most damaging of the spanworms and severe infestations may cause large areas of the bed to turn brown due to their feeding. They feed on the leaves, flower buds, blossoms, and even the berries. Extensive leaf feeding can reduce crop production for the following year.

Life Cycle:
Brown cranberry spanworm overwinters in the pupal stage. The adults emerge from the end of May through mid-June when they mate and lay their eggs. The eggs hatch in the leaf litter from early to mid-June, which coincides with bloom time. The larvae mature around the end of July and descend to the leaf litter to overwinter. There is only one generation per year.

Environmental Factors:
The pupae can withstand the winter flood and because the larvae emerge later in the season, reflooding is not practical. Control is also limited because the larvae are active at bloom time so insecticide applications are restricted because of the presence of pollinating honey bees and other beneficial insects.

Damage/Symptoms:
The larvae feed primarily on the foliage, buds, and blossoms, but may penetrate the surface layer of the berries as well. Like the green cranberry spanworm, the larvae are open feeders and do not web the uprights together as they feed.

Scouting and Controls

Scouting Procedure/Economic Threshold:
No synthetic pheromones are available for trapping. Routine sweep net sampling is the best way to scout for spanworm larvae. Egg hatch often occurs just before bloom or during early bloom. Massachusetts has established an economic injury level of 18 spanworm larvae per 25 sweeps.

Natural Control:
No research has been conducted on natural controls of brown spanworm. However, as a native insect, it most likely has a complex of natural enemies that attack it and provide some natural control.

Cultural Control:
None known.

Biological Control:
Microbial insecticides containing *Bacillus thuringiensis* (Bt) are effective for controlling spanworms. Applications should be applied when the larvae are young. Because of its short residual activity, a second application of Bt after 5-10 days may be necessary if new larvae continue to hatch. As hatch of brown spanworm may occur after the onset of bloom, Bt products may be the material of choice if bees are already working the beds. Remember that Bt works only as a stomach poison, and therefore thorough spray coverage of the foliage is essential.

Chemical Control:
Most broad spectrum chemical insecticides are effective for controlling spanworms. Selective insecticides such as tebufenozide and spinosad are also registered. Applications should be made when larvae are young.

References:

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

Eck, P. 1990. The American cranberry. Rutgers. New Brunswick, New Jersey.

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.

Photo credits. Photos by Tim Dittl while UW Entomology Research Assistant.