



## Cranberry girdler

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### What You Should Know

- Cranberry girdler is also known as the subterranean webworm.
- As the name implies, this webworm is more commonly found in turfgrass crowns and roots than above ground.
- Heavy larval infestations can kill grass, with peak turfgrass injury occurring in late summer and early fall.
- Keeping turfgrass properly irrigated and fertilized will minimize potential cranberry girdler damage.

Cranberry girdler, *Chrysoteuchia topiaria*, can be found throughout the U.S., but is particularly damaging to turfgrass seed production areas in the Pacific Northwest. This insect was first detected in northern and northeastern Utah during the early 1980's. Larvae prefer cool-season grasses, such as Kentucky bluegrass, bentgrass and fine-leaf fescues. In addition to causing significant damage to turfgrass, it is recorded as a pest of other grasses, cranberry, Douglas fir, and true firs. Cranberry girdler can move from infested grasslands to seedlings grown in nursery plots. Damage to firs and coniferous trees consists of the removal of tissue from the surface of the taproot.



Fig. 1. Cranberry girdler damage on a Douglas fir seedling.<sup>1</sup>

### Biology and Description

Although cranberry girdler eggs and pupae can be easily confused with other sod webworms found in turfgrass, larvae and adults are distinctive (Fig. 2). Adult webworms are known as "snout" moths because their mouthparts are projected forward and their wings are held tube-like around the body. Cranberry girdler adults are about 1/2" long and have a 3/4" wingspan. The front wings are buff-colored with brown and cream stripes, have three black spots near each wing tip, and have silver scales near the wing fringes. Males and females are active at night and normally fly low to the ground. Cranberry girdler larvae are dirty-white or grey in color with an orange-brown head and lack obvious markings like other sod webworms (Fig. 2). Mature larvae can reach 3/4" and are found in the thatch or soil.



Cranberry girdler larva<sup>2</sup>



Cranberry girdler adult



Typical sod webworm larva



294-8

Typical sod webworm adult

Fig. 2. Cranberry girdler can be distinguished from other sod webworms.

### Cranberry Girdler Life Cycle

The cranberry girdler goes through one generation per year. Adults emerge during mid-June and are actively flying for 6-8 weeks. After mating, females drop several hundred eggs per week on turfgrass blades. Eggs hatch in 9-11 days and young larvae burrow down into the thatch layer or upper soil layer to feed on crowns and roots. Larvae continue to feed and grow for about two months until near pupation. Cooler temperatures in October signal the pre-pupae to spin a tough silken tunnel in the soil and overwinter as dormant larvae.

## Plant Damage

Cranberry girdler larvae are the damaging life stage. Heavy infestations can kill turfgrass by pruning the roots or destroying the crowns and making the lawn unstable. Damage symptoms look similar to heavy white grub feeding damage where the sod becomes loosely attached to the soil. The first evidence of turfgrass injury begins as small brown patches in late summer when larvae are near maturity. Widespread infestations can quickly accelerate damage and create large dead areas of sod by early fall. Drought-stressed turfgrass will be more negatively affected by cranberry girdler feeding than a healthy lawn and will show browning earlier.

The recommended treatment threshold for larvae is 10-15/yd<sup>2</sup>; however, untreated turfgrass in Utah has reached 20-30 /ft<sup>2</sup>. Healthy turfgrass can tolerate low to moderate infestations of cranberry girdler and will recover from feeding damage if properly irrigated and fertilized. Cranberry girdler is a more difficult insect to detect and control than other sod webworms because it typically feeds at or below the thatch layer. As with all soil-dwelling insects, taking a few soil samples is the best way to confirm an infestation.

## Cultural Control

Parasitic wasps and flies, and birds can be effective biological control agents for cranberry girdler larvae. Using broad spectrum insecticides for low densities of larvae is unnecessary and will reduce biological control. Using natural enemies and other integrated pest management (IPM) strategies can reduce larvae and potential turfgrass damage to tolerable levels in most cases. Implement the following cultural control methods to reduce cranberry girdler damage:

- Consider endophyte-infected perennial ryegrasses and fescues that are well adapted to Utah's climate to reduce larval damage.
- Overly maintained turfgrass can be an attractive place to lay eggs for adult females; keep plants healthy but be careful not to exceed recommended fertilization and irrigation schedules.
- Scout for adults in the summer by inspecting turfgrass at sunset and start monitoring for larvae in the early summer by taking soil samples.

## Control Options

In certain turfgrass situations where cranberry girdlers are persistent over multiple years, a more aggressive control program can be initiated. Chemical control should be considered when cultural methods are not effective. Consider using "reduced risk" insecticides as an alternative to broad spectrum products because they preserve natural enemies and are less toxic to other animals. Spinosad (Conserve®) and *Bacillus thuringiensis* (Bt) (Deliver®) are reduced risk products available for cranberry girdler control in turfgrass. These products will be most effective against small larvae.

Entomopathogenic nematodes, such as *Steinernema carpocapsae* (Biosafe®, Biovector®, and Exhibit®), provide an alternative to chemical control. Apply nematodes in the early morning or in the evening to avoid direct heat and sunlight. Irrigate before and after the application to encourage movement through the thatch layer. Nematodes should be applied at a rate of 25 million/1000 ft<sup>2</sup> of turfgrass. Several applications may be necessary for adequate cranberry girdler control.

Other products currently registered for cranberry girdler control in Utah include: beta-cyfluthrin, carbaryl, chlorpyrifos, and trichlorfon. Here are some guidelines for effective chemical control in turfgrass:

- If the thatch layer exceeds ½", use a light aeration to enhance soil penetration.
- Apply ½" of water 48 hours before chemical application to bring feeding larvae closer to the soil surface.
- Immediately apply ½ - ¾" of water after application to push the chemical down to the root zone.
- Mow the lawn to about 1½" to improve penetration.
- Repeat irrigation every four or five days to continue chemical movement in the soil.

<sup>1</sup> Image courtesy of Scott Tunnock, USDA Forest Service (<http://www.forestpests.org/images>).

<sup>2</sup> Image courtesy of Sheila M. Fitzpatrick, Pacific Agri-Food Research Centre ([http://sci.agr.ca/parc-crapac/agassiz/progs/ipm/fitzpatrick/cran\\_gird\\_larv\\_e.htm](http://sci.agr.ca/parc-crapac/agassiz/progs/ipm/fitzpatrick/cran_gird_larv_e.htm)).

**Precautionary Statement:** All pesticides have benefits and risks, however following the label will maximize the benefits and reduce risks. Pay attention to the directions for use and follow precautionary statements. Pesticide labels are considered legal documents containing instructions and limitations. Inconsistent use of the product or disregarding the label is a violation of both federal and state laws. The pesticide applicator is legally responsible for proper use.

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