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Subterranean Sod Webworm (Cranberry Girdler)

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Introduction

An unfamiliar pest was reported damaging turf in northern and northeastern Utah during 1983. The apparent distribution of the pest in the state indicates that it has been established in Utah for some time. The accepted common name for the insect is the cranberry girdler, but it is also known as the subterranean sod webworm. It is recorded as a pest of cranberry, grasses, Douglas fir, and true firs. Damage to fir is associated with seedlings grown in nursery plots bordering infested grasslands and consists of the removal of tissue from the surface of the taproot.

Biology, Description, and Habits

The insect's life cycle and the type of damage it causes to turf differ from that associated with typical sod webworms. Winter is passed in a pre-pupal resting stage in tough silken cases in the turf. Larvae transform to the pupal (cocoon) stage in May or early June. The adults emerge in 2 - 4 weeks.

Moths are present during a 6 to 8 week period with peak flight activity occurring between mid-June and mid-July. Eggs deposited by the females in the turf hatch in 9 to 14 days. Larvae feed predominately on the grass crowns just beneath the soil surface. Peak damage usually occurs in late August and September. Feeding activity ceases by early to mid-October and larvae construct their overwintering cases. Only one generation is produced each year.

Full grown larvae are grayish-white caterpillars about 3/5 inch long with tan heads. They can be distinguished from other species of sod webworms by their lack of obvious markings. Other sod webworm larvae commonly found in Utah have several noticeable dark brown spots on their bodies.

The adults (moths) are similar in appearance to those of other sod webworms-- cream to light tan, 1/2 inch long, with elongate "snout-like" mouthparts, and wings held tube-like around

the body at rest. Moths congregate in grassy areas and are diurnal (active during the day) with peak activity occurring during the morning hours. Flights are close to the ground and short in duration.

Damage

Because larvae feed on the grass crowns rather than the grass blades, subterranean sod webworm damage more closely resembles that caused by billbugs or white grubs than that caused by other sod webworms. The first evidence of injury is usually irregular off-colored areas of turf. These areas are more easily stressed by heat or drought and may eventually turn brown and die.

Larval densities observed in Utah have been as high as 20 - 30 per square foot of turf. Populations of this size will cause injury, even to well watered turf, in a matter of a few days. Other insects, mechanical or environmental injury, and plant diseases may cause similar symptoms. Close examination of injured and the adjacent healthy turf is usually required to determine the cause.

The presence of birds and/or skunks foraging in the lawn may be an indication of an insect infestation. Predation by these animals and other natural factors such as disease may help control subterranean sod webworms, but much damage can occur before control is achieved.

Control

As with other types of insect damage, properly fertilized and watered turf will generally withstand larger infestations than unhealthy or stressed turf. Damage is greatest when turf becomes drought stressed. Conversely, heavy watering during peak feeding periods may allow moderately damaged turf to recover.

Subterranean sob webworms are more difficult to control than sod webworms because they feed below the soil surface. This requires that insecticides be moved through the grass canopy and thatch into the root zone. Insecticides registered for control of sod webworms should also be effective against subterranean sod webworms, providing the material reaches them.

Insecticides labeled specifically for subterranean sod webworm (cranberry girdler) only include certain formulations containing Bacillus thuringiensis var. kurstaki, carbaryl, and chlorpyrifos. However, other insecticides labeled for sod webworms in general should also be effective. Active ingredients in insecticides labeled for sod webworm control in ornamental turf include acephate, Bacillus thuringiensis var. kurstaki, bendiocarb, bifenthrin, carbaryl, chlorpyrifos, cyfluthrin, deltamethrin, diazinon, isofenphos, fluvalinate, lambda-cyhalothrin, permethrin, and trichlorfon.

The most effective homeowner applied materials include diazinon and chlorpyrifos (Dursban). Reports of success with both products have been received, but some reports of unsatisfactory control with diazinon have also been received. Chlorpyrifos becomes

chemically bound to organic material and may not penetrate thatch layers as little as 1/2 inch thick. Watering prior to application will soak the thatch and decrease the amount of material intercepted. You must water after application (1/2 inch of water is usually recommended) to wash the insecticide off the grass blades and move it through the thatch into the root zone.

Research results generally favor the use of granular over liquid formulations of the same product for the control of subterranean sod pests. There is usually less canopy interception of the material and the residual effectiveness is somewhat longer than with liquids. Diazinon is available in several formulations (both liquid and granular) under various trade names. Chlorpyrifos is available as a liquid concentrate in several brands of products sold under the general name of lawn insect spray or soil insect spray.

Isofenphos (Oftanol) is another product which should be effective against subterranean sod webworms. Isofenphos does not bind with organic material and can readily be moved through the thatch. It also has a longer residual activity than the other two insecticides mentioned above.

Insect-attacking nematodes of the genus Steinernema have been shown to be effective against sod webworms due to their ability to penetrate thatch. These are available under the brand names Biosafe, Biovector, and Exhibit. Nematodes should be applied at a rate of 25 million per 1000 square feet of turf. The insect-attacking fungus Beauvaria bassiana is also labeled for sod webworm control, but we have no information regarding its effectiveness.

Read and follow all pesticide label directions and do not apply the materials to sites not listed on the labels. Do not water in such a way that run-off occurs or insecticides are allowed to puddle. Do not allow children or pets to walk on treated turf until the application has dried.

Precautionary Statement

All pesticides have both benefits and risks. Benefits can be maximized and risks minimized by reading and following the labeling. Pay close attention to the directions for use and the precautionary statements. The information on pesticide labels contains both instructions and limitations. Pesticide labels are legal documents, and it is a violation of both federal and state laws to use a pesticide inconsistent with its labeling. The pesticide applicator is legally responsible for proper use. Always read and follow the label.

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