



Armyworms and cutworms in turfgrass

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What You Should Know

- Armyworms and cutworms are immature moths that feed on turfgrass leaves and stems.
- These caterpillars chew off young plants just above the ground and can be highly destructive.
- Golf courses are especially attractive places for females to lay eggs, and for the caterpillars to feed.
- Proper irrigation and fertilization will help minimize the appearance of feeding damage to turfgrass.

Armyworms and cutworms can be found all over the United States, with at least three species found in Utah. These insects belong to a large group of night-flying moths in the family Noctuidae. Although not new pests to turfgrass, armyworms and cutworms are often ignored, and plant health decline is confused with drought stress, fungal disease, or other insects. Armyworms and cutworms can cause severe damage during outbreak periods, but are generally considered minor pests compared to other insects in turfgrass. Most lawn grasses are acceptable host plants, but golf courses tend to be particularly favored by these caterpillars. Armyworm and cutworm caterpillars can be of significant economic concern to several cropping systems, including field and forage crops, vegetables, and ornamental plants (Figs. 1, 2).



Figs. 1 and 2. Typical cutworm damage on agricultural crops.^{1,2}

Plant Damage

Adults do not cause plant damage, but the caterpillar stage can damage turfgrass by eating above ground plant tissue at night. The caterpillars burrow down into the thatch layer during the day for protection. Young armyworms skeletonize turfgrass or chew leaf blade margins at night. Armyworms are gregarious and prefer cool-season turfgrasses, and will often feed and migrate in large groups. Large masses of caterpillars will cause widespread damage of irregular brown patches (Fig. 3). Cutworms clip off leaf blades close to the crown, but initial damage is more dispersed than with armyworms. Cutworms prefer golf course turfgrass and cause small pockets of damage that look like ball marks (Fig. 4). Infested turfgrass will eventually look uneven and rough. Birds are attracted to armyworms and cutworms and often their presence indicates heavy infestations.



Fig. 3. Typical armyworm damage.³



Fig. 4. Typical "ball mark" pocket damage caused by cutworms on a putting green.⁴

Armyworm Description and Life Cycle

There are several kinds of armyworms infesting turfgrass in the United States, but the most common species in Utah is the true armyworm, *Pseudaletia unipuncta*. True armyworm larvae are yellow or grey with black stripes, and sometimes the body can have a pink tint (Fig. 5). Adults are reddish-brown in color and have a wingspan of 38 mm (Fig. 6). Each wing has a distinct white dot in the center. True armyworms can have more than five generations per year, but the climate in northern Utah likely restricts this insect to two to three generations per year. Mated females can lay thousands of eggs, where sticky egg masses are laid on various parts of turfgrass blades. Eggs hatch into larvae that feed for 3-4 weeks until they reach about 35 mm in length. Larvae will pupate within the soil and emerge as adults in 2-3 weeks. The entire life cycle takes about 60 days.



Figs. 5 and 6. True armyworm larva and adult.^{5,6}



Figs. 7 and 8. Black cutworm larva and adult.^{7,8}



Figs. 9 and 10. Variegated cutworm larva and adult.^{9,8}

Cutworm Description and Life Cycle

Although several kinds of cutworms infest turfgrass, the black cutworm, *Agrotis ipsilon*, and variegated cutworm, *Peridroma saucia*, are the two most common in Utah. Black cutworm larvae are reddish-brown and often curl into a ball when disturbed (Fig. 7). Adult black cutworms have a wingspan of 35-45 mm and are grey-black in color (Fig. 8). Variegated cutworm larvae are dark brown in color with yellow dots, and can reach up to 35-46 mm in length (Fig. 9). Adults are yellowish-brown with black dots along the wings, and have a wingspan of 38-50 mm (Fig. 10). Mated females can lay more than 1,200 eggs in less than 10 days, and eggs are generally attached to the leaf blades of turfgrass or weedy plants. Cutworms overwinter as pupae and can have up to four generations per year, depending on the temperature. The entire life cycle takes about 60 days.

Cultural Control

Armyworm and cutworm damage in turfgrass is typically erratic, and therefore preventative insecticide treatments are unnecessary. Scouting and other practical integrated pest management (IPM) strategies can reduce caterpillar feeding and potential turfgrass damage to tolerable levels in most cases. Implement the following cultural control methods to reduce damage:

- Overly maintained turfgrass can be an attractive place for adult females to lay eggs; keep plants healthy, but be careful not to exceed recommended fertilization and irrigation schedules.
- Scout for adults moving to turfgrass in the early spring and start monitoring for larvae in the summer with soap flushing.
- Consider "spot treatments" to target caterpillar infestations instead of blanket applications.

Scouting and Thresholds

Scouting for the presence of armyworm and cutworm larvae is recommended if you notice nocturnal moths flying over turfgrass or you suspect general thinning to the lawn. One way to flush larvae from the thatch layer is to pour soapy water (2 tablespoons of lemon-scented liquid dishwashing detergent into 2 gallons of water) over a 1-ft² area and examine the surface over a period of 5-8 minutes. The recommended treatment threshold for armyworm and cutworm larvae is 10-15/yd² with obvious damage. Healthy turfgrass can tolerate low to moderate infestations if properly irrigated and fertilized. Because these caterpillars do not damage the roots or crown, the turfgrass can usually recover over time without an insecticide treatment.



Fig. 11. Scouting for armyworms and cutworms with a soap flush can be effective.¹⁰

¹ Image courtesy of Clemson University Extension (www.ipmimages.org).

² Image courtesy of David Riley, University of Georgia (www.ipmimages.org).

³ Image courtesy of Penn State Cooperative Extension, Berks County (www.ipmimages.org).

⁴ Image courtesy of Erin W. Hodgson, Utah State University Extension (www.utahpests.usu.edu).

⁵ Image courtesy of Alton N. Sparks Jr., University of Georgia (www.ipmimages.org).

⁶ Image courtesy of Will Cook (www.carolinanature.com/moths/).

⁷ Image courtesy of R. J. Reynolds Tobacco Company (www.ipmimages.org).

⁸ Images courtesy of Ian Kimber (www.ipmimages.org).

⁹ Image courtesy of University of Georgia Archives (www.ipmimages.org).

¹⁰ Image courtesy of North Carolina Forest Archives (www.ipmimages.org).

Control Options

In certain situations where armyworms and cutworms are persistent over multiple years, a more aggressive control program may be needed. 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. Spinosad (Conserve®) and *Bacillus thuringiensis* (Bt) (Deliver®) are reduced risk products available for armyworm and cutworm 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 ft² of turfgrass. Several applications may be necessary for adequate management.

In Utah, there are more than 200 registered products for armyworm and cutworm control. Examples of currently registered products 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 application to bring 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.

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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