

## Five Tips for Better Cutworm Control

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The black cutworm (BCW), *Agrotis ipsilon*, is a major pest of creeping bentgrass (*Agrostis stolonifera*) putting greens, tees, and even fairways. BCW larvae dig a burrow in the thatch or soil, or occupy coring holes or other cavities, emerging at night to chew down the grass blades and stems around the burrow. The resulting dead patches and sunken pockmarks, which resemble ball marks on putting greens, are a familiar headache for nearly every golf superintendent. Infestations attract foraging birds, which pull up tufts of grass, further damaging surface quality.

My former student R. Chris Williamson (Ph.D., 1997) and I recently completed a 3-year, USGA-funded study of BCW biology and management on golf courses. This research yielded much insight on the habits of cutworms, some of which can immediately be put to use by golf superintendents.


**Tip #1: Avoid emptying mowing baskets or strewing clippings beside putting greens or tees.** Female BCW moths laying eggs on close-cut creeping bentgrass putting greens or tees nearly always glue their eggs near the tips of grass blades. Our research showed that about 80-90% of the eggs are removed with the clippings each time the turf is mowed. Many of these eggs survive passage through the mower blades, hatching in a few days. Resulting larvae that develop in the surrounding rough may later reinvade the close-cut bentgrass areas. To reduce incidence of reinfestation, dispose of bentgrass clippings well away from putting greens.

**Tip #2: When treating for BCW, include a buffer zone around putting greens and tees.** If mowing removes most of the eggs, where do the large BCW that damage greens and tees come from? BCW moths also lay eggs in fairways and roughs, and populations may build up in such areas. As the larvae become larger, they crawl about at night and may be attracted to the moist soil and lush bentgrass of putting greens and tees. By mapping larval tracks left in the dew, we confirmed that many of the BCW that damage putting greens originated from approaches and surrounding roughs. Larger cutworms were observed to crawl as far as 50 feet (15 m) across putting surfaces in a single night! Thus control actions for BCW

should consider the reservoir population as well. Treating a 20 to 30 foot (6-9 m) buffer zone around putting greens, and a proportionately smaller zone around tees, may reduce reinfestations by crawling larvae.

**Tip #3: Use sprayable formulations, and treat late in the day.** Don't water the insecticide in, and withhold irrigation at least until the following morning. Treating late in the day minimizes loss of activity from photodegradation and volatilization, ensuring that the BCW will encounter fresh residues as they feed on the foliage after dark. Treating late in the day also reduces exposure to golfers until the residues have dried.

**Tip #4: Sample for spray timing, and to assess effectiveness of treatments.** Sampling for BCW is easy and can help you to get a jump on a developing infestation. Add about 1 oz—or 2 tablespoons (30 mL)—of lemon-scented Joy® dishwashing liquid to a 2-gallon pail of water, stir gently to minimize sudsing, and pour the solution over a 3 x 3 ft area (0.8 m<sup>2</sup>) of turf. Any BCW that are present will surface within a minute or two. Armyworms, sod webworms, mole crickets, black turfgrass ateniens adults, or other pests also may be flushed out. Optimal timing is when most of the larvae are still small, i.e., 1/2" (12.5 mm) or less. Sampling a day or two after treatment is useful to confirm that control was achieved.

**Tip #5: Consider the newer products.** Pyrethroids such as bifenthrin (Talstar®), cyfluthrin (Tempo®), deltamethrin (Deltaguard®), and lambda-cyhalothrin (Scimitar®) are especially effective against BCW. Most pyrethroids are highly toxic to fish, so use special care around ponds, or wherever runoff may occur. Halofenozide (Mach2®) and spinosad (Conserve SC®) also will provide good control. Products containing entomopathogenic nematodes have shown promise against BCW; however, performance of the fungal-based insecticide Naturalis-T (*Beauveria bassiana*) has been erratic. 

*This article was adapted from information in the author's new book Destructive Turfgrass Insects: Biology, Diagnosis, and Control, which is available from Ann Arbor Press.*