

FINE-TUNING YOUR CUTWORM MANAGEMENT PROGRAM

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Cutworms are the caterpillars of several species of night-flying moths in the family Noctuidae. Caterpillars in this group are characterized by three pairs of legs situated behind the head, fleshy prolegs and a distinct head. Adults (moths) are robust, drab-colored and hairy with wingspans up to 1½ inches across. Typically, the front wings are darker than the hind wings and have various patterns of light and dark markings. Adult cutworms do not damage turf.

The most common turf-infesting species of cutworms are the black cutworm, *Agrotis ipsilon*; variegated cutworm, *Peridroma saucia*; and bronzed cutworm, *Nephelodes minians*. Fully grown caterpillars of these species reach 1½ inches, with the bronzed cutworm being slightly larger. All species have a dark brown to gray head.

Descriptions and Life Histories

The black cutworm is dark gray to black with a pale stripe down the back, but with few other distinguishing markings. Bronzed cutworms are dark brown to black on the upper side of the body and paler on the underside. The upper surface has three narrow yellow stripes and a broad white-yellow stripe running down each side. The entire body has a distinctive bronze sheen. The variegated cutworm is gray to brown with an orange lateral stripe and a series of darker lateral markings. A row of yellow or white dots runs down the middle of the back.

Life histories of the various cutworms differ depending on the species. The black cutworm does not normally overwinter in Michigan. Moths migrate northward from southern states in early spring and deposit clusters of 10 to 20 eggs on grasses and weeds. Wind patterns (which affect the migration and ultimate distribution of the moths) and local environmental conditions strongly influence the severity of black cutworm infestations. There may be as many as three generations per year. Bronzed cutworms overwinter as eggs which hatch in early spring. Fully-grown larvae are present by late April and pupation occurs during mid-August. Bronzed cutworms have only a single generation each year. Variegated cutworms overwinter as partially grown larvae and resume feeding as grasses start to green up in the spring. Adults begin to appear in late spring and deposit up to 2,000 eggs in clusters of 100 or more under the sheaths of grass blade. There are two to four generations of variegated cutworms each year.

General Symptoms of Cutworm Damage to Turfgrass

Cutworms feed at night, cutting grass blades near the soil surface. Damage initially appears as small circular dead or dying spots that increase in size to as much as 1 to 2 inches in diameter as the worms mature. Cutworms (especially black cutworms) can cause severe damage on golf course greens and tees (especially bentgrass) where they live and feed, often around the openings made by aerification.

Sampling Techniques

Watch for small circular dead or dying spots on greens and tees. If cutworms are present, closer examination of these spots will reveal clipped grass blades mingled with green fecal pellets. The caterpillars will usually be found near the edges of damaged areas, often down in an aerification hole. The presence of birds, and/or animals foraging in the turf is often an early indication of cutworms or other insect pests.

To confirm the presence of cutworms, apply $\frac{1}{4}$ cup of lemon-scented household detergent in two gallons of water over one square yard of turf. This irritates the caterpillars and forces them to the surface where they can be identified and counted. Scratching around in the thatch with a knife also may reveal their presence.

Management Strategies

On fairways and roughs, good cultural practices may allow a healthy vigorous turf to withstand moderate cutworm infestations. In most cases, the turfgrass will outgrow minor injury. Generally, it takes fewer caterpillars to damage mismanaged or stressed turf. Overgrown and lodged grass in the vicinity of the turf area create an ideal environment for later cutworm infestations.

On putting greens and tees where tolerance for cutworm damage is near zero, there are several steps the Greens Manager can take to minimize cutworm infestations. Drs. Chris Williamson (University of Wisconsin) and Dan Potter (University of Kentucky) showed that most black cutworm eggs are laid on the tips of close-cut creeping bentgrass and up to 92% of these eggs are removed by a single mowing. However, many of these eggs survive and remain on the grass clippings. Therefore, it is important to empty your mowing baskets well away from greens and tees. Williamson and Potter also discovered that black cutworms develop in the higher-cut grass surrounding putting greens, and may later move up to 50' onto greens in one night. Thus, when treating for black cutworms spraying a 30' buffer zone around putting greens (a proportionately smaller area around tees) will control the peripheral cutworm population and hopefully reduce the need for repeat applications.

Insecticidal Control

When natural enemies (especially ants) and cultural practices are not sufficient to prevent damage and cutworms are present, insecticidal control may be warranted. On roughs, the turf should be mowed and the clippings removed before treatment to enhance insecticide movement into the turf canopy. A thorough irrigation ($\frac{1}{2}$ inch) prior to application will move cutworms closer to the surface. Following application, the treated area should be lightly irrigated ($\frac{1}{8}$ inch), but delay heavy watering for 24 to 48 hours unless irrigation is indicated on the insecticide label. Granule applications also should be lightly irrigated immediately after application to wash granules off grass blades and activate the insecticide.

On greens, tees and fairways, liquid insecticides are preferred over granules. After application, withhold irrigation for 24 hours unless indicated on the insecticide label. When possible, treat a 30' border area around greens and a proportionately smaller area around tees. For best results, apply insecticides in the late afternoon or early evening when caterpillars are becoming active. For additional information on black cutworm management refer to the following sources:

Controlling Turfgrass Pests, 2nd Ed. by T.W. Fermanian, M.C. Shurtleff,
R. Randell, H.T. Wilkinson and P.L. Nixon.

Destructive Turfgrass Insects: Biology, Diagnosis and Control by D.A. Potter.

Destructive Turf Insects, 2nd Edition by H.D. Niemczyk and D.J. Shetlar.

Integrated Turfgrass Management for the Northern Great Plains edited by
F.P. Baxendale and R.E. Gaussoin.

Turfgrass Insects of the U.S. and Canada, 2nd Edition by M.G. Villani,
P.J. Vittum and H. Tashiro.