

# Black Turfgrass Aetanius's Appearance Often Surprises Superintendents

By R. Chris Williamson

**M**any superintendents focus their attention to the larger white grub species (such as the Japanese beetle, European chafer, masked chafers and June beetle) and give little or no attention to the black turfgrass atanius (BTA) (Haldeman).

After several years of dealing with common white grubs, superintendents expect problems associated with grubs in late summer when most grubs cause significant damage to turf. Consequently, BTA, a white grub species that causes damage in late spring through early summer, is frequently overlooked (Potter, 2001).

Although sometimes sporadic, BTA can be a serious pest on golf course greens, fairways and tees throughout the cool-season turfgrass zones as well as California (Vittum, et al. 1999, Gelemter, 1996).

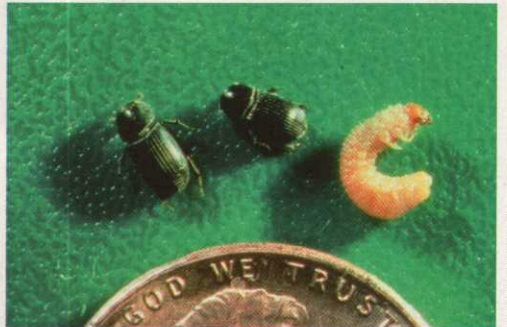
Compared to most other turf-infesting grubs, BTA generally produces two generations per year throughout much of its range (Fig. 1). Turf damage from BTA grubs (first and second generations, respectively) typically appears from late-May to late-June and again in late-August to late-September in Nebraska, Kentucky, southern Ohio and West Virginia (Vittum et al., 1999). There is typically only one generation per year in the Northern portion of the BTA's range, including Michigan, Minnesota, northern New England, southern Ontario and Wisconsin, with damage occurring from mid-June to late-July (Vittum et al., 1999).

To complicate the seasonal biology of BTA even more, it has been reported there are as many as three generations per year in Southern California (Gelemter, 1996).

BTA grubs are measurably smaller than most other white grub species. Nonetheless, these grubs can cause serious damage to short-cut turf, especially to creeping bentgrass, annual bluegrass and perennial ryegrass (Potter, 2001). BTA grubs damage the turf by feeding on living grass roots as well as decaying organic matter.



*BTA grub damage consists of dead patches of coalescing turf.*



*BTA adults (left) and third-instar grub (right) are what you should look for when scouting for these pests.*

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The first symptoms of a BTA grub infestation are patches of thin or wilted turf that resemble localized dry spots that do not recover from irrigation or rainfall. These patches of damaged turf eventually coalesce into larger dead areas as BTA grub feeding continues, especially when heat and drought conditions persist (Fig. 2). Upon closer inspection, the turf can be literally rolled up, similarly to loose carpet.

As a result of their relatively small size, BTA grubs typically occur at considerably high densities, up to 250 grubs per square foot. As if this were not enough of a problem, secondary damage often results from birds, skunks and other predators foraging for BTA grubs in infested areas.

When the turf condition reaches this critical point, the only management option is to apply a



curative insecticide treatment to control the actively feeding grubs, apply a supplemental amount of nitrogen fertilizer and irrigate daily to help the turf recover and mask further damage.

### Description and life cycle

Similarly to BTA grubs, the adults are considerably smaller to most other white grub species. BTA adults are shiny black beetles approximately three-sixteenths of an inch to one-quarter of an inch long, with distinct longitudinal grooves on the wing covers (Fig. 3). Adults hibernate in the soil or in leaf litter along the edges of golf courses (Vittum et al., 1999).

In the spring when temperatures become conducive in late-March to April, adult BTA return to turf areas to begin laying eggs. On warm, sunny afternoons in the spring, they are frequently observed crawling on fairways and putting greens. Subsequent adult egg laying occurs throughout this period and continues into early June, but most eggs are laid around the time that Vanhoutte spirea is in full bloom (Vittum et al., 1999).

Eggs typically hatch in about one week. Immediately thereafter the young BTA grubs begin feeding on fine roots and organic matter. Each grub requires approximately one month to reach maturity, after which they burrow down in the soil profile to pupate.

In most of its range, BTA adults emerge in late June to early July to begin laying eggs that will eventually result in second-generation grubs that damage the turf in the late summer or early fall.

New BTA adults will emerge sometime in September and October, mate and fly to overwintering sites in the northern portion of their range, where there is only one generation. Subsequent BTA grub damage typically occurs in mid-July through mid-August, with adults emerging sometime in August (Vittum et al., 1999).

There are three distinct grub stages called instars. Fully-mature or developed grubs are the life stage that causes the most significant damage (Fig. 3). Third instar grubs are only about three-eighths of an inch long, approximately the size of Abraham Lincoln's hair on a U.S. penny (Potter, 2001). As a result, third instar BTA grubs are frequently mistaken for young Japanese beetles, masked chafers or other large species of white grubs. However, BTA can be easily distinguished from other white grubs by a pair of pad-like warts at the tip of the abdomen, just in front of the anal slit (Vittum et al., 1999).

**TABLE 1**

### Product, rates, and timing of insecticides for control of BTA

Brand Name	Common Name	Rate (lb. ai/A)	Preventative	Curative
Talstar	bifenthrin	0.1	X (adults)	
Sevin	carbaryl	8.0		X (grubs)
Dursban Pro	chlorpyrifos	1.0	X (adults)	
Tempo	cyfluthrin	0.14	X (adults)	
DeltaGard	deltamethrin	0.08	X (adults)	
Mach 2	halofenozide	2.0	X (grubs)	
Merit	imidacloprid	0.3	X (grubs)	
Scimitar	lambda-cyhalothrin	0.06	X (adults)	
Dylox	trichlorofon	8.0		X (grubs)

### Control options

The most effective strategy for managing BTA is preventative control with either contact insecticide applied to the active adults prior to egg laying or a soil insecticide designed to control newly hatched grubs.

Preventative contact insecticides must be targeted at BTA adults soon after they are first detected in late March to mid-April. Should one miss this opportunity, the only other option is to apply a curative application when the grubs are detected or noticeable damage has occurred. Preventative and curative insecticides currently labeled for control of BTA adults and grubs appear in Table 1.

Regardless of the treatment, an adequate amount of water (at least .2 inches of water) must be applied to the turf to ensure movement of insecticide to the target area in the soil.

Where excessive thatch accumulation is present, it's beneficial to incorporate the respective insecticide into the soil profile by either a slit-type applicator or by core aerator. Most importantly, always read and follow pesticide labels.

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### REFERENCES

- Gelernter, W. 1996. "Controlling the black turfgrass ataenius." *Calif. Fairways* (Jan./Feb.):6-8.
- Vittum, P.J., M.G. Villani, and H. Tashiro. 1999. *Turfgrass Insects of the United States and Canada*. 2<sup>nd</sup> ed. Cornell University Press, Ithaca, N.Y.