

TURFGRASS TRENDS

INSECT CONTROL

Grasping the Girdler and Other New Bugs

By Patricia J. Vittum

Several turf entomologists met in late February in Biloxi, Miss. to discuss a range of topics. During those discussions it became clear that there are several insect pests — some new and some just expanding in their distribution — that are posing problems for turf managers throughout the country.

Cranberry girdler

The cranberry girdler (*Chrysoteuchia topiaria*) is a kind of webworm that feeds on the roots of cranberries, various turfgrass species and some coniferous seedlings. It occurs in cool-season and transition zones and can be especially damaging in turf grown for seed production in the Pacific Northwest (Potter 1998).

The insect is being noticed more often now in parts of the upper Midwest (e.g., northeastern Wisconsin) as well as Ohio, Pennsylvania and New Jersey. Furthermore, we suspect it is active in some turf settings in southeastern Massachusetts, in the heart of cranberry production.

Although the cranberry girdler is technically a webworm, the feeding is concentrated in the crowns and roots of the plant. Damage often resembles that of white grubs and is most severe in late summer and early fall. Turf often pulls back like a carpet, just like turf damaged by grubs. Larvae are cream-colored with

The damage inflicted by the cranberry girdler resembles that of a white grub and the turf often pulls back like a carpet, just like grass damaged by grubs.

an orange-brown head capsule. They do not have the dark spots that are typical of most webworm species and are about three-fourths-of-an-inch long when full grown.

The species has only one generation per year, with adult flights usually occurring from late June to mid-August. Like many webworms, flight and mating occur at night. Each female produces several hundred eggs over the span of a week or two. Eggs last about 10 days, and then young larvae emerge and move to the thatch to feed. As they grow, they move deeper in the profile and feed on the crowns.

Older larvae construct silk-lined tunnels in the lower thatch or soil. Larval development takes about two months in most conditions (Potter 1998). As temperatures drop in the fall, the larvae construct a "hibernaculum" (a protective case) to spend the winter. They pupate the following spring, and new adults emerge in June or July.

A sex pheromone for the cranberry girdler has been identified and can be used to monitor adult flight activity. While few field trials have been conducted to investigate management strategies, it appears that application of insecticides that are active against white grubs, made two to four weeks after peak moth flight, sometimes can provide some

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relief. Keep in mind, however, that the insect is still very sporadic, so treat only when adult monitoring or turf samples have confirmed the presence of the insect.

Western chinch bug

There are more than 20 species of chinch bugs (all in the genus *Blissus*) in the United States and Canada.

The hairy chinch bug (*B. leucopterus hirtus*) is found throughout the eastern United States and the Southern regions of the eastern Canadian provinces and extends west as far as Minnesota. It is a significant pest of forage and pasture grasses, as well as most cool-season turfgrasses. The southern chinch bug (*B. leucopterus insularis*) occurs from southern North Carolina through Florida and into eastern Texas. It is generally considered the most destructive insect pest of St. Augustine grass. It also attacks several other warm-season grasses, as well as corn, rice, and crabgrass. The range of the common chinch bug (*B. leucopterus leucopterus*) overlaps that of the hairy chinch bug and the southern chinch bug. It feeds on corn, sorghum, millet and rye, but also feeds on both cool-season and warm-season grasses.

The western chinch bug, *Blissus occidentus*, was formerly called the buffalograss chinch bug, but recent observations have confirmed that it feeds on many plant species, including zoysiagrass and various forage and crop species, so the broader name is more appropriate.

This species occurs in much of the central United States and the Plains provinces of

Canada. Although it is a relatively small chinch bug, life stages are similar to those of other chinch bug species. There are two distinct wing conditions in the adults, as some have very short wings and others have more normal-appearing wings.

The western chinch bug has two generations a year on buffalograss in Nebraska. Adults emerge as early as mid-March, with first generation nymphs feeding from early May through early August. New young adults normally emerge in late June and second-generation nymphs are active from early July through autumn. Control strategies often are similar to those of other chinch bugs, but timing of application varies with local climatic conditions.

Crane flies

The European crane fly (*Tipula paludosa*) and the common crane fly (*Tipula oleracea*) have been established in the Pacific Northwest (including British Columbia) and the Canadian Maritimes for several years. They are a pest of lawns, golf courses and pastures.

Crane flies are more likely to be active in areas where soils are moist or even saturated at certain times of the year. More recently, populations became established on the Niagara Peninsula west of Toronto.

Dan Peck, turf entomologist at Cornell University, reported that both species also appeared in western New York during the summer of 2004. (Note that *T. paludosa* is also sometimes called the marsh crane fly, and it is that name that is

being used in New York and Ontario.) Some lawns had as many as 50 larvae per square foot. Most of the crane fly activity in this area occurs in turf areas that are irrigated regularly. In addition, 2004 was an unusually wet summer in much of the

Northeast, providing conditions that were more conducive to crane fly activity.

At this point, it is difficult to project how widespread the problem will become in the Northeast. If wet summers become the norm, it is more likely the problem will spread.

European crane flies have one generation per

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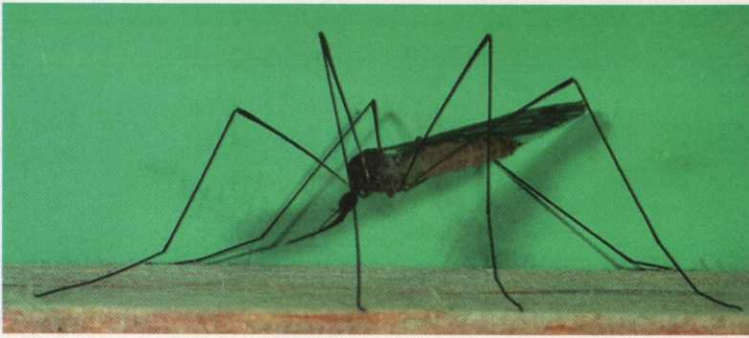


The chinch bug feeds on cool-season turfgrasses.

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Populations of crane flies recently became established on the Niagara Peninsula, west of Toronto.

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year, with adults active in late summer, often in large numbers. They lay eggs almost immediately, which hatch into small larvae. These "leather jackets" are almost cylindrical but slightly tapered at each end. They normally are a grayish-green and have black specks scattered on the body. They feed on roots, root hairs and crowns. There are four instars, the first two of which occur in autumn. In areas where soil temperatures remain above freezing, larvae (as third instars) may feed through the winter months.

They molt to the fourth and final stage by April and feed vigorously for about a month. They then are dormant until late July, when they pupate briefly. The adult stage follows quickly. In March and April, large larvae migrate to the surface at night and cause significant mechanical damage in addition to direct feeding on roots (Vittum et al. 1999).

The common crane fly has two generations per year in the Pacific Northwest. It lays eggs in March or April and again in August through October. Current control efforts are concentrated in autumn (October or November) in areas where soil temperatures remain mild, with the intent of eliminating young larvae of both species before they molt to larger stages.

White grub complex

White grubs (larvae of various scarab beetles, such as the Japanese beetle, oriental beetle, European chafer, northern and southern masked chafers and Asiatic garden beetles) have been active in many parts of the eastern United States for years. Until recently, the Japanese beetle dominated most turf settings in the Northeast, while masked chafers were more common from Pennsylvania west to the Mississippi River.

Now, however, many turf managers in the Northeast may be dealing with three or more species on a single property. Management is

much more complicated in these situations, because the life cycles are slightly different, as are behaviors and susceptibility to insecticides.

The European chafer is much less sensitive to cold temperatures, so grubs remain in the root zone feeding into late fall and return to the root zone in late February or early March in many years, even in southern New England. The life cycle is about two weeks earlier than the Japanese beetle, so applications made targeting the Japanese beetle may be too late to be effective against the European chafer.

In addition, the species is somewhat less vulnerable to insecticides than is the Japanese beetle. European chafers are spreading through much of New England and are found around Lake Erie.

Other miscellaneous beasts

There are several other insects and related critters that are becoming active in new areas or have recently emerged as pests.

Earthworms aerify the soil and improve soil structure in many settings and are generally considered to be beneficial organisms. However, they are sometimes viewed as pests in fine turf areas (e.g., golf course fairways) because of the castings they create. These casts can smother and kill grass and can cause damage to mowers.

Other emerging pests include ants (and the mounds they form) on golf course turf, sugar cane grubs (in southern Florida) and ground pearls in some irrigated lawns in Arizona.

In many cases there is a distinct lack of information about the life cycles or ecology of these pests, so control efforts are haphazard at best.

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