

BLADE

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FEATURE

Increasing Chinch Bug Populations & Approaches to Their Management

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Chinchbugs (*Blattella trigrass*) are some of the most destructive insect pests of turfgrass. There are several species of chinch bugs, which look very similar and differ mainly in their geographical distribution and respective hosts. For example, the northern chinch bug (*Blattella trigrass*) is common in the northern United States and their preferred host is warm-season St. Augustine grass. Common chinch bug (*Blattella trigrass*) is widespread in the Northeast, and more southern states, but mostly prefers cool-season turfgrasses such as bermudagrass, fescue, Kentucky bluegrass, perennial ryegrass, sorghumgrass, and crabgrass. In New England, hairy chinch bug (*Blattella trigrass*) is the most common chinch bug species affecting different species of cool-season turfgrasses.

Adults of this species are small (only 1.6" long, Fig. 1), and have distinct contrasting black-and-white coloration with an "X" pattern and black markings on the wings. Nymphs are very small when eggs first hatch and are bright orange and gradually turn a white-brown color as they mature (Fig. 2). They look like small, orange, and wingless versions of the adults. Older nymphs become darker and black wing pads can be distinguished on their backs; the lighter band remains noticeable across their body.

In New England, two generations occur per year. Adults overwinter and become active in the spring, depending on the temperature. This year, adults were noticed in the beginning of May and by the end of May, eggs and nymphs were observed. In mid-July, most of the specimens collected were adults and nymphs appeared by the end of July. These second generation nymphs will develop into adults and these adults are not likely to produce any progeny before seeking shelter for overwintering.

Despite being relatively small, hairy chinch bugs can cause significant damage (Fig. 3). Populations are often overabundant, and their feeding damage is often confused with turfgrass dormancy or drought stress, until it is too late. If densities are high and damage is severe, even with additional irrigation, turfgrass fails to recover. Chinch bug feeding is easy to confuse with drought symptoms because, unlike other turfgrass pests (white grubs, billbugs, carpetgrubs), they do not chew the grass blades. Their piercing-sucking mouthparts are modified to pierce the grass tissues and suck up the juices. Thus, grass will look dry, with no chewing signs present. They do not excrete beneath the species and excrete the damage, therefore dry, well drained, and sunny areas of the lawn are most commonly affected by the pest.

Previously, damaging high-density populations of chinch bugs were not common. The main recommendation was to irrigate affected areas to provide enough resources for turf to tolerate and recover from the chinch bug feeding. This approach remains effective if chinch bug density is low. Chinch bugs have a complete of natural enemies, such as the big-eyed bug (*Geocoris* spp., Fig. 4), an egg parasitoid small wasp (*Triclistus* spp.), and the naturally occurring fungus *Beauveria bassiana* which can help to keep populations at bay. When conditions are conducive to growth and development, however, these are often not capable of keeping chinch bug densities below damaging levels and intervention is necessary to avoid damage. Unfortunately, the frequency of high-density populations occurring is on the rise and new chemical interventions is often necessary to avoid significant turf loss.

A changing weather pattern with rising temperatures and erratic rainfall is one of the factors that can explain the recent increase of chinch bug densities. Some changes in management and rethinking/adding use of older insecticides, can also be a factor in increased reports of high densities of chinch bug. For instance, the new class of insecticides used for grub management, imidacloprid (*Imidacloprid*), that can replace the neonicotinoids (imidacloprid, clothianidin) only provide suppression of chinch bug populations (according to the label).

Chinch bugs are traditionally targeted by pyrethroids (the chinch bugicides that stay in the turf), not so common, and relatively fast acting. However, this insecticide class, if overused, tends to build up resistance. Chinch bugs in New England have not yet documented any resistant populations to the pyrethroids. The risk is high, especially if the frequency of high-density populations increases. Another active ingredient used for chinch bug management is diazinon, a neonicotinoid. Despite its harmful non-target effects, neonicotinoids have been considered an insecticide class in Massachusetts with an aim to reduce the risk of resistance development. Considering the increasing of chinch bug damage, risk of resistance development, and the need for alternative management solutions is a high priority.

Our lab conducted research on the efficacy of different management strategies against chinch bugs this season. In laboratory studies, we discovered that commercial

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