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It's Not Too Late to Begin Scouting for Chinch Bugs in Turf

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In early May, I received a request for information about chinch bugs, which can devastate a lawn or golf course seemingly overnight. Though we are now about six weeks behind emergence of overwintered chinch bugs, I have yet to hear any reports of damage in Oklahoma, probably due to the cool and wet spring we've experienced this year. However, populations can build rapidly in hot and dry conditions, so now is a good time to start scouting for these pests in turf. In preparation for this article, I did my usual sleuthing and I had a lengthy discussion with Dr. Fred Baxendale at the University of Nebraska-Lincoln. His lab has worked extensively with chinch bugs for decades and Dr.

Baxendale can truly be considered an expert on chinch bug biology and management.

Several species of chinch bugs are economically important pests of turfgrass, but the most problematic for Oklahoma turf production are the southern chinch bug, *Blissus insularis*, and western chinch bug, *B. occidentalis*. The southern chinch bug is a serious pest of St. Augustine grass, which establishes successfully in the southern portions of Oklahoma. This pest also occasionally feeds on bermudagrass, bahiagrass, zoysiagrass, and centipedegrass. The western chinch bug feeds exclusively on buffalograss, and so is also known as the buffalograss chinch bug. The common and hairy chinch bugs, *B. leucopterus leucopterus* and *B. leucopterus hirtus*, are also occasional pests of Kentucky bluegrass, ryegrass, fescue, bentgrass, and zoysiagrass in Oklahoma.

All chinch bugs found in Oklahoma more or less resemble the hairy chinch bug, so general descriptions of chinch bug life stages are based on this species. Adults are oblong, oval, and black with shiny white wings (**Fig. 1**). They are small insects and difficult to see, measuring only 0.04 in. wide and 0.12 to 0.14 in. long. Legs are red to yellowish red or black and the wings are folded over the body at rest. Populations of adults may include both long-winged and short-winged forms; the short-winged forms often appear to be wingless. Nymphs develop through five instars (stages) before reaching the adult stage. Early-instar nymphs resemble the adults, except they are wingless (though they will have wing buds) and are bright red with a white band across the abdomen (**Fig. 2**). More mature nymphs are orange brown to nearly black with wing pads (nearly complete wings).

Chinch bugs cause damage to turf by using their piercing-sucking (straw-like) mouthparts to extract sap from the plant, usually near the crown. They also inject a toxin that damages plant tissue and impedes movement of water and nutrients in the plant. Plants become dwarfed and yellow as feeding progresses, and they eventually die. Affected areas of turf first appear as small yellow patches, but eventually coalesce into larger patches of dead grass (**Fig. 3**). Damage can occur from May through November, but is most evident during dry conditions. As few as 25 chinch bugs per square foot can cause economic damage, but population densities can range from 500 to 2,500 per square foot by mid-summer! This is why it is so important to scout for chinch bugs and associated damage early in the season before populations explode and damage becomes extensive.



Fig 1. Southern chinch bug adult.
Photo credit: University of California-Davis.



Fig 2. Chinch bug nymphs.
Photo credit: University of Nebraska-Lincoln.



Fig 3. Chinch bug damage to bermudagrass.

Natural enemies of chinch bugs naturally help limit their population growth in turf, and include numerous predaceous insects and pathogens. Wet conditions aid in transmission of the insect-killing fungus, *Beauveria bassiana*, and may partially explain why large chinch bug populations are typically seen only in dry weather. Because chinch bugs favor thatch buildup, cultural controls include effective thatch management to reduce pest numbers. There is also a lot of research interest in varietal resistance to chinch bugs. For instance, buffalograss “infected” with a fungus called an endophyte renders those plants more resistant to western chinch bugs than plants not harboring the fungus. Insecticides must be used when chinch bug populations reach economically damaging levels, approximately 20-25 chinch bugs per square foot.

Because chinch bug damage is similar in appearance to that caused by other pests, be sure to sample for chinch bugs before applying an insecticide, ensuring you match the correct product with the proper target pest. Chinch bugs are commonly found in the thatch layer and at the soil line, and so are difficult to detect in turfgrass. There are a variety of ways to scout for chinch bugs, however, the simplest method is the flotation technique described as follows. Remove the metal bottom of a coffee can (or similar) and bury one end of the cylinder a couple inches below the soil surface. Add and maintain about 1 inch of water inside the can; both adult and nymphal chinch bugs should float to the water surface within 5 to 7 minutes. Be sure to sample as many representative areas of the turf as time allows, and calculate the average number of chinch bugs observed per square foot.

Insecticide treatments should begin as soon as the economic threshold is reached. Talstar (bifenthrin) is an excellent choice for controlling western chinch bug, but other species of chinch bug have shown resistance to this insecticide. Other insecticides labeled for chinch bug control include Orthene Tree, Turf and Ornamental Spray (acephate), Sevin (carbaryl), Dylox (trichlorfon), and Arena (clothianidin). A new product now registered for Oklahoma is Acelepryn (chlorantraniliprole), but it is only labeled for suppression and should be applied

before eggs hatch. Because the target insects are in the crown, the material needs to penetrate to where they're actively feeding. Therefore, adequate coverage and application methods are essential to effective control. As always, follow all label directions before applying any insecticide. Contact your county extension office for specific recommendations on chinch bug control.

Keep in mind that two or three generations develop in Oklahoma, depending on species and location within the state. Additional measures may be necessary to control later generations, but they are less likely to be a problem if the first generation is effectively under control. However, it is a good idea to monitor for chinch bugs shortly after the first application and later in the summer as hot, dry weather persists.

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