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Chinch Bugs in Buffalograss and Zoysiagrass Turf

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Over the past decade, the chinch bug, *Blissus occiduus*, (*Figure 1*) has become a serious insect pest of buffalograss turf in Nebraska. First detected infesting a heavily damaged buffalograss lawn in Lincoln, Nebraska in 1989, these chinch bugs have subsequently been found associated with buffalograss throughout Nebraska and surrounding areas. More recently, *B. occiduus* has become a serious pest of zoysiagrass. Beginning in the summer of 2000, numerous zoysiagrass lawns in southeast Nebraska have been extensively damaged by this turfgrass pest.

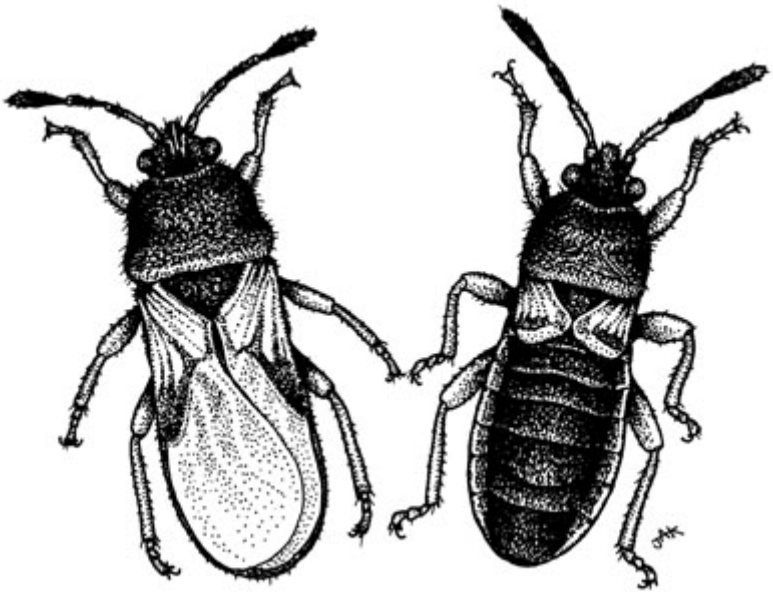

Figure 1. Winged and short-winged chinch bugs.

Recent studies at the University of Nebraska have shown that *B. occiduus* has an extensive host range which includes several turfgrasses: buffalograss, zoysiagrass, Kentucky bluegrass and perennial rye; field crops: wheat, barley, rye and sorghum; and several grassy weeds: green and yellow foxtail. While all of these grasses have the potential to be damaged by *B. occiduus*, buffalograss and zoysiagrass are clearly the chinch bug's preferred hosts and are the most likely to develop an infestation.

B. occiduus overwinters as a short-winged adult in and around the turf area. In early spring, adults emerge from overwintering sites, mate and deposit their eggs in the crowns of plants or in the underlying soil. Eggs hatch during mid to late May. First stage nymphs are tiny (about 1/64 inch long),

bright red insects with a white band across the abdomen. As nymphs mature, their color changes to orange-brown and finally to black. Adults of the first summer generation begin to appear in late June or early July. They are black and about 1/10 inch long. (Females are slightly larger than males.) A significant proportion (up to 50 percent) of the adults in this generation have fully developed wings which extend to the end of the abdomen. These winged adults are capable of dispersing to new feeding sites. The remainder of the adults in this generation appear wingless, although very short wing stubs are actually present.

First stage nymphs of the second summer generation hatch from eggs during mid to late July, and complete development in September and early October. Adults of this second generation are predominately short-winged and overwinter in or near the turf area. *Figure 2* shows the life history of *B. occiduus* in Nebraska.

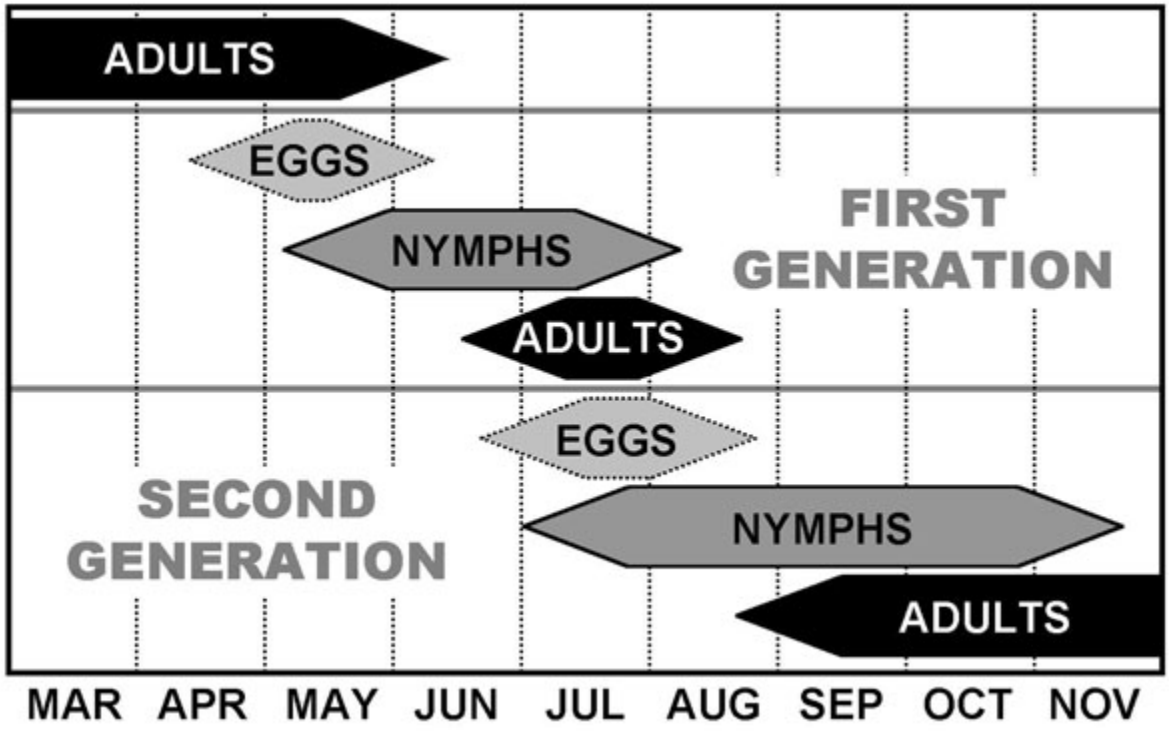

Figure 2. Life history of the chinch buy. *Blissus occiduus.*

Chinch bugs injure grasses by withdrawing sap from plant tissues in the crown area. While feeding, they also may inject a salivary toxin that damages plant tissues and inhibits the translocation of water and nutrients. Initially, this feeding results in reddish-purple discoloration of the leaves. In the lawn or turf stand, damage appears as patchy areas which turn yellow and dry to a straw-brown color as feeding progresses. At higher infestation levels, chinch bug feeding can result in severe thinning or death of the turfgrass stand.

Chinch bugs can be detected by removing a small section of turf and vigorously shaking it over a sheet of white paper to dislodge the insects. An alternative method for detecting chinch bugs involves removing both ends from a two pound metal coffee can, pressing it firmly into the ground in an area with a suspected chinch bug infestation and filling the can with water. Chinch bugs will quickly float to the surface where they can be identified and counted. If chinch bugs are estimated to exceed 20-25 per square foot (five coffee cans = one square foot) of turf and feeding damage is apparent, control measures are likely to be required.

The best defense against chinch bugs involves the use of sound cultural practices to keep the turf stand in optimal condition. Since these insects prefer turf areas high in thatch and organic debris, cultural and mowing practices which minimize thatch accumulation should discourage initial infestations and also may help reduce existing chinch bug problems. A second approach for deterring *B. occiduus* infestations involves planting chinch bug resistant turfgrasses. Research at the University of Nebraska has shown that the seeded buffalograss cultivars, Cody and Tatanka, and the vegetatively propagated selection, NE91-118, are moderately to highly resistant to *B. occiduus* feeding. It's important to remember, however, that very heavy chinch bug infestations can damage even these resistant turfgrasses.

Because the host range of *B. occiduus* includes several important field crop and weed species, areas where buffalograss or zoysiagrass border these potential grass hosts should be monitored regularly for chinch bug activity. Not only can these hosts serve as chinch bug reservoirs, they also can be seriously damaged if the primary host (buffalograss, zoysiagrass) is heavily damaged by chinch bug feeding.

Insecticide efficacy trials conducted at the University of Nebraska indicate that bifenthrin (Talstar) or carbaryl (Sevin), applied in three to five gallons of water per 1,000 square feet, should provide chinch bug control. Prior to treatment, the turf should be mowed to a height of 1 1/2 to 2 inches and the clippings removed. This will minimize interception of the insecticide by the turf canopy.

Immediately following application, irrigate the treated area with 1/8 inch of water to wash the insecticide off grass blades and down into plant crowns and thatch where chinch bugs are feeding. If a granular insecticide is applied, the turf should be irrigated with at least 0.25 inches of water to activate the insecticide. In areas where chinch bug numbers are very high, two insecticide applications may be required to achieve satisfactory control. Typically, the first treatment should be applied during mid-June and the second in late July.

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