

Black Grass Bug and Chinch Bug in Small Grains

by Juan Manuel Alvarez and Eric J. Dotseth

The black grass bug and the chinch bug are native insect species that have flourished following the introduction of new grass species into North America. Both belong to the insect order Hemiptera, a group characterized by beak-like mouthparts and leathery lower halves of the front wings. Crop damage associated with both species is primarily due to insect feeding on plant juices. All life stages (egg, nymph, adult) share the same host plant.

Black grass bug (*Labops* Burmeister & *Irbisia* Reuter) is the common name for a complex of 35 insect species that feeds on introduced wheatgrasses and native grass vegetation. Chinch bugs (*Blissus* Burmeister) are a group of insect species that feed on grains and turfgrasses.

Black grass bug

Diagnostic characters

Small, blackish gray insects with buff-white margins limited to the edges of the front wings and large, protruding eyes (fig. 1). Adults can be 1/4 inch long.

Host plants

Field crops (barley, wheat, rye, oats) and range grasses (such as wheatgrass, brome grass, orchardgrass, bluegrass)

Susceptible sites

Fields adjacent to pastures and deserts are highly susceptible, particularly those that are drought-stressed or dryland. Damage is usually heaviest at the field's margin and mostly confined there.

Physical damage

Physical signs of infestation include yellowish to whitish mottled markings on the leaf surface (fig. 2). Damage progresses from the leaf tip to its base.

Damage in wheatgrasses includes reduced leaf length, shorter seedhead height, and reductions in the number, weight, and percentage of seeds capable of germinating.

The influence of bug excrement on grass palatability needs further investigation.

Number of generations per year

One

Overwintering stage

Eggs in grass stems

Date of activity in small grains

Mid March-mid June

Life cycle

Black grass bug requires four weeks to mature. Adults deposit their eggs in grass stems in the fall.

Figure 1. Adult female black grass bug.

Photo by Eric J. Dotseth.



Figure 2. Grasses damaged by black grass bug.

Photo by Stan Gortsema.

Host plant resistance

Plant species that flower early or have a fast growth rate are least affected in terms of stem development. Examples of fast-growing wheatgrasses include beardless wheatgrass (*Agropyron inerme*) and streambank wheatgrass (*Agropyron riparium*).

Cultural control

- Remove egg-laying sites (grass stems) through haying, burning, or rotational grazing early in the spring or late in the summer.
- Intermix fields with native plants.

Biological control

Predatory arthropods like damsel bugs (elongate, oval insects with a narrow head and thick frontal legs) and spiders help control black grass bugs. Although these predators are common, damsel bugs are available commercially.

Chemical control

There is no defined threshold for black grass bug on grains. Once the flag leaf is damaged, the damage is irreversible. The registered insecticides for black grass bugs are the following:

- Zeta-cypermethrin (Mustang Max). Wheat only.
- Pyrethrin (Pyrenone Crop Spray)
- Methyl parathion (Methyl 4EC, Declare)

Chinch bug

Diagnostic characters

A white band traverses the body of the nymph. Adults have white wings with a median black spot (fig. 3). Adults can be 1/6 inch long.

Host plants

Field crops (sorghum, barley, wheat, corn, oats) and turf-grasses (such as foxtail, fescue, bentgrass, brome grass, bluegrass)

Susceptible sites

Fields adjacent to overwintering sites in pastures and prairies are highly susceptible, particularly those with poor stands of wheat or other grains. Damage progresses beyond the field's edge.

Physical damage

Physical signs of infestation include yellowing and browning of leaves (fig. 4). Damage progresses from the lower leaves to the upper leaves. Insect saliva impedes water flow in the plants, resulting in wilting and reduced growth.

Number of generations per year

Two or three

Overwintering stage

Adults in bunch grasses or other sheltered areas

Date of activity in small grains

April

Life cycle

Adults migrate in April from bunch grasses to suitable springtime hosts, such as wheat, barley, oats, or rye. These grains serve as host plants for the first generation of chinch bugs, which migrates to more succulent plant hosts in mid-June to July.

Host plant resistance

There has been limited success in developing resistant small grains, except sorghum and corn.

Cultural control

- Keep crop plants healthy with proper irrigation and fertilization.
- Plant seed early.
- Rotate or intermix crops with leguminous plants.

Biological control

Beauveria bassiana (Balsamo), a white fungus that covers susceptible insects, is available as a pesticide. Maintaining moist conditions favors fungal development.

The wasp *Eumicrosoma beneficum* Gahan lays its eggs inside chinch bug eggs. Unnecessary insecticide use reduces populations of this tiny wasp and other natural enemies.

The authors—Juan Manuel Alvarez, research entomologist, UI Aberdeen Research & Extension Center, and **Eric J. Dotseth**, entomology support scientist, UI Aberdeen Research & Extension Center



Figure 3. Different life stages of chinch bugs. From right to left: egg, early instar nymph, early instar nymph, final instar nymph, adult, short-winged adult.

Photo by Robert J. Black.



Figure 4. Grasses damaged by chinch bug. The grass along the right half of the central plot shows wilting damage caused by chinch bug feeding.

Photo by Robert J. Black.

Chemical control

Foliar treatments are justified when two or more chinch bugs are found on 20% of seedling plants less than 6 inches tall. On taller plants, apply insecticide when chinch bugs infest 75% of the plants. The registered insecticides for chinch bugs are the following:

- Zeta-cypermethrin (Mustang Max). Wheat only.
- Pyrethrin (Pyrenone Crop Spray, Diatect II Multipurpose Insect Control, Pyrellin EC)
- Methyl parathion (Methyl 4EC)
- Gamma-cyhalothrin (Proaxis). Wheat only.
- Lambda-cyhalothrin (Warrior + Zeon, Warrior T + Zeon). Wheat only.
- *Beauveria bassiana* GHA (Mycotrol O)

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI publication do not substitute for instructions on the label. Due to constantly changing pesticide laws and labels, some pesticides may have been cancelled or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless both the pest and the plant, animal, or other application site are specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock. Trade names are used to simplify the information; no endorsement or discrimination is intended.



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