

at a glance

- Billbugs are the most common grub insects in Idaho lawns.
- Billbug larvae are the damaging life stage.
- Symptoms include brown patches, thinning, and areas of dead grass.
- Diagnose by looking for feeding damage on leaf bases and finding larvae.
- Certain cultivars of fescue and perennial ryegrass are resistant to billbugs.
- Effective insecticidal control of billbugs requires application before damage is visible.
- The best insecticides for controlling billbugs are systemic.

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Controlling Billbug Grubs in Lawns

Introduction

The term “grub” is often used to designate the larvae (immature stage) of an array of lawn-damaging insects. In Idaho, the most common and destructive is the billbug. Four species of billbugs occur in Idaho: bluegrass, Rocky Mountain, Phoenix, and Hunting. All are in the genus *Sphenophorus*. Although slightly dissimilar in size, color, and life cycle, these four species can be managed as the same insect.

Billbug adults are gray, brown, or black with a hard shell and curved snout (figure 1). Larvae are white with a brown head, curved, legless, and the size and shape of a large grain of rice (figure 2).

Billbug Life Cycle

Billbugs develop through a single annual generation. They overwinter in the soil mostly as adults and emerge from the soil when spring temperatures warm to about 60°F. In Idaho’s Treasure Valley, Snake River Canyon, and Lewiston area, billbug adults can be found crawling on sidewalks from mid-May to mid-June. In colder areas, the timing is delayed by a week or more.

After mating, adult females deposit eggs inside grass stems. Within a few days, larvae hatch and begin feeding. Larvae are abundant from mid-June to late August, and if present in large enough numbers, cause severe damage to lawns. Larvae pupate in the soil and emerge as adults during July. These adults overwinter to repeat the life cycle in spring. Some billbug species get a head start on the next generation by laying eggs in the fall and overwintering as larvae.



Figure 1. Billbug adult. Photograph by Tom Salaiz. Used by permission.



Figure 2. Billbug larva. Photograph by Doug Richmond. Used by permission.



Figure 3. Backyard lawn with billbug damage. Photo by Tom Salaiz. Used by permission.

Symptoms of Feeding Damage

Billbug grub damage looks very similar to drought stress, and it is easy to conclude that a grub-damaged lawn is simply not getting enough water (figure 3). Specific symptoms are the development of brown or tan discolored areas, thinning of the grass, and, occasionally, the death of large patches of lawn. Damage is usually more severe at lawn edges next to roads, driveways, and sidewalks.

Diagnosis

Use the “tug test” to diagnose billbug damage. Grasp a handful of damaged grass and pull it up. If the grass comes away easily with no attached roots, the bases of the stems are chewed, and frass (looks like wet sawdust) is present around the stem bases, billbugs could be the cause. The diagnosis can be confirmed in early July by digging up the top 1 or 2 inches of soil and sifting through it to find actual larvae.

Control and Treatment

Nonchemical controls

Breeding has produced varieties of tall fescue, fine fescue, and perennial ryegrass that are resistant to feeding by billbug larvae. Resistant cultivars are called “endophytic”

because they contain a fungus that produces a compound that is toxic to the grubs. Use of an endophytic grass cultivar reduces or eliminates the need for chemical control.

There are also partially effective nonchemical control options that employ applications of nematodes (such as *Steinernema carpocapsae*, *Steinernema feltiae*, or *Heterorhabditis bacteriophora*) or a fungal organism (*Beauveria bassiana*) that attacks and kills the billbug larvae. To be effective, these products require exacting application procedures. Follow product instructions carefully.

Chemical controls

There are two different approaches to controlling billbugs with insecticides. One strategy is to kill the adults using a “contact” insecticide, meaning the adult beetle must eat treated plants or the insecticide must get on the beetle during application. This strategy depends on the application’s coinciding with adult activity prior to egg-laying and on the use of a chemical that will remain active long enough to kill adult beetles that move into the yard from surrounding areas. These two conditions can be difficult to meet, making contact spray strategies marginally effective.

The more effective strategy is to treat the lawn with a “systemic” insecticide before the adults lay eggs. “Systemic” means the roots take up the insecticide and distribute it throughout the entire plant. This process “arms” the plant so it can protect itself from the feeding of the newly hatched larvae. Although timing is less critical with a systemic insecticide, these chemicals work best when applied long before damage is visible. Apply systemic insecticides in late May or early June to prevent damage from billbugs.

Choosing an actual product to control lawn grubs can be confusing because of the large number of contact and systemic compounds sold. For systemic control, choose a product that lists one of the following active ingredients: chlorantraniliprole, clothianidan, imidacloprid, or thiamethoxam. Each product will have unique label instructions. Follow them carefully to ensure safety and success.

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. Pesticide laws and labels change frequently and may have changed since this publication was written. Some pesticides may have been withdrawn or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless the specific plant, animal, or other application site is 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—To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

Groundwater—To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.

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