

Turfgrass Pest Management

The management of turfgrass insect pests and diseases is most effective when an integrative approach is taken. Oftentimes, cultural practices will help grasses to resist and recover from pest damage. Resistant turfgrass varieties may also be available.

News/What to Watch For

Two turfgrass diseases seen most often during the spring include pink and gray snow mold. Insect pests in the spring of the year include billbugs. These destructive turfgrass pests are the focus of this issue of the Turfgrass IPM Advisory.

Focus On: Snow Mold



Every year after the snow melts the damage caused by snow mold fungi appears. There are two fungi that cause snow mold. Gray snow mold is caused by *Typhula* spp. and pink snow mold is caused by *Microdochium nivale*. Usually they are circular patches of dead and matted grass blades. Initially fine strands of white to gray mycelium (fungal growth) are seen with gray snow mold. White mycelium, on which pink or salmon colored spores are formed, occur with pink snow mold.

Gray snow mold. *Typhula* spp. are active at temperatures around 35°F and high moisture. When active, *Typhula* frequently kills only the leaf blade and the plants will grow new leaves in the spring. All turfgrass species are susceptible to *Typhula*, but severity of the disease can vary between species.

Management. Tall, succulent grass blades covered by snow are very susceptible to winter injury and infection with snow mold, so avoid heavy fertilization in the fall and mow tall grass blades shorter as winter begins. Removing leaves from lawns and if possible preventing compaction of snow can reduce disease incidence and severity. Fungicide applications are not recommended for homeowners as lawns normally recover on their own. For golf courses, fungicide applications are most useful as a preventative measure in the fall. A combination of contact and systemic fungicides in the fall, before leaf growth stops, works best. The contact fungicide will prevent

sclerotia (small dark brown round structures) germination and the systemic fungicide protects the grass blades from infection. Should a thaw occur in the winter, an additional fungicide application may provide increased protection against the disease. Fungicides with active ingredients such as thiophanate-methyl (Cavalier®, Peregrine®, Fungo Flo®), fludioxanil (Medallion®), iprodione (Raven®, Nevado®, Chipco 26019 FLO®) are effective.

Pink snow mold.

Microdochium nivale grows well at a larger temperature range than *Typhula*. In addition, the fungus does not need snow cover to cause disease. It is active at temperatures ranging from 32°F to 46°F during wet conditions (snow cover, rain or heavy fog). Poor drainage can contribute to the severity of the disease. It is most severe in turf with a thick thatch layer. During unfavorable times *Microdochium* survives in plants and plant debris including thatch. *Poa annua* and *Agrostis* spp. are highly susceptible but *Microdochium* can be damaging to other species as well.

Management. Control of pink snow mold is similar to gray snow mold. Mowing should continue in late fall to keep grass short before dormancy. Fungicide applications are not recommended for home owners as lawns usually recover on their own. For golf courses, fungicide applications are most useful as a preventative measure in the fall. Additional fungicide applications during thaws in winter and early spring can provide increased protection against pink snow mold. Products containing strobilurins (Insignia®, Heritage®, Compass®), fludioxanil (Medallion®), iprodione (Raven®, Nevado®), or thiophanate-methyl (Cavalier®, Fungo Flo®) are effective. Resistance of pink snow mold to fungicides with active ingredients in the dicarboxamide and benzimidazole groups has been seen in the U.S. Alternating between fungicides with different modes of action can reduce the risk of resistance development.

-Claudia Nishwitz, Ph.D.

Focus On: Billbugs (Multiple Species)



Photo by Ricardo Ramirez

Billbugs are destructive insect pests of turfgrasses in Utah. Billbug damage is often misdiagnosed because it resembles drought-stress or other disease and insect damage. At least three billbug species occur in Utah. The Denver (aka Rocky Mountain) and bluegrass billbug are common in northern Utah, while the hunting billbug occurs in central and southwestern Utah. Billbugs feed on turfgrass stems, crowns, and roots causing significant damage to grasses if left unchecked. Be aware that adult billbug activity has already been detected in Utah this year and samples have already been submitted from Salt Lake County.

Identification. Billbugs are weevils or snout beetles. The three common billbug species and the Phoenix billbug, a species detected in the Moab area, can be identified based on size, turfgrass host (e.g., warm-season turfgrass including bermudagrass and zoysiagrass), and characteristics on the hardened forewing and thorax (A-Hunting, B-Phoenix, C-Denver, D-Bluegrass).

Billbug larvae are small (reaching up to 0.5 inches long when full grown) and legless. They have a brown head and white/cream colored body. Not to be confused with white grubs that have legs, are grey in color, and C-shaped when at rest.

Damage. Billbug larvae are the damaging life stage. Although billbug feeding occurs from spring to summer, the greatest turfgrass injury is apparent from mid-June through late-July. Young larvae hollow out stems causing discoloration and give the turfgrass a drought stressed appearance. Blades of grass can be easily pulled away in tufts when turf has billbug infestations. Another indication of billbug feeding is the presence of sawdust-like frass (insect excrement) in the thatch layer.



Billbug Larva

<http://entomology.unl.edu/turfent/pics/billgrub.jpg>

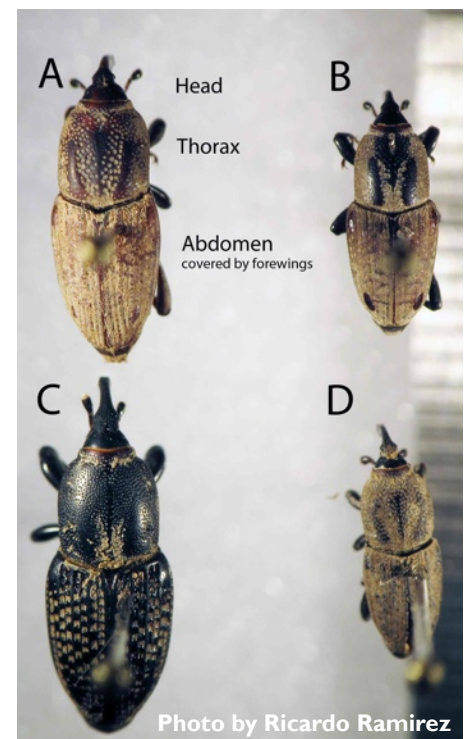


Photo by Ricardo Ramirez

Billbugs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bluegrass and Hunting billbugs	Adults			Larvae			Adults					
					Eggs		Pupae					
Denver billbug	Larvae			Pupae			Adults					
					Eggs		Larvae					

Billbug life histories.

Life history. Billbugs have one generation per year and overwinter as adult beetles. When temperatures warm up the adults migrate from sheltered sites to turfgrass. Adult activity, mating and egg-laying begin in early spring. Eggs are deposited in turfgrass and newly emerged larvae will feed on blades of grass near the crown and continue feeding within the stems. Throughout spring and summer the larvae make their way below the thatch layer and feed on roots.

Monitoring. In early spring, scout for adults moving to turfgrass. Adult billbugs rarely fly and will be seen walking. Monitor affected turf areas for larvae by gently pulling turf- if blades of grass break easily or stems are visibly hollow consider soil sampling. Using a hand trowel, cut a 6x6 inch square to examine the upper 2 inches of root zone in at least 4 evenly spaced areas. Gently separate soil from roots keeping an eye out for billbug larvae. Treatment should be considered for billbugs in turfgrass when an average of 1 adult/ft² or 10-25 larvae/ft² with visible crown damage is present.

Management Practices. Properly managed turfgrasses are more likely to resist and recover from billbug attack. Avoid over irrigation and fertilization that increase turfgrass susceptibility to insect attack. Also consider resistant turfgrass varieties, in particular, endophyte-enhanced perennial ryegrasses and fescues that show some resistance to billbugs.

The systemic insecticides available for billbug treatment (e.g., Merit® and Acelepryn®) have a long residual life and may be applied when overwintering adults become active. Contact insecticides are also available (Dylox®, Malathion®, Sevin®, Mach 2®, Concern®, Pyganic®, and Surround®) and may be applied to target young larvae. There are also bio-pesticide options including beneficial nematode species *Steinernema carpocapsae* and *Heterorhabditis bacteriophora* (Biosafe®, Biovector®, Exhibit®), and *Beauveria bassiana*, a beneficial fungus (Naturalis®). For biological products, irrigation is needed before and after application.

-Ricardo Ramirez, Ph.D.

Recommended Cultural Practices for Spring

Mowing

As a rule, regular mowing height should be 2 – 3 ½ inches to promote root growth and stress tolerance of turfgrasses in the spring. Turfgrass will be growing very quickly in the spring, so mow regularly to avoid removing more than 1/3 of the desired leaf length at any one time. Clippings should also be recycled back into the lawn as a source of nutrients and organic matter. Consider raking turfgrass areas to remove any residual clippings and encourage upright growth of the leaves after a long winter under snow cover.

Seeding & Over-seeding

Spring also provides the opportunity to seed new turfgrass areas or to over-seed areas that may have been damaged over the winter. The cool temperatures will promote germination and growth of cool season turf species such as Kentucky bluegrass, tall and fine fescues, and perennial ryegrass. Be aware, that there will be also be annual weed pressure at this time of year. Choose pest resistant or recommended turfgrass cultivars when possible.

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Fertilization

Nitrogen is of primary concern in turfgrass fertilization. In the spring, apply 1 pound of slow-release nitrogen (N) fertilizer per one thousand square feet of lawn area. This will help the grass to recover from winter damage and any stress that may have occurred. It will also be especially helpful for areas that have suffered damage due to diseases such as pink and gray snow mold. In a slow-release form, N fertilizer will provide a consistent source of nutrients as the growing season begins.

Aeration/Cultivation

Spring is also an ideal time to aerate your lawn if the soil is compacted or there is a significant layer of thatch beneath the grass. If the thatch underneath your lawn is more than ½ inch thick, consider core aeration to stimulate the natural decomposition process. Likewise, if you have a very fine-textured soil, compaction may occur, particularly in high traffic areas. Core aeration will help to alleviate this compaction.

Relevant USU Extension Fact Sheets

Turfgrass Management

http://extension.usu.edu/files/publications/publication/HG_517.pdf

http://extension.usu.edu/files/publications/publication/HG_Grass_2004_01.pdf

Diseases

<http://extension.usu.edu/files/publications/factsheet/snowmold-turf08.pdf>

Insects

<http://extension.usu.edu/files/publications/factsheet/billbug07.pdf>

***Precautionary Statement:** All pesticides have benefits and risks, however, following the label instructions will minimize the risk and maximize the benefit. Pay attention to the directions for use and follow precautionary statements. Pesticide labels are considered legal documents containing instructions and limitations. Inconsistent use of the product or disregarding the label is a violation of both federal and state laws. The pesticide applicator is legally responsible for proper use.

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