



Turfgrass Pest Management

An integrative approach to the management of turfgrass insect pests and diseases is most effective. Often, prevention is the best strategy. Cultural practices can help grasses to resist and recover from pest damage.

News/What to Watch For

We have had an unusually warm and dry summer. As a result, grasses are under more drought stress and may be entering dormancy. Necrotic ring spot, billbugs, and white grubs may be active at this time of year and their damage compounded by the dry conditions.

Focus On: Turfgrass and Tree Competition

In the landscape, trees and turf are in direct competition for water, nutrients and light and this competition can hinder growth and health as well as pre-dispose the landscape to weed, disease, or insect encroachment and damage. At times, what appears to be a disease or insect problem is actually the result of this competition.

Water and soil moisture are required by both trees and turf, but in different ways. While turf requires relatively shallow and frequent irrigation, trees prefer less frequent and deeper irrigation. Typical turf irrigation schedules can lead to poor tree root health and disease, particularly in poorly drained soils, by encouraging surface root formation.

At the beginning of the growing season, soil moisture is not typically limiting and the competition between trees and turf is minimal. Later in the season when trees require moisture to support caliper growth, however, the competition may become problematic.

When sharing soil space with trees, turf will take up the majority of any fertilizer application since turf roots respond more quickly to soil fertility changes. When heavier fertilizer applications are used, as in high-maintenance turf areas, trees do benefit from the additional fertilizer, but nutrients other than those found in standard turf fertilizers may still be lacking. Excessive fertilization can also predispose trees to other pests such as leaf-feeding insects that prefer the lush new leaves resulting from the added nutrients. This additional vegetative growth may also come at the expense of the trees' defense reserves and nutrient storage.

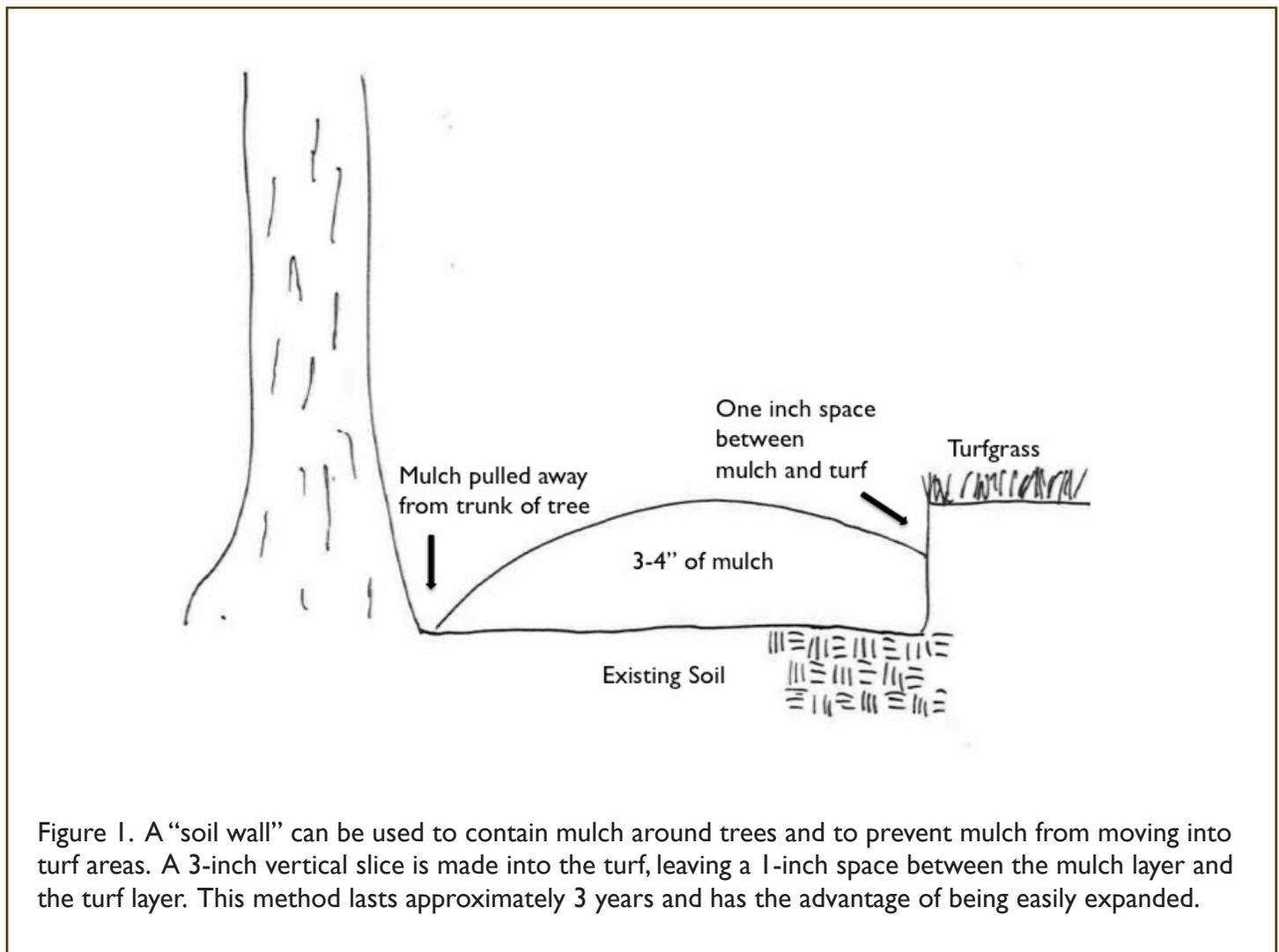
All plants need light to grow and trees and turf are not exceptions. When grown together, trees create the shade that is a major stress factor for turf. Shaded turf has reduced vigor and density, decreased nutrient reserves, increased susceptibility to pests, and reduced tolerance of other stresses such as drought, heat, cold and traffic.

Turf and tree success can be maximized through good planning and an understanding of the basic biological differences between the plants. Other recommendations include:

- Using well-drained soils to replace compacted clay soils.
- Using shade-tolerant ground covers around trees in place of turf.
- Educating grounds maintenance crews about proper use of mowers and trimmers to minimize tree wounds.
- Grouping trees together in shared, mulched beds.
- Experimenting with different mulches to find ones that are compatible with landscape trees and use of the area.

There are many advantages to mulching around trees including increased fine root density of trees, weed control, and maintenance of soil moisture. Increase your use of mulches around trees to improve tree health and minimize tree and turf competition.

-Adapted from University of Minnesota, Sustainable Urban Landscape Information Series, 2006





Rust (*Puccinia* sp.)

Favorable Conditions: moderately warm air temperatures (70-75°F) and extended periods of leaf wetness, may be compounded by nitrogen deficient turf.

All turfgrasses are susceptible to rust. The disease creates irregular patches of weak turf covered with rust-colored growth (spores). Rust becomes a problem when turf is growing slowly and regular mowing is not removing leaf tissue regularly. With sufficient time between mowings, the fungus has sufficient time to produce spores in infected tissue. Infection occurs most frequently when days are dry and windy followed by heavy irrigation at night. **Rust has been identified in Utah County this summer.**

Cultural Practices

Maintain turfgrass health by following proper irrigation and fertilization practices. Mow regularly and remove clippings if turf is infected. Irrigate early in the morning so that leaves dry quickly as the day warms.

Resistant Turfgrass Varieties

Kentucky bluegrass: Hampton, Juliet, Armada, Shiraz, Award, Moonlight SLT, NuGlade, Nu Destiny.
Perennial ryegrass: Palmer V, Amazing GS, Apple GL, Protege GLR, Kokomo II.

Fungicides should not be needed if proper cultural practices are followed.



Necrotic Ring Spot (*Ophiosphaerella korrae*)

Favorable Conditions: cool (40-60°F) and moist conditions, may be compounded by drought and compaction.

Necrotic ring spot (NRS) primarily infects Kentucky bluegrass, though it may also be seen in annual bluegrass and tall fescue. The disease damages the roots and crowns of the grass plants and the first symptoms are small, light green patches of turf that get larger over time. Frequently the turf will survive the infection and re-grow in the center of the patches, giving them a ring-like (“frog eye”) appearance. **NRS has been identified in Cache, Davis, Salt Lake, Utah, and Washington Counties this summer.**

Cultural Practices

Maintain the highest mowing height possible and prevent drought stress. Core aerate once annually to reduce thatch and avoid over application of N fertilizers.

Resistant Turfgrass Varieties

Kentucky bluegrass: America, Midnight, SR2100.

*Fungicide Options**

Azoxystrobin (Heritage), myclobutanil (Eagle), propiconazole (Banner MAXX, Propiconazole Pro,



Sod Webworm (*multiple species*)

Life Cycle: two generations per year for the most part, though one to four are possible depending on species.

Sod webworm (SW) damage is inflicted by the larvae of the moths which feed on turfgrass blades. General thinning may be followed by brown patches in the area. Heavy infestations can kill grass, with peak damage occurring in summer and early fall.

Cultural Practices

Overly irrigating and/or fertilizing will predispose the grass to insect outbreaks.

Resistant Turfgrass Varieties

Endophyte enhanced perennial ryegrasses and fescues show some resistance to SW.

*Insecticidal Products**

Spinosad (Conserve), *Bacillus thuringiensis* (Bt, Deliver), *Steinernema carpocapsae* (Biosafe, Biovector, Exhibit), azadirachtin (Ornazin).



White Grubs (*multiple species*)

Life Cycle: Masked chafers have one generation per year, May/June beetles have one generation every three years.

White grubs (WG) are the larvae of one of several different beetles in Utah. Damage occurs when the roots of the grass plant are chewed off just below the soil surface or thatch layer. Grass can feel spongy and will easily pull away from the soil surface.

Cultural Practices

Overly irrigating and/or fertilizing will make the lawn more attractive to white grub adults.

Resistant Turfgrass Varieties

The fine and tall fescues are less susceptible to WG damage than Kentucky bluegrass.

*Insecticidal Products**

Imidacloprid (Merit), *Bacillus thuringiensis* (Bt, Deliver), *Steinernema carpocapsae* (Biosafe, Biovector, Exhibit), azadirachtin (Ornazin).

Billbug Update: Detection and Curative Control

Billbugs (*Sphenophorus* spp.) are common pests of turfgrass and they are still active this summer. Three common billbug species are found in Utah, including the bluegrass billbug, the Denver (or Rocky Mountain) billbug, and the hunting billbug. Recent monitoring efforts in Cache County have identified all three of these species, with bluegrass and hunting billbug being the most abundant. Trap collection in the area showed that adult activity began in early May and peaked in late June. Eggs were also found in early June and larvae were apparent by mid-June. In one location, upwards of 20 billbug larvae per square foot were found. Unfortunately, sampling for billbug larvae has revealed that young and older stage larvae are still present at this time.



-Photo by Lori Spears

Areas affected by billbug larvae appear as patches of dead turf and pull easily from the soil.

Adult billbugs feed on turfgrass stems, but billbug larvae cause most of the damage to turf. More mature larvae emerge from hollowed out turf stems to feed on crowns and roots. Billbug damage is often misdiagnosed as drought stress because infested areas appear as patches of water-stressed turf, so the first step in detecting whether turf damage is caused by billbugs is to conduct a “tug test”. Turf infested with billbug larvae will pull up easily with a gentle tug and the soil surface will be exposed. While this test may expose the young larvae that feed within a stem, keep in mind that these larvae can be quite small (1/16 to 1/4 inch in length). If larvae are not immediately detected, the “tug test” may reveal the presence of sawdust-like insect excrement known as frass. This is a good indication that larvae have been feeding in the area. If the turf pulls up easily, but larvae or frass are not detected, continue searching below ground. Dig a 4-inch diameter circle 4 inches deep and search through the exposed turf and soil.

Billbug management is most effective when preventive treatments are applied early in the spring (see 2012 spring edition Turf Advisory), but if larvae are a problem in mid to late summer, a curative control method may be required. The available insecticides are most effective when larvae are young because larvae become less susceptible to these treatments as they age. One highly recommended curative option is the active ingredient clothianidin (Arena or Aloft). Although there are several products for insect turf management available, other active ingredients used as a curative treatment come with mixed results. Carbaryl (Sevin) and trichlorfon (Dylox), for example, tend to break down quickly in the high pH soils of Utah. Also, be aware that some effective *preventive* products (Acelepryn) do not appear to provide effective *curative* turf insect management.

-Ricardo Ramirez, USU Extension Entomology Specialist and Lori Spears, USU Research Technician



-Photo by Lori Spears

Billbug larvae are small (~1/16 to 1/4 inch), legless, and have a cream colored body and a brown head.



-Photo by Lori Spears

Gently pulling up on damaged turf can reveal billbug larvae in the soil.

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/necrotic-ring-spot08.pdf>

Insects

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

<http://extension.usu.edu/files/publications/factsheet/sod-webworm07.pdf>

<http://extension.usu.edu/files/publications/factsheet/white-grub07.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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click here [<http://www.utahpests.usu.edu/ipm/>] for archived advisories.

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