# Turfgrass IPM Advisory

Seasonal Turfgrass Pest Update, Utah State University Extension, Fall 2012

## Turfgrass Pest Management

An integrative approach to the management of turfgrass insect pests and diseases is most effective. Often, prevention is the best strategy. Management 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, and several diseases and insect pests have been active as a result. Necrotic ring spot and summer patch have been found, along with sod webworm, chinch bugs, and Banks grass mites.

## Focus On: Chinch Bugs

The Utah Plant Pest Diagnostic Lab received numerous turfgrass samples this summer including chinch bugs, the first the lab has seen of this pest in over 6 years (**Cache and Salt Lake Counties**). Chinch bugs may be responsible for undiagnosed turf damage this year, and may be a continuing issue next year.

In general, chinch bugs rarely reach damaging numbers, but in severe heat and drought, they can become a problem in turfgrass. Periods of drought and heat, coupled with under-irrigation, direct sunlight, and thick thatch can cause chinch bug numbers to soar from mid-summer into early fall.

Typical damage is patchy dieback that forms larger patches and in severe cases, complete lawn loss (Fig.1). Chinch bugs kill turf through mechanical damage to grass stems and by injecting saliva during feeding (piercing and sucking), which inhibits the transport of water within the plant. Feeding damage can often mimic drought stress; however, chinch bug damage will not respond to increased watering as a drought-affected lawn would. Feeding damage is often worse on plants that are already affected by drought.

Figure 1. Chinch bug damage to turf. Image courtesy of Katie Wagner, Utah State University.

The black and white chinch bug adults are very tiny, about 1/6 of an inch, and are not readily seen without close inspection. The nymphs are very small and bright orange with a pale strip across their backs (Fig. 2). As they increase in size, wing pads develop and the orange coloration begins to disappear. By the time nymphs reach their final developmental stage, they are mostly the same black color as the adults. Note that some individuals and populations of chinch bugs have small, or reduced wings as adults. Adult chinch bugs look similar to, and can easily be mistaken for, beneficial insects like the big eyed bug and the minute pirate bug (Fig. 3).

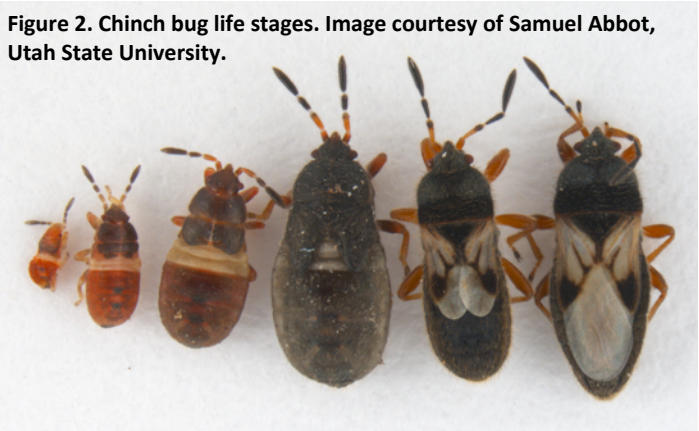

**Figure 2. Chinch bug life stages. Image courtesy of Samuel Abbot, Utah State University.**

Adults overwinter in the turf thatch, along driveways, in foundation cracks, and in other hidden areas. They become active in the spring when temperatures start to climb above 50°F. Females lay eggs in turfgrass blades or in the thatch layer. One female can lay 300 eggs in her adult life, which can last several weeks. Egg hatch can take 20-30 days if temperatures are below 70°F, but less than a week when temps are over 80°F. The second generation will begin in July-August and numbers of chinch bugs can reach up to 300 per square foot in areas where conditions are ideal. Because eggs are laid continuously, almost every life stage can be seen at any time in the turf throughout the summer and fall.

Chinch bugs can be monitored by visually inspecting grass blades at the soil level and looking for all life stages. Because they are so small, a hand lens or magnifying glass may be needed to see them. On hot days, adult chinch bugs are often seen scurrying across concrete or brick surfaces or foundations. A monitoring trap can be made from a 6-inch diameter coffee can or similar object with both ends removed to create a metal cylinder. Push the can into the soil approximately 2 to 3 inches, enclosing the turf. Fill the can about ¾ full of water. Poke or stir the turf and thatch that is under water. Keep a constant depth of water in the can for about 10 minutes by pouring in extra water to replace the lost/leaching water. Count the number of chinch bugs that float to the surface. Treatment threshold is about 20-25 bugs per square foot, or about 4-5 per can. If numbers are below this threshold, regular irrigation and fertilization can mitigate chinch bug damage.

In Utah, chinch bugs seldom need insecticidal treatment unless the population has exceeded threshold levels and damage is evident. Effective insecticides include bifenthrin and other pyrethroids. For best results apply an insecticide in the spring during adult emergence from overwintering sites. Killing emerging bugs will limit the number of eggs laid in the first generation and help reduce the population size throughout the summer.

**Figure 3. Big-eyed bug adult. Image courtesy of Samuel Abbot,**

Preventive management practices include proper irrigation, regular fertilization, reducing thatch via power raking and core aeration, avoiding the use of broad-spectrum insecticides that can reduce beneficial insects, and overseeding or replanting a lawn using endophyte-enhanced grass seed (see Spring 2012 Turfgrass IPM Advisory) . Endophyte-enhanced grasses have been inoculated with a beneficial fungus that grows within the grass, making it more resistant to certain insects and diseases through the production of alkaloid compounds. Endophytic perennial ryegrass is especially resistant to chinch bug feeding. If you suspect chinch bug, collect samples for identification. They could easily be confused with look-alike insects that are beneficial, including the big-eyed bug and minute pirate bug.

-Ryan Davis, USU Arthropod Diagnostician

## 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. **SW has been identified in Salt Lake County this summer/fall.**

*Cultural Practices*

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

*Resistant Turfgrass Varieties*

Endophtyte 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).

Image courtesy of Samuel Abbot, Utah State University.

## Banks Grass Mite (*Oligonychus pratensis*)

*Life Cycle: Banks grass mites have multiple generations per year. One generation may be completed in as few as 10 days during summer conditions.*

Banks grass mites (BGM) are not insects, but are closely related to ticks and spiders. Damage occurs when the mites pierce the stems of grass plants and suck out the liquid contents. Yellow or white spotting and/or silvering or purpling of leaves may indicate BGM presence. **BGM has been identified in Cache County this summer/fall.**

*Cultural Practices*

All management programs should focus on getting adequate water to the site, as BGM primarily affects drought-stressed turf.

*Resistant Turfgrass Varieties*

Zoysiagrass is resistant to BGM damage, but resistant cool-season turfgrass cultivars are unknown.

*Insecticidal Products**

Dicofol (Kelthane), bifenthrin (Talstar), sulfur.


## Summer Patch (*Magnaporthe poae*)

*Favorable Conditions: moderately warm air temperatures (60-70°F) and high soil pH. Excessive N fertilization in the spring.*

Summer patch (SP) damage appears as circular patches or rings from 6 inches to 3 feet in diameter. Patches are initially off-color and prone to wilt, eventually turning yellow or straw-brown. Outer edges of the patch are usually orange or bronze. Affected plants have rotten roots, rhizomes, and crowns and pull easily from the turf. **SP has been identified in Salt Lake County this summer/fall.**

*Cultural Practices*

Fertilization with sulfur-coated products or ammonium sulfate can help moderate pH and minimize SP development. Practice deep and infrequent irrigation. Alleviate thatch buildup and compaction.

*Resistant Turfgrass Varieties*

Kentucky bluegrass: Midnight, Everglade, Everest, NuDestiny, Granite Seed Co. Corsair, America, Blue Velvet.

*Fungicide Options**

Azoxystrobin (Heritage), myclobutanil (Eagle), propiconazole (Banner MAXX, Propiconazole Pro), and azoxystrobin + propiconazole (Headway).

## 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 Salt Lake, Davis, Duchesne, and Beaver Counties this summer/fall.**

*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: Midnight, Award, NuDestiny, Blue Velvet, America, Jump Start, Everglade, Everest, Ginny II, Langara.

*Fungicide Options**

Azoxystrobin (Heritage), myclobutanil (Eagle), propiconazole (Banner MAXX, Propiconazole Pro, Fertilome Liquid Systemic Fungicide), and azoxystrobin + propiconazole (Headway).

## Turfgrass Fertilization

The amount of fertilizer that turfgrasses require depends on the type of turf being grown, soil conditions, previous fertilizer applications and aesthetic expectations. A first step toward making appropriate fertilizer applications is having the soil at the site tested. County Extension Offices (https://extension.usu.edu/htm/counties) have soil testing kits available and can offer guidance on testing procedures. A comprehensive soil test is desirable every 2-3 years, or more often if problems arise. Your soil test report will recommend appropriate fertilizers and rates, with nitrogen (N) recommended most often.

Table 1. Annual turfgrass fertilization recommendations.

| General Requirements* | Recommendation |
|---|---|
| Low Maintenance | 0-1 pound of N/1000 square feet |
| Intermediate Maintenance | 2-3 pounds of N/1000 square feet |
| High Maintenance | 4-6 pounds of N/1000 square feet |

*Low Maintenance-occasional foot traffic, little to no child's play, Intermediate Maintenance-regular child's play and/or occasional garden party, High Maintenance-heavy traffic and play.

Once soil has been tested and maintenance level has been determined, an appropriate fertilizer blend may be chosen. Fortunately, all fertilizers are required to prominently display a three number formula on their packages. These numbers are the percentages (by weight) of N, phosphate ($P_2O_5$) and potash ($K_2O$). For example, a lawn fertilizer with an analysis of 25-5-10 contains 25% N, 5% phosphate and 10% potash. This means a 50 lb. bag of this particular product contains 12 pounds of N, 2½ lbs. of phosphate, and 5 lbs. of potash. All three nutrients are involved in many physiological processes of plants. The rest of the weight of the fertilizer is made up of other elements such as carbon, hydrogen, and oxygen within these compounds.

The source of N within different fertilizer blends varies, with the most common sources being ammonium sulfate [$(NH_4)_2SO_4$] and urea [$(NH_2)_2CO$]. These two forms are released relatively quickly, lasting 4 to 6 weeks, but make N immediately available to plants. Some other sources include slow release forms of N – where N is released over a period of 8-12 weeks once applied. Currently the vast majority of these fertilizers are coated urea products.

Slow release forms of N fertilizer reduce leaching of nutrients from the soil, and can also reduce the amount of mowing over time because quick flushes of growth do not occur. Slow release N is especially important to use if applications are needed during the hottest times of the year. Organic sources of N are also available including products made from plant and animal sources. A common animal source is fish meal. Plant sources include cotton meal and soy products.

Mid-summer applications of fertilizer are generally discouraged except for highly maintained turf, and then only in smaller amounts. This is primarily because of the slowed growth rates of cool-season grasses such as Kentucky bluegrass and fescues during the hottest part of the growing season. In fact, over-fertilization at this time promotes weed growth over turf growth and can cause grass to become drought stressed due to over-stimulation of top growth. If fertilization is undertaken in mid-summer, a slow release fertilizer is the best choice.

## 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

http://extension.usu.edu/files/publications/publication/Horticulture_Turfgrass_2012-02pr.pdf

### Diseases

http://extension.usu.edu/files/publications/factsheet/necrotic-ring-spot08.pdf

### Insects

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

Turfgrass IPM Advisory
is published seasonally by Utah State University Extension.

Editor: Kelly Kopp, kelly.kopp@usu.edu
click here [http://www.utahpests.usu.edu/ipm/] for archived advisories.