

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

Armyworms, sod webworms, cutworms, white grubs, and billbugs are active at this time of the year. The diseases seen most often this summer and fall have, ironically, been the snow molds and take-all patch.

Insect and Disease Activity and Information

Take-All Patch (*Gaeumannomyces graminis*)



Favorable Conditions: cool (40-60°F) and moist conditions, young bentgrass turf areas.

Take-all patch (TA) primarily infects the bentgrasses and may be seen on golf course greens and fairways. The disease looks very similar to necrotic ring spot and specimens should be examined by a qualified diagnostician if positive identification is necessary. Initial damage appears as reddish-brown or yellow

areas of dead grass. The center of the patch is often invaded by annual bluegrass or other weeds. Affected areas may enlarge as much as 6 inches or more in a year and may eventually exceed 3 feet. Damage is most conspicuous after turf is stressed by hot, dry conditions.

Cultural Practices

In susceptible areas, it is important to implement control measures prior to symptom development. High soil pH encourages TA development, so an acidifying fertilizer is recommended. Apply and water in an acidifying fertilizer, such as ammonium sulfate, two to four times annually.

*Fungicide Options**

Banner®, Bayleton®, Rubigan®, azoxystrobin (Heritage®)

Note: Control of TA with fungicides is erratic and rarely complete. If fungicides are used, applications must be timed to prevent fungal invasion of bentgrass in cool, wet environments.

Pink Snow Mold (*Microdochium nivale*)



Favorable Conditions: cool (40-60°F) and moist conditions, neutral to alkaline soils, high N applications in the fall.

Pink snow mold (PSM) can affect all cool-season turfgrasses, but damages bentgrass and annual bluegrass most severely. Snow cover is not necessary for PSM to occur, so it may be seen in the fall, but is more prevalent in the spring. Where recurrence is severe, preventative fungicide applications may be made in the fall. Symptoms include well-defined, circular patch clusters and white-pink mycelium on infected leaf blades. Patches of dead, matted leaf blades may also be visible.

Cultural Practices

The last mowing of the season should be short (1 ½ to 2 inches) and the clippings should be removed. If there is PSM damage in the spring, recovery will be quickened by raking and/or mowing to aerate the matted turf.

Resistant Turfgrass Varieties

Perennial ryegrass: Delray; Chewings fescue: Atlanta, Ruby; Red fescue: Dawson.

*Fungicide Options**

Tetrachloroisophthalonitrile (Daconil®), azoxystrobin (Heritage®), PCNB, or combination products (Instrata®).

Gray Snow Mold (*Typhula incarnata*)



Favorable conditions: cool (50-75°F) and moist conditions, shade, heavy thatch, high N applications in the fall.

Gray snow mold (GSM) primarily affects tall fescue, bentgrass, and annual bluegrass. Circular patches of matted gray, tan or white grass may range from a few inches to several feet in diameter. Pin head-sized black or rust-colored dots may also be seen on the grass blades near patch edges.

Cultural Practices

Avoid heavy, late season nitrogen applications. Improve air and soil drainage. Remove excess thatch and prevent soil compaction with aeration. Rake and remove tree leaves from lawn before snowfall.

Resistant Turfgrass Varieties

Kentucky bluegrass: Adelphi, Baron, Bonnieblue, Galaxie, Glade, and Monopoly. In general, the fine fescues are more resistant to GSM than Kentucky bluegrass and bentgrass.

*Fungicide Options**

Fungicides are rarely needed to control GSM. However, if the disease has occurred repeatedly in the same areas over a number of years, a fungicide may be warranted. Banner®, Bayleton®, Rubigan®, azoxystrobin (Heritage®), or PCNB.



Billbug (*Sphenophorus* spp.)

Life Cycle: one generation per year for the most part, overwintering in the adult stage.

Billbug (BB) damage is inflicted by the larvae of the bugs which feed on turfgrass stems, crowns and roots. Initial damage resembles drought stress and may include small brown patches. Blades of grass infested with BB can easily be pulled away from the crown.

Cultural Practices

Properly irrigating and fertilizing turfgrass will help the grass to resist and recover from BB damage. 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 BB.

*Insecticidal Products**

Imidacloprid (Merit®), *Steinernema carpocapsae* (Biosafe®, Biovector®, Exhibit®), *Beauveria bassiana* (Naturalis®).



White Grubs (*multiple species*)

Life Cycle: Japanese beetles (Utah County) and 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. Early damage is consistent with drought symptoms. As damage increases, the grass can feel spongy and will easily pull away from the soil surface. Secondary pests such as birds and raccoons may prey on WG in a lawn.

Cultural Practices

Properly irrigating and fertilizing turfgrass will help the grass to resist and recover from WG damage. 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®).

Recommended Cultural Practices for Fall

Mowing

Regular mowing height should be 2 ½ – 3 ½ inches to promote root growth and stress tolerance and clippings should be recycled back into the lawn. These are good practices, but not for the final mowing of the season. The last mowing should be much shorter, from 1 to 1 ½ inches, and clippings should be removed. Mowing at this shorter height will not leave long grass blades standing that over the winter can increase humidity beneath snow cover. If the grass blades are very long, and there is lengthy snow cover, diseases may result.

Fertilization

After the last mowing is the best time to apply the last fertilization of the growing season. Nitrogen is of primary concern. Following this mowing, you'll want to apply 1 pound of quick-release nitrogen fertilizer per one thousand square feet of lawn area. This is the most critical fertilization of the entire growing season and should not be missed! Research has shown that this late fall fertilization provides the most benefit and drought tolerance to the lawn the following summer.

Aeration/Cultivation

Fall 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.

Seeding & Overseeding

Fall is the ideal time to seed new turfgrass areas or to overseed areas that may have been damaged during the growing season by insect pests or diseases. The cooler temperatures will promote germination and growth of cool season turf species such as Kentucky bluegrass, tall and fine fescues, and perennial ryegrass. Choose pest resistant or recommended turfgrass cultivars when possible.

Focus On: Imidacloprid for Turfgrass Pest Control

In the mid 1980's Bayer Corporation scientists developed and patented a new chemical for insect control—Imidacloprid (IC) (<http://extoxnet.orst.edu/pips/imidaclo.htm>). Registered for use in the US in 1994, this chemical was the first in a new sub-group of insecticides known as the neonicotinoids (neonics), and is currently considered the most widely used insecticide (by volume) in the world. As the groups' name implies, the neonics are the new nicotine-based insecticides, and have largely replaced older nicotine products. In the turfgrass system, IC provides effective (larval) control of numerous pests (Table I).

Table I. Turfgrass pests controlled by Imidacloprid-containing products.

Common Name	Scientific Name	Common Name	Scientific Name
N. and S. Masked Chafers	<i>Cyclocephala</i> spp.	Japanese beetle	<i>Popillia japonica</i>
Asiatic garden beetle	<i>Maladera castanea</i>	Oriental beetle	<i>Anomala orientalis</i>
European Chafer	<i>Rhizotroqus majalis</i>	Billbugs	<i>Sphenophorus</i> spp.
Green June beetle	<i>Cotinis nitida</i>	Annual bluegrass weevil	<i>Hyperodes</i> spp.
May or June beetle	<i>Phyllophaga</i> spp.	Black turfgrass ataenius	<i>Ataenius spretulus</i>
Chinch bugs (suppression)	<i>Blissus</i> spp.	Sod webworms	Pyralidae spp.
Mole crickets (suppression)	<i>Scapteriscus</i> spp.	Cutworms/Armyworms	Noctuidae spp.

Focus On: Imidacloprid for Turfgrass Pest Control (cont'd)

Imidacloprid is best used as a preventative to ward off potential pest problems. However, spraying any insecticide as a preventative is not recommended unless there is strong evidence that your lawn will be newly, or re-infested. If you miss applying IC during an insects “preventative period” and they are causing major damage, you can consider applying curative insecticides like bifenthrin (Fortify®), halofenozide (Mach 2®), lambda-cyhalothrin (Cyonara®), chlorpyrifos, cyfluthrin (Tempo®), or spinosad (Conserve®). The curative insecticide you choose will depend on your target pest—so have it identified! An IC product can be applied with, or after your curative treatment to prevent re-infestation.

Applications of IC are best followed by irrigation. However, Imidacloprid should not be applied to waterlogged turf/soil. Imidacloprid may be applied with fertilizer to aid plant uptake of the product. Follow the labeled rates of active ingredient for your particular product and situation.

As with any insecticide, IC is still a chemical that enters the environment during use. While it has low toxicity for mammals, it is capable of killing or giving sub-lethal doses to many non-target insects, including bees and parasitic wasps, birds, and mammals (<http://www.pesticide.org/imidacloprid.pdf>).

Imidacloprid is an effective chemical that is labeled for use on turfgrass. Its use as a lawn care product, however, should be secondary to cultural and mechanical practices for maintaining a healthy lawn. Use proper monitoring/scouting techniques to survey for turf pests before damage occurs, and only apply IC as a preventative if damage is imminent. Once pests are under control, discontinue your use of any insecticide and resume non-chemical methods of lawn maintenance. As always, carefully read and follow the application instructions on the product label.

-Ryan Davis

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

Insect Pests

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

<http://extension.usu.edu/files/publications/factsheet/white-grub07.pdf>

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

Diseases

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

<http://utahpests.usu.edu/plantdiseases/files/uploads/PDFs/take-all-turf09.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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