Turfgrass IPM Advisory

Seasonal Turfgrass Pest Update, Utah State University Extension, Spring 2013

Turfgrass Management

As the snow thaws and warmer weather begins, turf damage due to disease or other pest damage may become apparent.

News/What to Watch For

Now is the time to start monitoring for some insect pests of turf. In addition, persistent snow cover across areas of the state may have provided cover for voles, rodents that can cause significant damage to turf areas as well as trees. Pink and gray snow mold may also have been active in your area.

Focus On: Spring Pest Monitoring in Turf

Spring is off and running and warm temperatures are quickly increasing insect activity. The billbug, a complex of weevils in turf, has spent the winter primarily as an adult. Overwintering typically occurs in sheltered sites around the edges of turf areas where there might be leaf litter and woody debris, and also in thatch where they can be buffered from the winter conditions. Insects are poikilotherms (or "cold-blooded"), meaning their body temperature fluctuates with ambient temperatures. Once it warms up, insect metabolic and enzymatic activity begins to speed up. As temperatures start to exceed 65°F, adult billbugs become active and make their way to turfgrass where they will feed and deposit eggs. We can use adult activity to our advantage and monitor weevils to better predict when to manage or if management is needed.

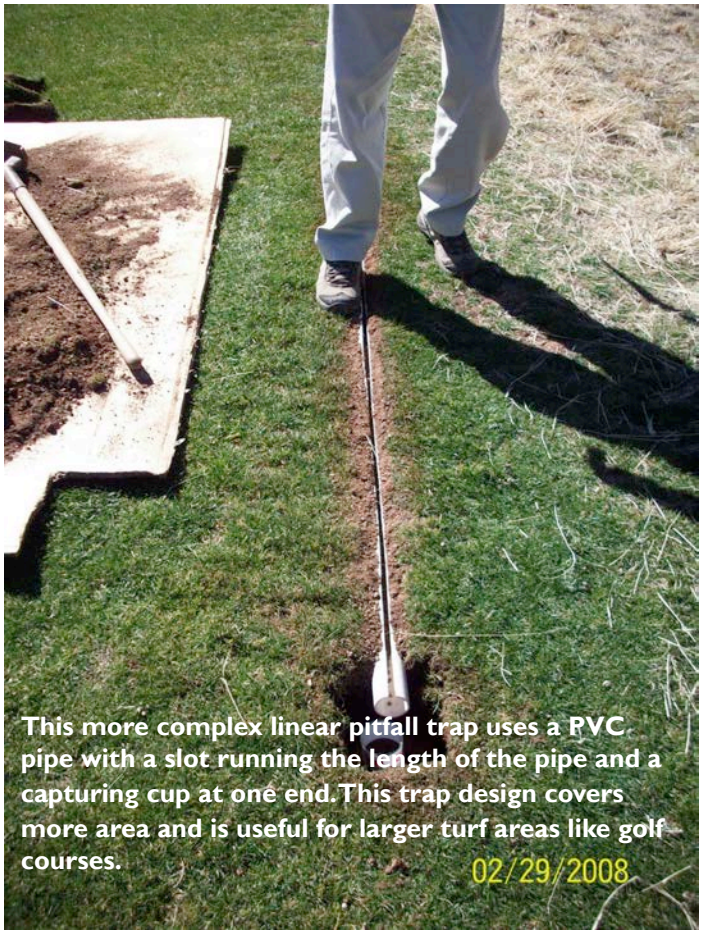
Although it may be possible to use visual sampling to see adult billbugs on sidewalks as they make their way into turfgrass, it is not all that practical on a larger scale or in recreational areas. Billbug behavior, however, is somewhat unique in that the adults rarely fly and they "play possum" when disturbed. We can use the former behavior for monitoring by utilizing pitfall traps. Pitfall traps can be as simple as digging a hole the size and height of a chosen container so that the container fits snugly and making sure there are no gaps between the soil and the container.

Billbugs crawling into an area will drop into the cup without being able to escape. Pitfall traps are a useful monitoring tool but it is important to note that this is not an effective control method. In addition, pitfall traps collect ground active organisms (wolf spiders, millipedes, worms, and other insects), so identification at a basic level is needed to distinguish pests from non-pests. In turf, there is an abundant and diverse community of predatory ground beetles and spiders that are beneficial. Checking these traps regularly early in the spring will help to evaluate the start of billbug activity and increasing activity of adults as more are collected from week to week.

Deli cups are good examples of pitfall containers. The rim of the container should be even with the soil surface, otherwise insects will bump into the rim and walk away.

Spring Monitoring (cont'd)

Pitfall trapping can be paired with degree day (aka growing degree day) models that predict insect activity based on maximum and minimum temperatures and an insect's developmental temperature threshold. As a certain number of degree days (or heat units) are accumulated, we can predict the occurrence and activity of an insect for which a model has been developed. A model for bluegrass billbug was developed in Ohio and has been used elsewhere, but it has not been specifically validated in Utah. The model is calculated from a base temperature of 50°F and relies on a March 1 start date. If you have not visited the Utah TRAPs website (http://climate.usurf.usu.edu/traps.php), this is a good way to follow and have calculated degree days. On the site select the closest weather station on the map, then the growing degree day (GDD) model (base 50), and select a March 1 start date. According to the Ohio model first activity of adults was recorded between 280 and 350 degree days with 30% of first adult activity occurring between 560 and 624 degree days.



This more complex linear pitfall trap uses a PVC pipe with a slot running the length of the pipe and a capturing cup at one end. This trap design covers more area and is useful for larger turf areas like golf courses.

Combining these monitoring tools can be useful in making management decisions. Some have used these methods to target active and incoming billbugs with border treatments of pyrethroid or organophosphate products. Preventative products (e.g., Acelepryn, Arena, Merit, and Meridian) are often used for turf insect management and target newly emerging larvae from eggs deposited in turf stems. Pairing these monitoring strategies with preventative applications is important for improving efficacy. Given the drastic differences in temperature and degree day accumulation from year to year as in 2011 (cooler) versus 2012 (warmer) for Utah, applications made too early will breakdown and will not be as effective when the majority of billbug larvae are feeding.

Alternatively, preventative applications made at peak adult billbug activity and after may not be as effective since it takes time to move these products into the plant (Acelepryn, in particular, given its low water solubility) so that emerging billbug larvae can ingest the product as they begin feeding. As larvae become larger, they are less susceptible to these applications and how quickly they develop will be, in part, dependent on temperature.

Pitfall Trap Modifications
Add a sleeve insert to the trap for quick monitoring. Works well with deli cups where the rim of one cup is removed and slipped into the soil-bound, rimmed cup.
Poke small holes through the bottom of the container for water drainage.
Add a protective cover that sits just above the trap to shelter from water.
Add a wire mesh cover so small animals don't eat the trapped insects.

-Dr. Ricardo Ramirez, USU Extension Entomologist

References

Murray, M.S. 2008. Using degree days to time treatments for insect pests. Utah State University Extension Fact Sheet. IPM-05-08.

Shetlar, D.J. and J.E. Andon. 2012. Billbugs in turfgrass. Ohio State University Extension Fact Sheet. HYG-2502-12.

Voles

Voles (*Microtus* spp.) are rodents that occur throughout the U.S. They are compact animals, having stocky bodies, big heads, short legs, and short tails. Voles may be gray or brown in color, but this coloration can be highly variable.

In Utah, there are five species of vole; the prairie vole (*Microtus ochrogaster*), the meadow vole (*M. pennsylvanicus*), the long-tailed vole (*M. longicaudus*), the montane vole (*M. montanus*), and the water vole (*M. richardsonii*).

Image courtesy of Charles Lee, Kansas State University.

Voles occupy many different habitats, depending on species, but generally prefer areas with a heavy cover of grasses, grass-like plants, or plant litter. They eat a variety of plants and animals, but frequently forage on grasses, forbs, roots, bark, snails, and insects. To find food, voles construct tunnels and surface runways with many burrow openings. The runways also provide excellent shelter from weather and protection from predators.

Signs of vole damage are found mostly above ground. Surface runways (1-2 in wide) along the ground may lead to tunnel entrance holes (1 ½ in diameter) and turf areas may be heavily damaged by these tunnels and runways. Ornamental and orchard trees may also be girdled at ground level. Rabbits also chew on trees, but the damage will be several inches above the soil surface as opposed to ground level. Vole girdling exhibits small gnaw marks (1/8 in x 3/8 in) occurring at various angles and in irregular patches.

If vole damage is severe, control may be warranted, but consider the severity of the problem in relation to the cost of control. Preventing initial damage is far more cost effective than population control, and an integrated pest management strategy should be considered. Eliminating weeds, ground covers, and plant litter around ornamental trees and turf areas will reduce suitable vole habitat. Mow turf areas regularly and remove turf at least 3 feet away from tree bases. Aerification will destroy vole runways and may kill voles outright (if your timing is right). Remove piles of brush, branches, and other plant litter to further eliminate vole habitat.

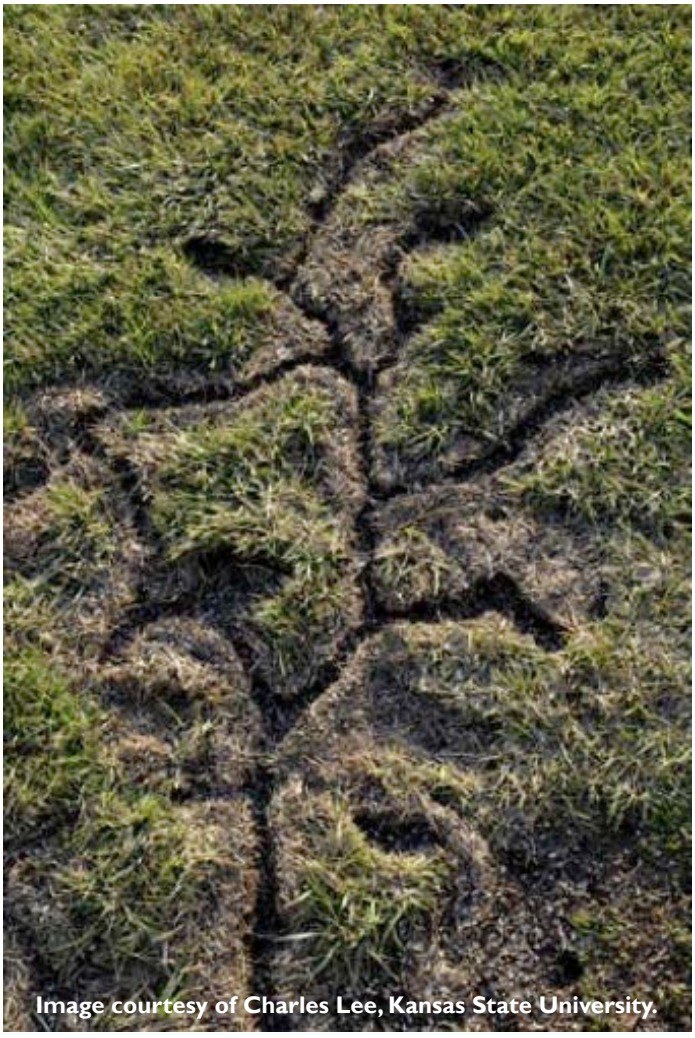
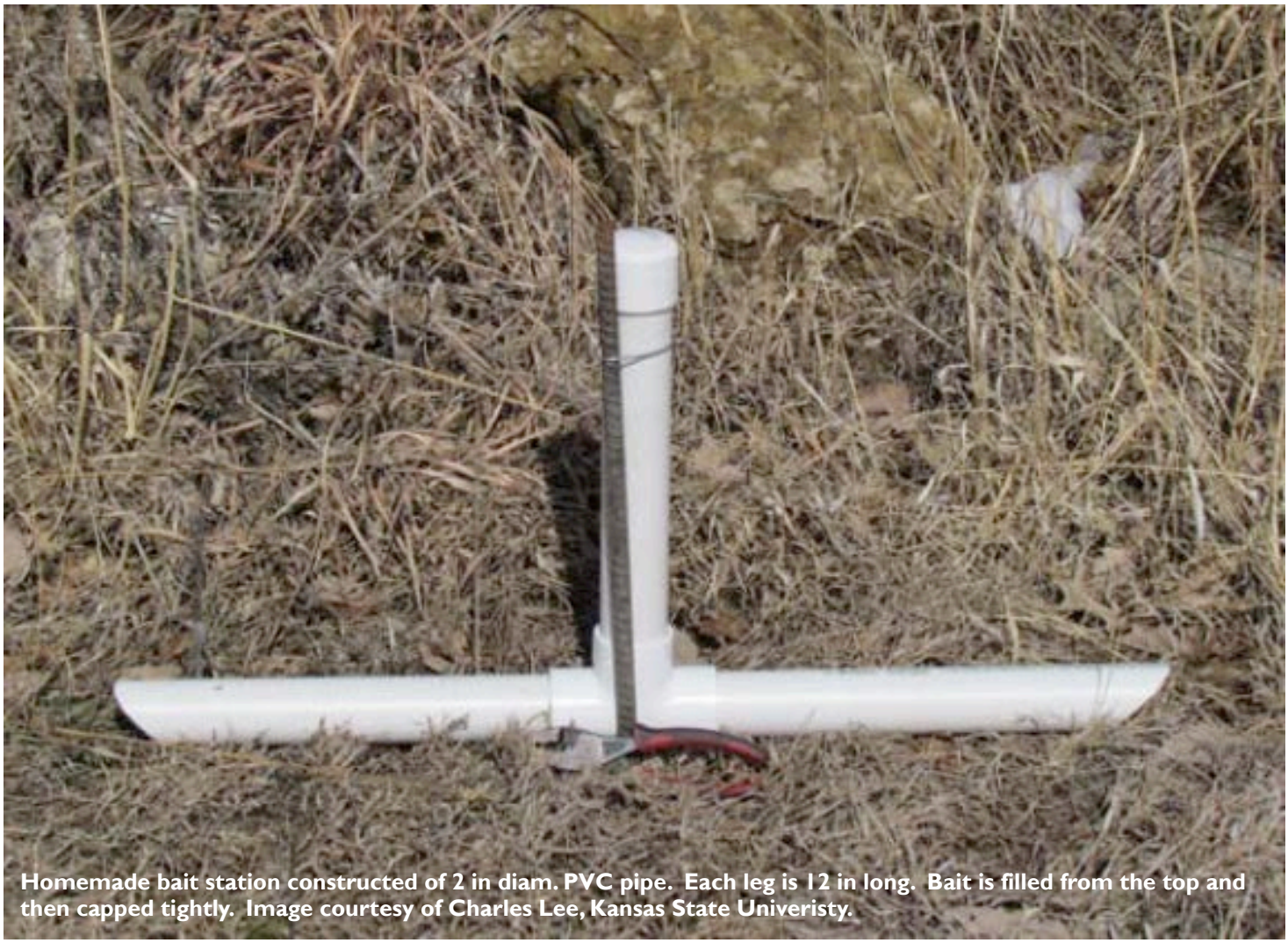


Image courtesy of Charles Lee, Kansas State University.

Once voles are present, control options include trapping, the use of repellents, and rodenticides. Trapping may be effective for small numbers of voles and may be accomplished with small, snap-type mouse traps baited with fruit or peanut butter. Place traps at right angles to runs and deeper into tunnel runs where possible. A shingle bent over the trap (that won't interfere with the trap's spring arm) may be more successful. Use a minimum of ten traps in an area the size of a typical yard, and always wear protective gloves when handling dead voles to prevent the spread of disease.

And more voles....



Homemade bait station constructed of 2 in diam. PVC pipe. Each leg is 12 in long. Bait is filled from the top and then capped tightly. Image courtesy of Charles Lee, Kansas State Univeristy.

The EPA has approved two active chemical ingredients as vole repellents, thiram (a fungicide) or capsaicin. Both products work by making plants taste unpalatable to voles, and while they may provide some temporary protection, the effects are generally short-lived.

The EPA has also approved of two rodenticides* for vole control, zinc phosphide (2%) and anticoagulants. Zinc phosphide is more commonly used and is available in pelleted or grain bait formulations that may be broadcast over affected areas by certified pesticide applicators. Keep in mind, however, that zinc phosphide is also toxic to humans (hence its restricted use classification) and ground-feeding birds, particularly waterfowl. Using appropriate personal protective equipment and hand-placing baits in burrows and runways reduces the risk to non-target species.

Anticoagulant baits, commonly used for mouse and rat control, are also effective for reducing vole populations and like zinc phosphide, anticoagulants may be broadcast or hand-placed in burrows and runs. Anticoagulants are also toxic to humans, so every precaution should be taken to prevent human contact, particularly for children.

In areas where children and pets play, vole control efforts should focus on cultural practices and trapping to avoid accidental poisonings. Keep in mind that vole activity is cyclical (every 2-5 years), and the problem may resolve itself.

For more information, contact your local USU county Extension office and see the resources listed below.

-Dr. Terry Messmer, USU Extension Wildlife Specialist

Pink Snow Mold (*Microdochium nivale*)

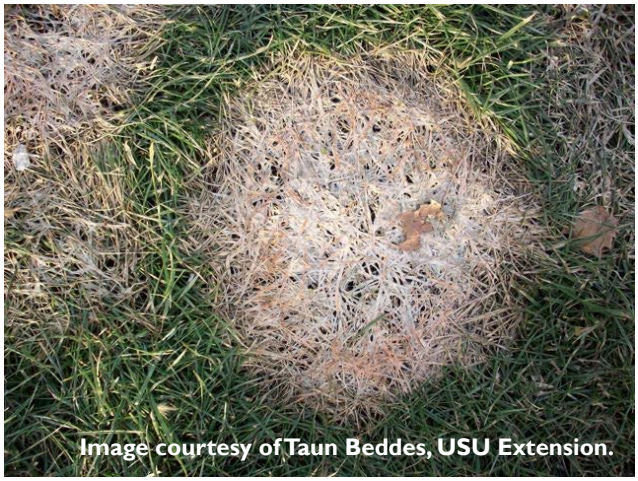


Image courtesy of Taun Beddes, USU Extension.

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

Recovery from PSM damage in the spring 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*)


Image courtesy of Claudia Nischwitz, USU Extension.

F*avorable 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.

Recommended Cultural Practices for Spring

Seeding/Overseeding

Spring 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 and consider your weed control options. Choose pest resistant or recommended turfgrass cultivars when possible.

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

Voles and Billbug

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

http://extension.usu.edu/files/publications/publication/NR_WD_009.pdf

Diseases

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