

Seasonal Turfgrass Pest Update, Utah State University Extension, Fall 2014

## Turfgrass Integrated Pest Management

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

### News/What to Watch For

New information is available regarding billbug activity and management in the state, including a new insecticide option. We also have a new insect pest to contend with in Utah. Crane fly has been found in the state for the first time this year. Of course, routine fall management practices are also a priority now.

## Billbug: Activity in Turf and a New Insecticide Option

Billbugs (*Sphenophorus* spp.) are a primary pest of turfgrass in the Intermountain West. Adult weevils deposit eggs in turf stems. Larvae then emerge from the eggs and feed within the stems. Mature larvae feed on roots below ground, and eventually pupate with adults emerging from the soil.

Although the adults do feed on turf aboveground, the majority of turf damage results from larval feeding and is seen as severe discoloration resembling drought stressed turf, and in severe cases plant death.



Most of what we know about billbugs comes from research conducted in the eastern U.S., yet we find many differences in Utah and the Intermountain West. In the Intermountain West, there is a complex of three billbug species that occurs simultaneously including the bluegrass, hunting, and Rocky Mountain billbugs. In some isolated spots, the Phoenix billbug also occurs. In other regions of the U.S., only one and sometimes two of these species will be present as major pests.

Current predictive models for billbug activity do not appear to be a good fit for predicting billbug populations in the Intermountain West. For example, first occurrence of billbugs in Logan, UT in 2014 was more than one month earlier (60 degree days<sub>50</sub>; April 12) than what would be predicted by the current Base 50 degree day (DD) model\* used in the east (280-352DD; May 25-31). Recognizing these differences is key to improving the timing and resulting efficacy of management strategies that are available.

## Billbugs (cont'd)

In 2014, monitoring billbug activity throughout Intermountain West golf courses (two courses around Boise, ID and one each in Logan and Draper, UT) showed that bluegrass billbug was the dominant billbug species, typically making up more than 50% of the total trap catches. Peak capture of adult billbugs was found in late-May to early-June. Based on observations in 2013 and 2014, peak activity for the region has been around 400-600 DD<sub>50</sub>. Billbug eggs coincide with peak adult activity and larval stages appear to be most abundant two weeks following adult peak activity.

Appropriately timed prophylactic insecticide applications early in the season have been successful at suppressing newly emerged and young larval stages. Preventive treatments include the neonicotinoid and diamide classes of insecticides that have systemic activity. Turf managers will be familiar with Arena, Merit, and Meridian, all neonicotinoids, and Acelepryn, a diamide having a different mode of action.

Diamides act on ryanodine receptors causing a release of stored calcium in muscle cells that leads to muscle paralysis and death of the insect. Registration of Ference, a new diamide insecticide from Syngenta, for turf insect management was made available August 2014.

Fortunately, insecticide trials on billbug management have been conducted in northern UT and in Idaho, allowing for better understanding of timing of these products in the region. The recommendation for application timing for neonicotinoids, namely (Meridian) is between May 1 and mid-June. Note that when transitioning from a neonicotinoid to Acelepryn, which has very low water solubility, that applications would be recommended 2-3 weeks earlier than would be for neonicotinoids.

Although Ference has a similar chemistry to Acelepryn, this new product has higher water solubility that allows the product to be applied with similar timing as the neonicotinoids. In addition, Ference has a shorter half-life and persistence in the soil than Acelepryn. Data suggests that Ference is particularly good at suppressing billbug larvae and is an additional option for billbug management.



Keep in mind that the windows of application are a guide and that weather patterns can shift the timing. In years with cold winters and cooler springs billbug activity for all stages may occur later than usual, while years with warmer than usual winters and springs may show earlier activity of billbugs. Applications should be adjusted accordingly. Monitoring and becoming familiar with tools like degree day models will help in making plans for next season.

-Ricardo Ramirez, USU Extension Entomologist

\*Become familiar with using DD models by visiting [Utah TRAPs](#).

## New Turf Pest in Utah: Crane Fly (*Tipula oleracea* L.)



-Photo by Adam Van Dyke

Common crane fly damage appears as dying patches or spots of turfgrass. Feeding damage may also be apparent on roots, crowns, and leaves of grass plants.

Historically, common crane fly (CCF, *Tipula oleracea* L.) has not been a pest of the Intermountain West and tends to favor the cooler, moister climate of the Pacific Northwest, the Midwest, and Northeast. However, in recent years, this pest has made its way into warmer and drier climates, including areas of California, and now Utah.

Originally found in the state by Adam Van Dyke, principal consultant with Professional Turfgrass Solutions, LLC, CCF has now been added to the databases of the National Agricultural Pest Information System (NAPIS). **The original discovery was made in Salt Lake County. Subsequently, CCF has also been found in Tooele County.**

### Description

CCF adults are grayish-brown with 1 in. long bodies and long legs. They are often described as resembling large mosquitoes and are sometimes called “mosquito hawks”. Despite this moniker, they do not feed on mosquitoes or other insects and they are not harmful to people. CCF can be difficult to distinguish from native crane flies and, therefore, positive identification should be made before intervention. CCF larvae are cylindrical in shape, tapering toward the front. The abdomen may have small spots or projections and may be either smooth or lined with hairs.

## Crane Fly (cont'd)

### Damage

CCF larvae feed on roots, stems, and sometimes the leaves, of many turfgrass species, as well as other plants. The damage to roots can result in secondary drought damage due to the grass's inability to take up water. Birds, raccoons, skunks and other vertebrates can cause even more damage as they forage in turf areas for the larvae.

A general action threshold of 25-50 larvae / sq. ft is recommended before deciding to lower the CCF population via chosen IPM method. However, turfgrass that is already stressed by less-than-favorable growing conditions may show symptoms of CCF damage at levels as low as 12-15 larvae / sq. ft.



### Life Cycle

Adult CCFs emerge from pupae in the soil in late summer, and females mate and lay eggs in turfgrass within 24 hours. Eggs hatch into wormlike larvae, sometimes called "leatherjackets." The larvae then feed on the roots and crowns of turf during the fall and spring months. Similar to other larval pests of turf, CCF larvae stay underground for the most part, but may feed aboveground on damp, warm nights. CCF larvae spend the winter in the soil, but will not feed until the weather warms up. The larvae pupate mid- to late spring below the soil surface and adults emerge in late summer and fall to start the cycle again.

### Management

First and foremost, an established, healthy stand of turfgrass is the best defense against CCF. Under such conditions, as many as 40-60 larvae / sq. ft. may be present without showing any signs of damage to the turf. If you suspect CCF infestation, though, scout for CCF larvae by pulling cores of turf and soil from the damaged area. A golf course cup cutter is ideal for this purpose, but a core soil sampler can also be used. Take cores that are 1-2 in. deep and tear them apart to find and count larvae. Also, dig around the thatch layer just beneath the turf and look for brown larvae with tough skin ("leatherjackets"). Shiny, leathery, empty pupal cases may also appear on the turf surface after CCF adults have emerged.

#### *Cultural Practices*

Proper fertilization and irrigation are important factors in determining how much feeding by CCF larvae turfgrass can withstand. Appropriate application of N fertilizer in the spring may also reduce damage. Chronically wet areas are predisposed to CCF, and other-pest, infestation so providing adequate drainage to these areas and/or reducing irrigation amounts is helpful.

#### *Insecticidal Products\**

Because CCF is a new pest in Utah, research has not yet been conducted in the state to determine the efficacy of insecticidal products for its control. However, the active ingredients typically recommended for CCF control in other states are also labeled for use in Utah.

Bifenthrin (Talstar), Carbaryl (Eliminator, Sevin), *Steinernema feltiae* (beneficial nematode).

#### **Resources/References**

Brandenburg, R. L., and Callie P. Freeman (ed.) 2012. Handbook of Turfgrass Insects (2nd ed.). Entomological Soc. of America. Lanham, MD.

University of California Integrated Pest Management Online. 2009. [Crane flies](#). Accessed 10/14.



Photo by N. Tisserat, Kansas State University

### 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 positively identified in Millard, San Pete and Salt Lake counties 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, and Blue Velvet show resistance to SP, but are still susceptible under high disease pressure. Perennial ryegrass is immune to the disease.

#### *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 positively identified in Beaver, Cache, Davis, Salt Lake, San Pete, Utah, Wasatch, and Weber 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, and Langara show resistance to SP, but are still susceptible under high disease pressure. Perennial ryegrass is also highly resistant to the disease.

#### *Fungicide Options\**

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

## Recommended Cultural Practices for Fall

### Irrigation

The irrigation season is already over in many parts of the state and this is particularly true in northern Utah. At this time of year, the decreasing temperatures and day length encourage grasses to go into dormancy. And dormant grasses are no longer taking up water or nutrients, so it's a good time to turn off irrigation clocks and blow the water out of irrigation systems. Of course, if you live in Washington County or other southern parts of the state, expect to keep irrigating turf areas for another 2 months.

### Seeding & Over-seeding

Fall also provides the ideal opportunity to seed new turfgrass areas or to over-seed areas that may have been damaged over the summer. The cool 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.

### Fertilization

Nitrogen is of primary concern in turfgrass fertilization. In the fall, apply 1 pound of quick-release nitrogen (N) fertilizer per one thousand square feet of lawn area. Time this application to coincide with natural precipitation, or water it in. This will help the grass enter into winter with energy reserves. It will also be especially helpful for areas that have suffered damage due to diseases such as necrotic ring spot. In a quick-release form, N fertilizer will provide an immediately available source of nutrients to the grass.

### 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.

## Relevant USU Extension Fact Sheets

### Turfgrass

*Basic Turfgrass Care*

[http://extension.usu.edu/files/publications/publication/HG\\_517.pdf](http://extension.usu.edu/files/publications/publication/HG_517.pdf)

*Lawn Fertilizers for Cool Season Turf*

[http://extension.usu.edu/files/publications/publication/Horticulture\\_Turfgrass\\_2012c-02pr.pdf](http://extension.usu.edu/files/publications/publication/Horticulture_Turfgrass_2012c-02pr.pdf)

*Renovate Your Lawn after a Long, Hot Summer*

<http://extension.usu.edu/files/publications/publication/HG-516.pdf>

### Diseases

*Necrotic Ring Spot/Summer Patch*

<http://extension.usu.edu/files/publications/factsheet/turf-ringspot-patch.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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