Fall Officially Arrives

Weather

Temperatures have continued to be more fall-like than late summer, and we’ll take it. Cool season turf should be growing well now, and there should be at least a few more weeks to get the most out of fall recovery. A steady, “London-fog”-esque pattern of drizzling rain over the weekend provided a nice source of moisture, and if you seeded cool-season turf last week you will probably be nicely rewarded. There still is potentially 1 or 2 more weeks to seed, but it should be done very soon.

Fall officially arrives in three days, which should turn our attention to Octoberfest festivals—the timing of our first frost. Over much of central MO, October 15th is the average date for the first frost, with a week plus or minus occurring in most other regions. One interesting aspect of the state is the impact of the topography of the Ozarks, which lowers the average frost date compared to central MO. Warm-season turf will definitively shut down during the first fall frost, and translocation of nutrients and fungicides will be effectively done. For fall prevention of warm season turf diseases (large patch and spring dead spot) with fungicides, it is important to apply the fungicide before this first shot of frosty air and complete onset of dormancy.

Therefore, for those attempting control with a single fall application, the best timing may be the first week of October. Those using two fall fungicide applications need to have one down now with a second application planned before the first fall frost. Five-day soil temperatures at 2” are currently in the mid to lower 60’s in central MO.

Late Summer Roundup (Looked More Like Fall)

A. Temperatures are still well below normal. It is still prime-time for cool season turf growth and recovery. - Source: Missouri State Climatologist, Pat Guinan
B. Average date of first killing fall frost in Missouri. A potentially good barometer for timing single preventive fall fungicide applications for warm season turf diseases. - Source: Missouri Climate Center

Source: National Weather Service; Missouri Climate Center

Columbia, MO September Daily Max/Min Temperature Normal vs 2011

Average Date of First Fall Frost (c: 32°F)

Source: Missouri Climate Center
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(nearer to 70 for SW MO), which is the prime range for infection by the large patch and spring dead spot pathogens.

Spring Dead Spot

Unlike large patch, [discussed last week], spring dead spot is a soil-borne disease (which changes the game considerably). Patches of spring dead spot are uniform and can be fairly large, ranging from 2-8 feet in diameter. The pathogen infects roots, rhizomes, and stolons in the soil during the fall, restricting the plant’s ability to store carbohydrates and undergo normal winter dormancy. Without being properly put to bed in the winter, the bermudagrass never wakes up the following spring and effectively “winterkills”.

The causal pathogen is the fungus *Ophiosphaerella*, of which several species can cause symptoms. In Missouri, it is thought that the main pathogen species is *O. herpotricha*, which is significant because it is regarded as more virulent than other species, and may react to nitrogen sources differently (see below). Spring dead spot can also be severe in Missouri because it is in the upper portion of the U.S. transition zone, with harsh winters and more opportunity for bermudagrass winterkill.

Cultural Practices

**Drainage:** Since spring dead spot is a root infecting disease, prolonged surface moisture does not dramatically increase disease severity as with large patch. Soil
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moisture is necessary for infection, so reducing prolonged wet conditions with drainage can reduce symptoms somewhat. For the most part, spring dead spot severity depends on the weather though, with wet fall seasons resulting in conducive infection periods and heavy outbreaks.

**Fertilization: Don’t fertilize with N now!!!** Nitrogen fertilization should only occur when the turf is actively growing in late May, June, July or early August. Recent research suggests fertilizing with an acidifying nitrogen source such as ammonium sulfate may help reduce spring dead spot in the Midwest. Our major species, *O. herpotricha*, may be sensitive to lower soil pH (or may not just like an ammonium form of nitrogen) as compared to the other major species *O. korrae*, which is mostly found in the Southeast.

**Aerification: Don’t cultivate now!!** Aerifying or any other form of cultivation in the fall and spring can enhance spring dead spot severity. Bermudagrass is currently “weak” and growing slowly during cooler temperatures. Major cultivation at this time will injure the plant and predispose it to infection, and help spread the pathogen. Conversely, thatch control methods in the summer may help promote a healthier turf stand and reduce the amount of organic material the pathogen can subsist on. At our turf farm, our perfect spring dead spot research plot is a 6 year-old stand of ‘Riviera’ that has not been aerified since establishment.

**Chemical Control**

In areas that have a severe history of spring dead spot, preventive fungicide applications in the fall may be necessary for maintenance. Chemical control of spring dead spot is inconsistent, however, and proper application methods and timing are of great importance. This may be due to a number of factors including soil type, the species of pathogen involved, improper timing or improper fungicide delivery.

**Fungicides:** DMIs: *fenarimol (Rubigan**), myclobutanil (Eagle), tebuconazole (Torque), propiconazole (Banner)

Fungicide notes: Combination products such as Headway (azoxystrobin + propiconazole) may also be effective.

** The most effective fungicide for spring dead spot control in evaluation trials has been Rubigan. Last week on Sept. 13, Gowan announced that production of this fungicide will be cancelled as of December 2012. This will leave a very large gap in control of this disease. Currently, research is underway in the Mizzou turf pathology program to investigate alternatives, such as cultural practices (nitrogen source, sulfur application) and fungicide alternatives. For more information on this
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important development follow this link: “What will we do when Rubigan is Rubi-Gone? - Lane Tredway, Turf Disease Updates for Golf Courses”

**Frequency & Timing:** At least two and maybe as many as four fall applications may be necessary for suppression of spring dead spot. Even with these applications, control can range greatly from 30-90%, and complete fungicide control should not be expected in the first year. Often two or three years of fungicide use are necessary before satisfactory control levels are reached.

**Application Method:** Because the pathogen is below the turf surface, fungicide applications targeted at spring dead spot must be watered-in with at least ¼” of irrigation or applied in high volumes of water (5 gallons/1000 sq ft). Failure to do so often results in unsatisfactory control.

**Lee Miller**  
Extension Turfgrass Pathologist  
University of Missouri