Dollar Spot Arrives/Large Patch Recovery

Weather

5/5/11 - Missouri Weather
A. Soil temperatures indicate the cool spring we have had as compared to the average from the last 11 years.
B. NASA satellite imagery from 4/29/10 of the Midwest vs.
C. the current flood plains of 4/29/11. - Source: weather.com

This spring has continued its cool and wet weather pattern. Soil temperatures are well below normal (see figure below), but a forecasted warm-up early next week may push them closer to normal. Rain has been pounding the southern areas of the state that absolutely do not need it. The Delta Agricultural Center in Portageville reported over 4 inches of rain on Monday, and more may be expected today as yet another front pushes through. Above are satellite images from late April last year vs. the current flooding situation on the same date this year. Pretty amazing.

Dollar Spot Arrives

Dollar Spot
A. Like Cousin Eddie in the Vacation movies, dollar spot has arrived as a much unwelcome guest.
B. Dollar spot symptoms began on the disease green late last week, and were on all greens by the middle of this week.
C. After a night of incubation, dollar spot mycelium proliferates and ravages bentgrass leaves.

Dollar spot has been observed in many areas in Columbia, including the Mizzou Turf Farm. Dollar spot can infect all turfgrasses, but is most severe on cool-season turf.
particularly creeping bentgrass. With little dispute, dollar spot is the most notorious disease of turfgrass, and perhaps the toughest to control. The disease is particularly destructive and results in turf damage that can take considerable time to recover. The pathogen (still *Sclerotinia homoeocarpa*) has a wide range of temperatures (from the mid 60’s to the mid 80’s) that it is most active, and in some milder summers can cause epidemics throughout the season. The pathogen also requires a period of leaf moisture to develop and injure turf.

Past models used these two variables of temperature and moisture as predictors for dollar spot development. The Hall model used average temperature (> 72 F) and rainfall (2 days of measurable precip) and tended to *underpredict*, while the Mills and Rothwell model used maximum temperature (> 77 F) and relative humidity (>90% for 3 days in 7) and tended to *overpredict*. The research team of Dr. Jim Kerns (University of Wisconsin) and Dr. Damon Smith (Oklahoma State University) currently has a promising model in development and are working towards validating it for future use in reducing fungicide inputs.

It is often necessary to use fungicides preventively, particularly on putting greens, to get ahead of the 8-ball of treating the disease curatively. Systemic fungicides, such as boscalid and the DMIs, can provide longer control if applied when inoculum levels are low and the pathogen is presumably easier to control. Nitrogen levels also play a significant role in disease suppression, as areas with inadequate levels in the spring are more susceptible to severe outbreaks. In a curative situation, it is necessary to supplement nitrogen (1/8 – 1/4 #N/1000 ft²) along with the fungicide application to promote recovery.

I will have much more to say on dollar spot as the season continues...

**Large Patch Recovery**

As I noted last week, this cool, wet spring has produced the perfect environment for severe large patch outbreaks. Because of this, many superintendents are in recovery mode and questions have started to filter in on the most rapid method method for doing so. Curative fungicide applications such as ProStar, the QoIs, or DMI fungicides may be one ingredient to halting the progression of the disease, but some of the cultural practices I noted from last week are also crucial to getting zoysia back on its feet (or crown).

If we recall our brown patch 101, we know that high nitrogen levels will stimulate the pathogen and make the disease more severe. Applying this logic, it is key to wait through this current cool spell and fertilize when the disease is not active. When the disease does shut down, using a fast release nitrogen form such as urea in late May
may be warranted for quicker recovery, but make sure to switch back to a slower release form for the rest of the summer.

Another key aspect to recovery is to park the aerifier and verti-slicer until mid summer. It may be extremely tempting to cultivate affected zoysia now and break up the large mats of dead tissue to allow faster regrowth. The problem with this is two-fold, 1) you will spread the active pathogen to other areas and 2) you will stress the zoysia, which is still not growing at full capacity. Aerify these areas in mid June or July when the disease is not active and the zoysia is fat and happy.

**Save the Date: July 26, 2011**

Make plans to join us at the University Missouri Turf & Ornamental Research Farm on July 26th for our annual field day! We will be presenting the latest research on cultivar evaluations, pest controls, and management considerations for turf, trees, and woody ornamentals. It’s a fine day and a fine way to interact with colleagues and your local Mizzou research team.

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