Despite a roller coaster ride of temperatures in the middle of the month, April has thus far run just about normal. Looking back to last year at this time, the frolicking temperature trend is very similar, right along with the slow status of spring green-up of warm season turgrasses. The 6-10 day forecast from the NOAA has us squarely in a shade of blue, indicating our temperatures to end April and begin May are likely to be below normal. After a brief warm-up towards the end of this week, highs are only expected to reach the 50’s and low 60’s to start off the week. Good for cool season turgrasses, but still a tough spring period after a long winter for zoysia & bermudagrass lawns, fairways, and sports fields.

Precipitation totals over the last 14 days are 1-2” over most of Missouri. Due to the early April storm, many areas along the I-70 corridor are running 3-4” above normal for April. The sustained chances of rain for this Thursday and into next week should keep this region well above normal for the month. Southwest MO, including Joplin and Springfield, have been relative deserts (1-2” below normal), and could use the above normal precipitation (but not the severe weather) slated over the next 10 days.
Quick Hits:

- **Large Patch Warning**: Large patch on zoysiagrass has been reported in Carbondale, IL, and epidemics should occur here very soon. Unfortunately, we are gearing up for a severe large patch season very similar to last year. April temperatures have been fairly cool, and late April – early May is also forecasted to be cooler than normal. The low temperature theme will lead to a sustained period of slow zoysiagrass green-up and slow metabolism, and a resultant larger window for infection. Add in possibly consistent rains and a saturated environment, and large patch could get severe quickly. Particularly for zoysia lawns, observation and diagnosing large patch correctly now will be critical so false problems (see below) aren’t being chased in the future. When conditions are conducive in the spring and the patches are expanding, the patches often have a characteristic “firing” feature, with leaves turning orange around the patch margins.

- **Large Patch Sampling**: On another note, we are continuing our large patch research and are in need of samples. If you have a large patch outbreak this spring and would like to contribute to this research, please send me an email and we’ll collect a sample (turfpath@missouri.edu).

- **Pre-emergents, Winterkill, + Fertilizer**: Last weekend’s temperature blast jumped crabgrass germination season into gear. On bare ground in Columbia, a few early germinating crabgrass plants were observed this week. For those growing bermudagrass in the southern portion of MO and may have winterkill, it would be wise to use a split, reduced rate app or choose your pre-emergent herbicide wisely (see this article on NCSU Turffiles by Yelverton et al for more info). Now for those of you that don’t like your bermuda, perhaps a heavy pre-
Pounce on a Preventive Ounce

emergent herbicide beat down isn’t a bad thing... Lastly, as noted in the previous update, the pre-emergent + fertilizer combination isn’t bad now for tall fescue areas. However, the extra N fertilizer kick in a subsequent May split app will predispose the plants to summer stress and potentially severe brown patch or Pythium outbreaks.

Adult Billbugs Roaming

On April 9, we set 8 pitfall traps at the MU turf farm and a golf course in Columbia, MO. Traps were placed along the edge of zoysiagrass areas that incurred severe damage last year from hunting billbugs. I checked these traps yesterday, and to my surprise caught 17 billbug adults (4 bluegrass, 13 hunting). Most of these adults were still very alive and running, so I believe the flush of activity was recent and brought on by the warmer temperatures over Easter weekend.

This catch means that preventive applications to target adults on areas with a history of damage should be made in 4-6 weeks time. Several curative insecticide applications were evaluated last year, and although they limited further damage, the recovery was still very slow. The most effective chemical control options are still being evaluated, but preventively bifenthrin (Talstar), deltamethrin (Deltagard) lambda-cyhalothrin (Scimitar or Battle) or imidacloprid are currently recommended. A superintendent with a previous outbreak stated he would be applying a combination of bifenthrin and imidacloprid.
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Diagnosis of this “new” pest issue has been difficult over the past few years. Currently roaming adults are feeding (with very little damage) and presumably laying eggs in leaf sheaths. Symptoms don’t normally occur until early June, presumably from overlapping generations of billbug grubs and adults. Because of this, it’s important to discern when damage was first observed on zoysiagrass (which can be difficult in a home lawn). If the damage occurs in the next 2-3 weeks, then the decline is more likely to be large patch. If it starts 4-6 weeks from now, then hunting billbug (or chinch bug) may be the issue.

Spring Disease Prevention on Putting Greens

As shown in the above graphs, we hit the 55 F mark briefly on 4/13, but the soil temperature threshold of 55-60 F (2” averaged over 5 days) is now consistently occurring throughout the region. This threshold is the target for the first of two watered-in fungicide applications (2\textsuperscript{nd} – 28 days later) aimed at prevention of fairy rings on golf putting greens. A few important notes about this preventive strategy are outlined below.

• Low rates of the demethylation inhibiting (DMI) fungicides have worked well in this management strategy. Triadimefon (Bayleton), triticonazole (Triton,
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Trinity), metconazole (Tourney), and tebuconazole (Torque) have been demonstrated as effective. Combination products with these fungicides should also be effective.

- Preventive fungicides must be watered-in with at least 1/8” and preferably 1/4” of post-application irrigation. Preferably, irrigation should occur immediately afterwards, but our research indicated no loss in fairy ring control if irrigation occurred 10 hours after application.

- Wetting agents should not be tank-mixed with these preventive applications, but should be made on their regular schedule 14 days after/before the fungicide application. In a curative situation with fairy ring symptoms present, a wetting agent should always be tank-mixed with the fungicide.

- Side effects with DMI fungicide use should be minimized due to utilization of lower rates and a spring application window with minimal heat stress. Caution should be exercised when using other plant growth regulators such as paclobutrazol (Trimmit, TGR) since they are related to DMI fungicides.

- For those with ultradwarf bermudagrass greens with possible winter damage (outside the MO viewing area), I suggest waiting until after full bermudagrass green-up (and damage can be assessed) before making a DMI application.

- As a side benefit, we have also noted substantial reductions in dollar spot activity on creeping bentgrass greens through August in treated plots. The longest residual dollar spot control was observed in triadimefon and tebuconazole treated plots. Since the treatment window is similar, other root diseases such as take-all patch and summer patch may also be controlled with these spring applications.

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