September 2020 weather has been markedly different from last year, and thank goodness for that. As you may recall (see last year’s report here), many Missouri cities experienced their warmest September in 2019, acting much more like July than September. This year, temperatures are much closer to normal with the early half of the month dominated by a stalled cold front over the middle and northern portion of the state dropping 2-12 degree below normal temperatures. That cold front stopped cold, however, and didn’t migrate to the east or southern parts of the state where temperatures stayed at or above normal. This dichotomy has impacted disease activity (and planned warm season disease prevention) and cool season turfgrass growth.
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The temperature dichotomy is mirrored in rainfall patterns across the region. Recently, and throughout the summer, the urban centers of St Louis and Kansas City received much of the rainfall, whereas Springfield and the SW portion of the state have mostly gone without. This localized region is the only area that shows up in the most of Kansas, Arkansas and Missouri on the drought monitor with a moderate to severe drought designation (https://droughtmonitor.unl.edu). Lawns in this area have been, or are quickly going, dormant, and overseeding/renovation plans on non-irrigated areas may need to be put on hold until rain returns to the forecast.

Unfortunately for this region, rainfall is not expected over the next week as a dry pattern looks to take hold. Temperatures are expected to remain mild and fall-like, however, with perhaps a dip down into the high 40’s for lows on a few mornings this weekend. If the soil can be kept moist, these temperatures will produce prime seeding and cool-season turfgrass growing conditions.

Mild and Dry

A. Temperatures will presumably stay mild over the next week. - NOAA
B. No relief for SW MO drought expected. Don’t let seedlings go thirsty. - NOAA
Quick Hits

- **Gray Leaf Spot on Tall Fescue** – In late August, a sample of tall fescue with gray leaf spot was sent into the lab. The sample was from a lawn that had the disease prior in 2019, giving evidence that once the pathogen (*Magnaporthe oryzae*) gets into a sward it can persist there, and cause issues again the next season. Therefore, sites with a history of the disease should plan on adding thiophanate-methyl to their late season fungicide prevention plan. This disease is also very prominent on slow-growing crabgrass now, potentially acting as a reservoir for inoculum.
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• **Lance nematode populations surging** – Here we go again... lance nematode populations are embarking on their fall resurgence on bentgrass putting greens. During a ripe time and temperature to push out new roots, lance nematodes are dining and restricting recovery. Observations of chlorosis, lack of response to fertilizer, or drought-like symptoms are common on sites with high populations. Lance nematodes (*Hoplolaimus* spp.) are severely damaging because they act as both ecto- and endoparasites, feeding on the outside of the root and tunneling through the roots to feed. Relatively, this is no small nematode either, about 1-1.5 mm long, which is only shy of the sting nematode as the largest parasitic species on turfgrass. Therefore, the lance can act as Anthony Sherman in the power-I, plowing through the root cortex, doing damage and allowing other pathogens past the defensive line.

Control of lance nematodes is difficult, and some nematicides don’t impact this species at all. The current recommendation is to water in abamectin (Divanem) along with a wetting agent heavily (> 0.2 inches) to get the nematicide as far down in the profile as possible. Since abamectin ties up quickly in soil organic matter, getting it further down than an inch is very difficult. The nematicide also has to touch the nematode to control it, therefore lance nematodes within the root would go unaffected. At a cooperator site with high lance populations, we are also testing Zelto (active ingredient = heat-killed bacteria), which some superintendents anecdotally report has provided some relief. At the MU Turfgrass Research Center, we are also testing several newer experimental compounds. Our sampling results are forthcoming so stay tuned.
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Fall Planning for Spring Diseases on Warm-seasons

The return of football, and cool fall temperatures should not only make us work towards the recovery of our cool-season turfgrasses, but should also remind us that some fall effort may be necessary to ensure zoysia or bermudagrass bursts healthily out of dormancy next spring. For both species, remember that nitrogen doesn’t enhance disease, and low fertility throughout the season can increase the potential for winterkill. If lean, (or as with some zoysia lawns I encounter zero fertilizer has been applied during the season), these last few days of green may be a last chance to give it a dab of fertilizer.

With both spring dead spot of bermudagrass and large patch on zoysiagrass, the soil temperature threshold to watch in the fall is 70°F (21°C) (view these soil temperature threshold graphs here). At this temperature, the first of two or three preventive applications could be made for the two diseases.

Sports Turf – Spring Dead Spot on Bermudagrass: Although it is a weedy bane for most in lawns and zoysia fairways, bermudagrass is a blessing under the thunder of big cleats, (or golf clubs on a driving range tee). Other than winterkill, spring dead spot is the only large threat to bermudagrass sports fields. Although newer cultivars may green up quicker and have more tolerance to the disease, no research has demonstrated complete immunity of these cultivars. On a high amenity, or site with history, water in the first of two fall applications when soil temperatures start rapping 70°F for a few days in a row. This has occurred in Kansas City and Columbia, but not yet for most other regions. Make the second application 21 - 28 days later. If the remainder of fall is mild and frost doesn’t occur often in October, plan on making the second application later towards November rather than sooner. Last but not least, spring dead spot is a soilborne pathogen so watering in the
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fungicide with 0.2 inches of post application irrigation is suggested. Two newer SDHI fungicides, penthiopyrad (Velista) and isofetamid (Kabuto) are labeled for sports turf and have been very effective in our trials.

**Golf & Lawn – Large Patch on Zoysiagrass:** After the 1.5” of precipitation in Columbia last Friday and cooler temperatures, fall outbreaks of large patch have exploded at the MU Turfgrass Research Center. All four of the experimental areas we routinely conduct large patch research on have active and obvious symptoms. The soil temperature in Columbia has been riding at or below the 70°F mark since September 8th, so the outbreak after rain is inevitable. The first fungicide application in Kansas City and Columbia should be timed now, while St. Louis, southern IL, the very dry Springfield, and Cape Girardeau still have higher soil temperatures due to the stalled out front, and can wait a bit longer. What about timing for the second application?

On most golf course fairways, two applications around now at this 70°F threshold and again 28 days later are dialed up. In many of these cases, a subsequent spring application is needed, particularly in wet, cool springs, to curtail any large patch flare ups. If only two applications are feasible, an application at the 70°F threshold and again early in the spring are suggested. If only one is possible, perhaps aim for the early spring application since the zoysia is set to go into dormancy soon anyway, and a reduction in zoysia density from the disease is normally not as severe in the fall. As a bonus, you’ll get an early peak as to where the hot spots are prior to the outbreaks of the following spring.