Weather & Nematodes Have Putting Greens in Knots

Weather

Dry and excruciatingly hot has been the norm this summer. Missouri is settled down in an extraordinarily warm and dry weather pattern that hasn’t been observed since 1988. Unfortunately, forecasts predict this pattern will not be letting up any time soon. This weather section has become a broken record, is beating a dead horse, and is obnoxiously repetitive. What ever happened to the adage “if you don’t like the weather in Missouri wait 5 minutes.” This high heat, low precipitation period is an excruciating and long 5 minutes.

The current pattern has caused a dramatic audit of irrigation systems around the state. There’s no need to break out coffee cans or rain gauges, if the irrigation system is missing a spot turf or any other plant is making it obvious. Over the last 7 days, the evapotranspiration rates total nearly 2” of plant water loss, or 54,306 gallons of water over an acre of turfgrass. Using 70% as a rule for replacement, an acre of turfgrass would require over 38,000 gallons of irrigation water to maintain normal growth. Staggering.

Dry, Dry May & June

A) Both May and June were in the top 10 driest months on record for Missouri. - source: Pat Guinan
B) Overall this 2 month span is the 6th driest on record for the state. - source: Pat Guinan.
C) The weather pattern has been harshly auditing irrigation systems around the state.

July Start: More drought, more heat = high ETs.

A) Precipitation outlook over next 5 days. Brown = dry. Source: NOAA.gov
B) Temperature outlook over the next 5 days. Red = hot. Source: NOAA.gov
Quick Hits

Wise Alternatives to Riding Greens Sprayers in 100F + Heat
A. Consider use of a Sprayhawk on putting greens to reduce turf stress. 
   Source: Willow Oaks CC blog
B. Spot drench of fungicides targeted for root diseases can be accomplished with a watering can.

• **Sprayers on Bentgrass Putting Greens:** Dr. Barb Corwin made a great point on Twitter this past week about parking your greens sprayer. In this period of temperatures well above the stress point for creeping bentgrass, the greens sprayer can do a lot more harm than good. Bentgrass and Poa is simply trying to hang on. The last thing these species are looking for in 100-degree heat is nitrogen for more leaf growth. Putting greens also do not currently need growth regulation as Mother Nature is doing all that is required. The weight of 150 gallons of water is 1,248 pounds, even without the additional sprayer weight that would be nearly 600 pounds per back tire. Particularly for the first few greens sprayed, the ground pressure from the sprayer equates to much more than the 3 – 4 psi normally delivered by a lightweight greens roller. If spraying must be done in this weather for curative or preventive pest prevention, use a SprayHawk or spot drench applications for root issues with the flower watering can. As a side note, make sure the SprayHawk applicators are well hydrated - this happened to be my one brush with heat stroke that I’ll never forget.

• **Brown Patch on Putting Greens:** No sign of brown patch on tall fescue, but in our untreated putting green plots at the turf farm we observed our first brown patch activity. Most fungicides commonly control this disease, and it’s normally not an issue unless at the end of a treatment interval.
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- **Bentgrass Etiolation**: One case of etiolation arrived in the lab last week from northwestern Missouri. The sample is carrying all of the hallmarks of the odd occurrences across the country that have been controversially attributed to bacteria. Chlorosis was observed throughout many of the greens at this site, and streaming bacteria (of an unknown species) was observed from the etiolated tillers. The sample has been sent off to another university lab to confirm pathogen identity. Treatment of this condition involves reducing stress on the plant. This includes increasing air movement (interestingly I have not seen this condition on greens with fans), raising mowing heights, alternating mowing/rolling, switching to smooth rollers, and not brushing in topdressing sand. Researchers are still piecing this new puzzle together, but if a bacterium is indeed the cause then using dedicated mowers for affected greens, cleaning mowers with a 10% bleach solution, and mowing in the evening when the grass is dry should reduce bacteria spread. It is obvious that the condition is heavily favored by warm conditions (which Missouri has had in spades over the last 3 summers). The plant may also be predisposed to this condition through the use of growth regulators or biostimulants during high heat periods.

- **Pythium Diseases** - We are still seeing cases of Pythium root rot on putting greens even in this dry weather. To read more about this disease, see the previous update. As a warning, I would expect to see Pythium blight on well-watered cool season species if the humidity picks up, particularly Kentucky bluegrass on baseball infields. As a colleague puts it, when it’s so hot and sticky that your shorts stick to your thighs, it’s time to prevent Pythium blight. Interestingly, on established creeping bentgrass greens we do not
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observe Pythium blight often in Missouri.

Root Knot Nematode – Another Species Impacting Missouri Putting Greens

As noted in an earlier update, nematode infestations on bentgrass putting greens have been an issue over the last few summers. In the last week, we have had two locations (one in Missouri, one in western Illinois) that have also had high numbers of root knot nematodes in roots. Two greens at one site had root knot counts of 13,000 and 26,000 juveniles/100 cc of soil, while the other site had one green that had 1500 juveniles/100 cc of soil. All three of these samples had noticeable galling on roots, and the turf was declining due to the malfunctioning roots. Thresholds among different labs across the country vary, ranging from 300 – 2000 juveniles/100 cc. In these cases, particularly the samples with 13k and 26k counts, the root injury was invariably leading to the turf decline.

Control options are limited and for the most part include reducing turfgrass stress through increasing air movement, raising mowing heights, alternating mowing/rolling, and switching to smooth rollers. The insecticide Avid, which has a 24c label in Missouri for ring and sting nematode control, may also impact root knot nematode. A few research articles have indicated Avid is effective in laboratory and greenhouse assays for root knot nematode control in other crops.

In areas that are declining and performing poorly, it would be worthwhile to scout for significant galling on the roots and have a nematode analysis conducted. Newer tools are being researched, and hopefully will make it to market for control. In the meantime, infected areas will need to be “babied” through this hot spell.
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Register & Attend: Missouri Turf & Ornamental Field Day – July 10th

- Want to see Dr. Starbuck discuss evergreen trees for the last time before his retirement?
- Want to meet JB in person and hear more about the *Pythium* project?
- Want to find out about the latest and greatest methods for turf and ornamental management?
- Want to meet local vendors interested in providing management solutions?
- Or, do you just want to eat a great lunch among your colleagues and research scientists?

Well then, come on over to the research farm on July 10th for all sorts of interesting lessons and information on how to effectively manage turf and ornamentals in Missouri. Our outstanding lineup of presentations and displays is set, and our research teams look forward to meeting and discussing your plant management practices. Look forward to seeing you there!!

**Click here to see the event flyer.**  
**Click here to see the full schedule.**  
**Click here to register.**

Lee Miller  
Follow on Twitter! @muturfpath  
Extension Turfgrass Pathologist  
University of Missouri