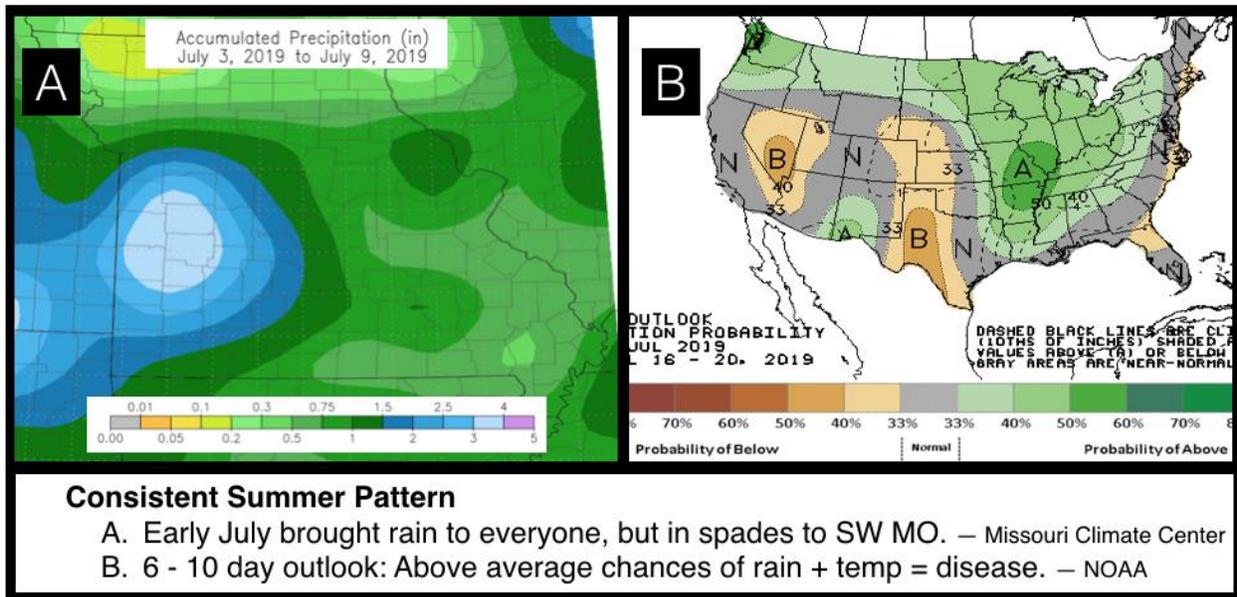


Fireworks Past the 4th

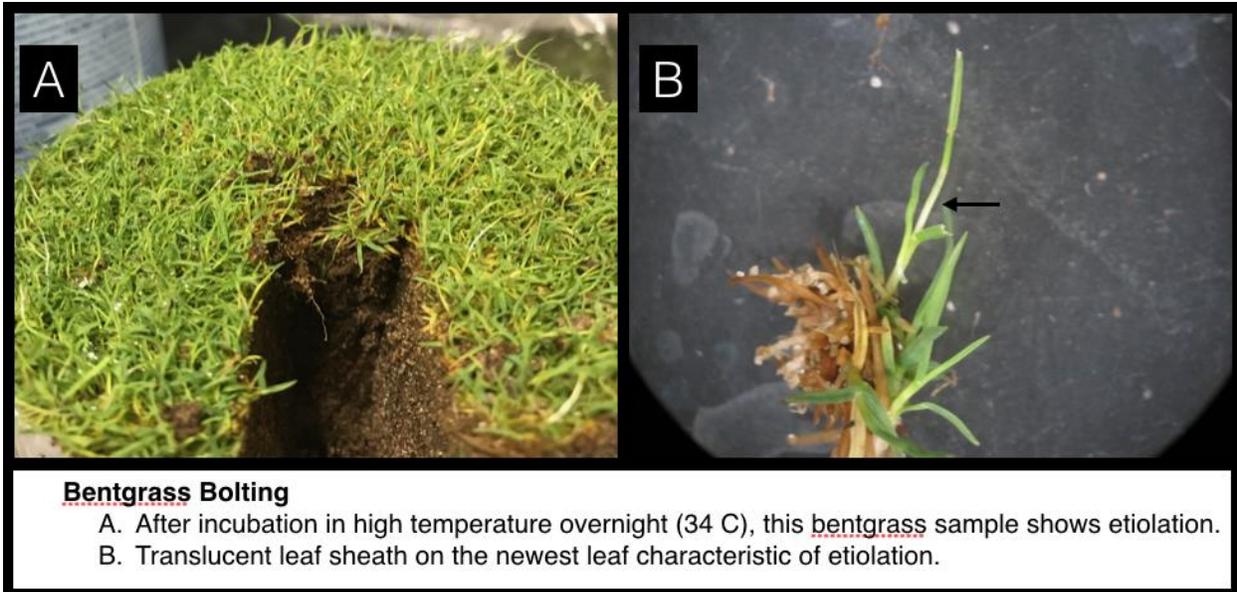


Quick Hits

Bentgrass Physiological Decline: Several putting green samples have been submitted in the last week with abiotic decline characterized by soggy, hot root syndrome (SHRS). These roots appear discolored and sloughed off, with no epidermal cells and just a bare root cortex. Pathogens can be found by a pathologist, but the root of the problem, pun intended, is organic matter and water. As mentioned in previous reports, root systems with water instead of oxygen don't fare well. This past spring while pleasantly cool, was also extremely wet. In some cases, a false sense of security may have set in that the roots were healthy and deep since the greens surface was nice, green and rolling well. Spring active Pythium root rot may also have played a part in silently nicking back root depth. If the roots were restricted by spring saturation or disease, the piper is being paid now when the heat hits. Compounding the problem is that summer hot water tends to stay summer hot, so roots that are still saturated will not have a break from high temperature stress. Above average low temperatures and soil temperature averages near 90 isn't the environment a British Isle bentgrass signed up for. Check drainage, maintain soilborne disease/nematode control, vent when golf and heat stress will let you, and hang on.



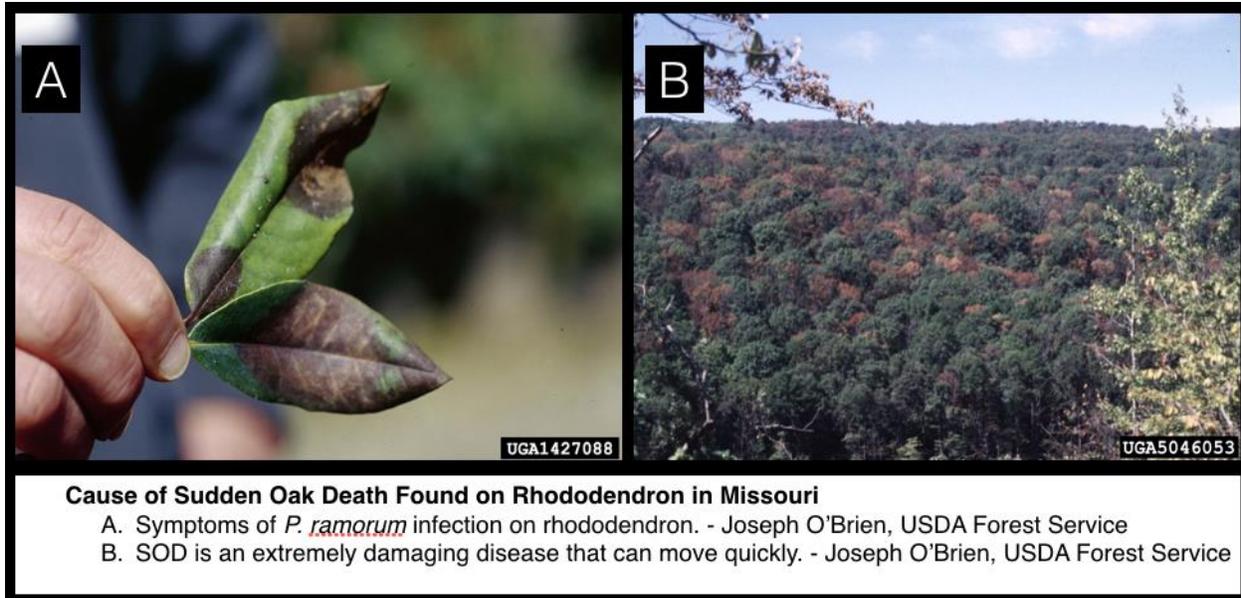
Fireworks Past the 4th



- **Bentgrass Etiolation:** A sample was sent in earlier this week with obvious etiolation symptoms and new etiolated leaves easily pulled from sheaths. A characteristic translucent section of the newest leaf, just above the leaf sheath, is observed in the sample after incubation in a high temperature (93 F) growth chamber. Several bacterial streaming tests have been conducted on the sample, with no obvious signs of bacteria coming from affected leaves. Daconil Action and Heritage Action products have been used as preventives, but as curatives may not provide much relief. High rates of Signature have demonstrated some curative activity. Closely examine PGR applications if yellowing or etiolation is present. Consider curtailing trinexepac-ethyl applications and switch to low rates of flurprimidol or paclobutrazol during summer heat events if growth regulation is needed. Determine if gibberellin acting type ingredients may be in other products you are using, particularly if you're spraying multiple (6, 7, 8!) products at a time. Closely dissect and know what's in the tank. Last but not least, ammonium sulfate should not be used as an N source if etiolation is an issue.
- **Preemergent breakdown** - Due to the persistent spring rainfall, we are noticing some preemergent breakdown and crabgrass and goosegrass breakthrough from single spring applications. This may be a season that 1) a split application strategy was required and 2) a post emergent rescue treatment may be necessary.



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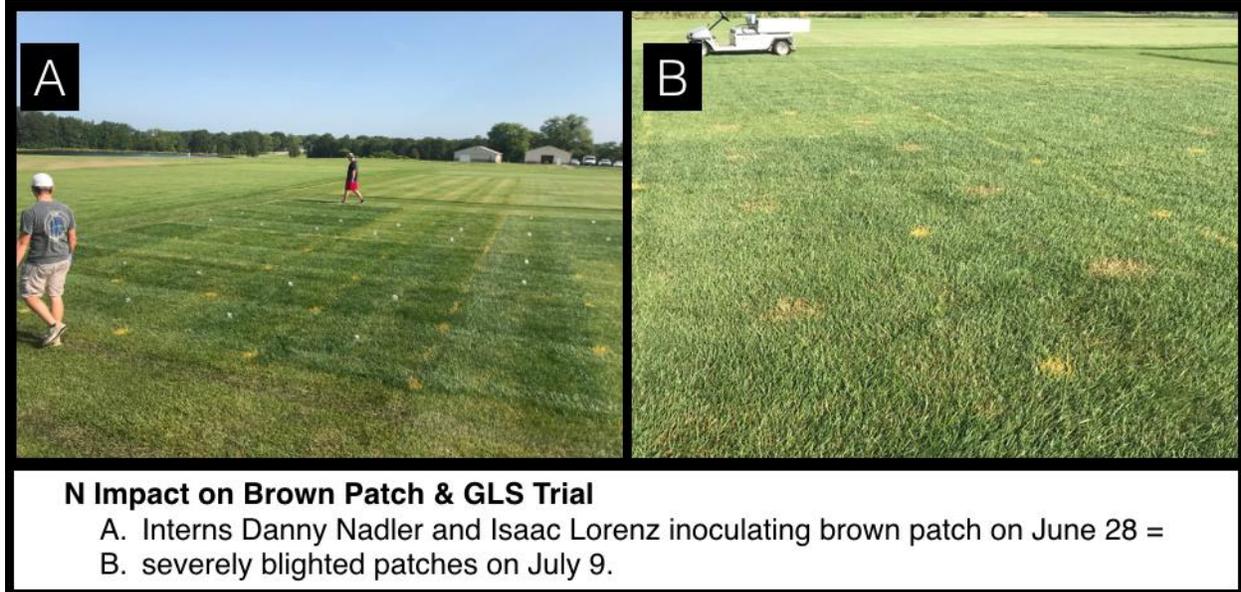


- **Rhododendron Recall:** Coming from a turfgrass pathologist, the potential introduction of this tree disease is a big deal. *Phytophthora ramorum* causes sudden oak death in California and Oregon and is thriving; with unfortunate effects on the forest ecosystem. Federal and state agencies have been trying to keep it there and prevent widespread loss of valued oak populations here and throughout the country. Unfortunately, *P. ramorum* also infects several other plants including widely used woody ornamentals that can be propagated in the West and shipped to big box stores or nurseries. This has occurred not only in Kansas City but throughout the region, as rhododendrons with *P. ramorum* infection were sold from Walmart and Rural King and several other stores throughout Kansas, Missouri, and Illinois. The infected rhododendrons in Missouri were labeled Park Hill Plants and were sold between March and June of this year. Most of these are presumably homeowner purchases, but if you have put out a rhododendron bought in this time frame into a landscape please check. If you know of one, burn the plant on site, bury it super deep, or double bag the plant along with its root ball and dispose in a landfill. Do not mulch or compost plants or dispose in municipal yard waste. Make sure to sanitize garden tools after digging up infected plants. If you are unsure, check for the symptoms shown above which include leaf wilting or browning, leaf spots and twig dieback. Unfortunately, *Phytophthora* is related to *Pythium*, and loves water movement for dissemination. The region had plenty of it this rainy spring, so vigilance in this matter is necessary. For more information, the Missouri Department of Agriculture has just released the information to the press and provided a FAQ page at <https://agriculture.mo.gov/plants/suddenoakdeath/>.



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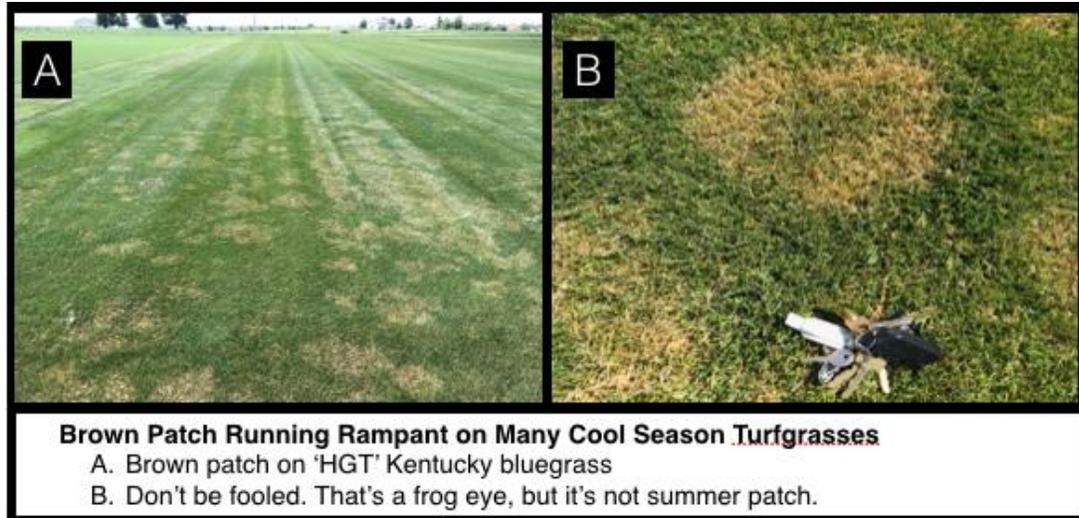
MU Field Day Just 20 Days Away... with a Sparkling Heap of Turf Disease to Show



Not to beat the dead horse from the last report, but oh my has this been a severe brown patch year. We have several research and demonstration project concerning this disease, Tall fescue is the most widely planted turfgrass species in the region, being a main constituent of residential lawns (~ 85%), and also being used in commercial landscapes, golf course roughs, cemeteries, etc. Brown patch being the main limiting disease on this species means that brown patch may not be the major economical disease in the state in regards to cost of control, but it by far impacts the most acreage. Add on that some varieties of Kentucky bluegrass, like the 'HGT' shown below, are also susceptible, and it's a slam dunk.



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At field day, (full schedule below) we will be presenting a broad-based and hands on lawn care workshop after lunch. Brown patch control will be a major portion of the presentation, because we are not going to look the gift horse of this perfect brown patch season in the mouth. However, we also will focus on various management aspects of lawn maintenance.

Stop 1: NTEP variety trial: Nothing is better for the longevity of a beautiful turfgrass stand than establishing the right turfgrass to start with. In September 2018, we established a new National Turfgrass Evaluation Program (NTEP) with 132 tall fescue varieties in 3 replications. We will discuss information from this trial, and the summary of the previous 2013 trial.

Stop 2: Sprayer Calibration: Spraying or spreading pesticides or fertilizer at the right rate is crucial to effectiveness of the application, and will save the operation important time and money. We'll go over the 128th rule for calibration and review other calibration methods.

Stop 3: N effect on Brown Patch & Gray Leaf Spot – The mantra has been to avoid N fertilization in the summer to reduce brown patch severity. Shown in the photos above, our two interns Danny Nadler and Isaac Lorenz investigated this premise in a study on the impact of 0, 0.25 lb N, 0.5 lb N, 1 lb N/1000 sq ft applications of urea made every two weeks on brown patch and gray leaf spot severity. An application of extended release polymer coated urea (Duration CR™) at 3.5 lb N/1000 sq ft was also evaluated. Brown patch inoculation went very well and we are still looking for gray leaf spot symptoms. Needless to say, the brown patch inoculations were so wildly successful that the interns' expectations of future field trials in plant pathology may now be a bit too high. Hear the results at field day.

Stop 4: Biocontrol for Brown Patch? – This last stop will review a field study conducted with Total Bio+™, a product formulated with *Bacillus* spp., mycorrhizal fungi, humic and fulvic acids. In greenhouse and laboratory testing, several *Bacillus* spp. have been found to



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be antagonistic and inhibit hyphal growth of *Rhizoctonia solani*, but field efficacy data are limited.

Stop 5: Consumer vs. Commercial Fungicide Formulations – As mentioned in [an update to the previous post](#), Scotts released a new granular fungicide (DiseaseEX™) with 0.31% azoxystrobin, the active ingredient that works most effectively for brown patch control in tall fescue. In this study, we compare the activity of this new fungicide formulation marketed directly to homeowners in major hardware stores vs. Heritage G, Heritage TL, and Scotts Disease Control with thiophanate methyl. We just applied these fungicides to the plots this week and will be inoculating them prior to field day.

A big thank you to all of the exhibitors that have signed up and will be joining us July 30, and sponsorships are still available (hint hint). Seriously though, we couldn't have the event without you and we appreciate your support.

A full list of exhibitors and all of the information regarding the event can be found at www.mufieldday.com.

Attendees, exhibitors and sponsors can sign up at <https://extension2.missouri.edu/events/2019-mizzou-turfgrass-and-landscape-field-day>.

