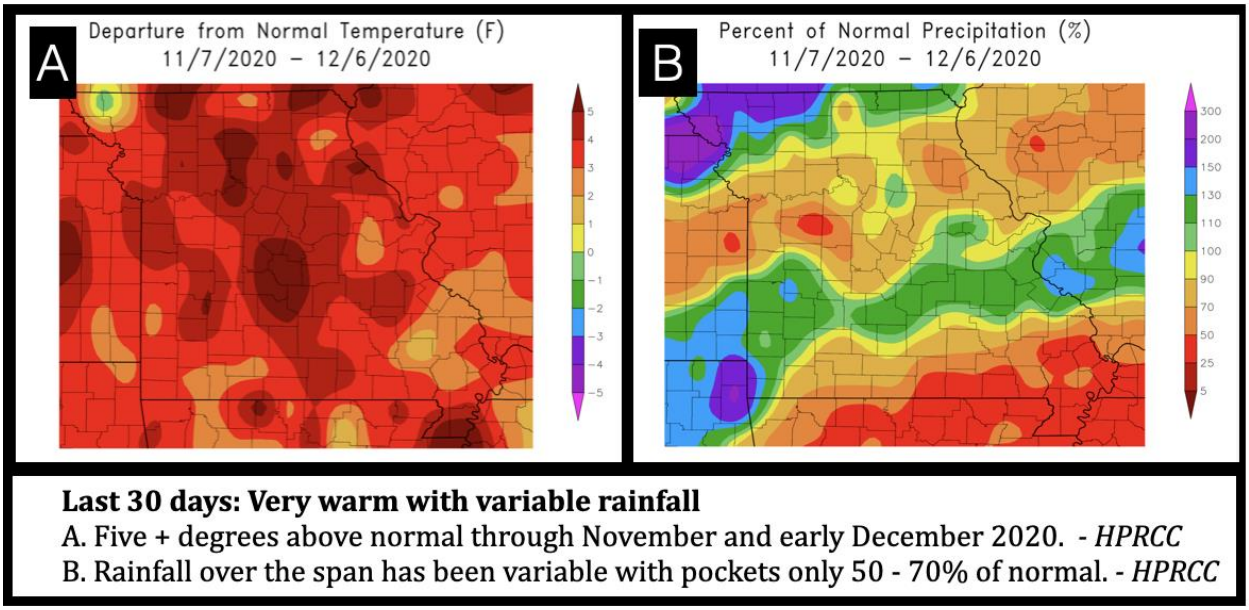
Winter Education Offerings

- Tomorrow (December 10th) at noon central time, I will be presenting a two-hour seminar covering soilborne disease management on cool-season turfgrasses, particularly on creeping bentgrass putting greens. The webinar is part of the novel Carolinas GCS virtual conference called *The Conference Comes to You,* a unique concept of 30 seminars in 30 days. There are a little over a week of seminars left in the program, and the conference is a win-win since it delivers programmatic funding back to the speaker's programs to continue research progress. Without MoGIC and some other conferences being possible due to the pandemic, consider this a viable alternative, as a number of very informative seminars are still left on the schedule. For more information and registration, see *Getting to the Root of Managing Soilborne Diseases: Cool-Season Turfgrasses.*

- Pesticide applicator training – Commercial pesticide applicator training in Missouri will also be coming to a computer screen near you in a virtual format. In place of our normal road show, recertification training will be held in a webinar format on various dates throughout January 2021. Certification training to prepare for the exam will not be offered in 2021. If you need to recertify, click on 2021 MU Commercial Pesticide Applicator Training for more information and to register.

- Last but not least, check out our "virtual field day" video below detailing some of our research work this past summer.

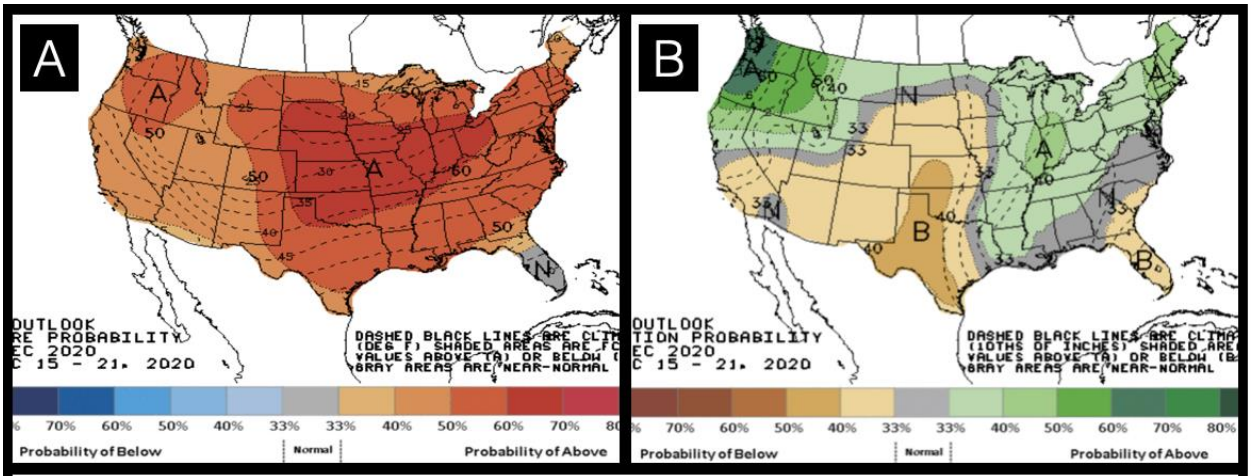
Weather



Last 30 days: Very warm with variable rainfall
A. Five + degrees above normal through November and early December 2020. - *HPRCC*
B. Rainfall over the span has been variable with pockets only 50 - 70% of normal. - *HPRCC*

November and early December have been extraordinarily warm. Much of the region had average temperatures 4-6 degrees above normal over the past 30 days, and November 2020 ranked as the 8th warmest in MO in the last 126 years (KS was 3rd). This means soil temperatures have steadily remained above freezing in much of the region, cool season grass is still green, and likely has been using some water. Rainfall has also been extremely variable in the past month. A swaft across the middle of the state has only received 50-70% of normal precipitation over the last 30 days, including much of Kansas City. Much of northern Arkansas and central Illinois are in the same, perhaps aground, boat. The bottom line is that active grass managed on sand may need supplemental water and should be monitored (see below).

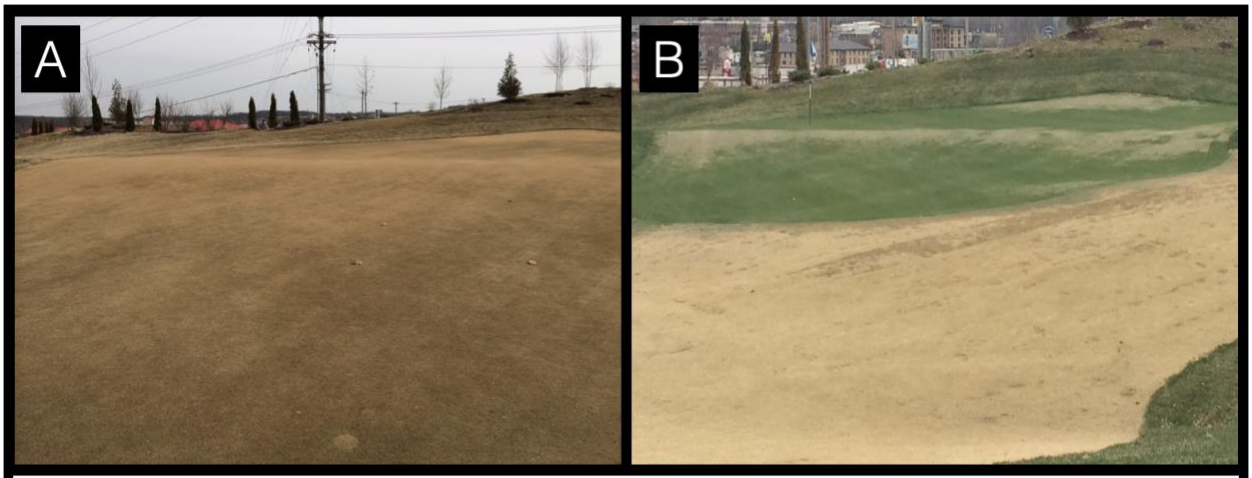
Forecasts indicate warmer than normal temperatures to continue into mid-December. Rainfall, perhaps mixed with some snow, is expected later this week and into the weekend, with expected totals in the 0.25 – 0.5 inch range. The overall precipitation outlook, however, is an expectation of fairly dry conditions through the middle of the month.



8-14 d outlook: Continued warm with variable precipitation

A. Trend of warmer than normal early winter set to continue. - *NOAA*
B. Increased chances of rain in mid December for east. Expected still dry in KS. - *NOAA*

Water in Winter: Dessication



Monitor soil moisture, particularly on young greens

A. Still dormant green in mid March, showing some discoloration along ridges.
B. Winter dessication symptoms occurring a month later on the same green.

This early season winter weather is stuck in fall, and isn't allowing bentgrass putting greens to sleep peacefully with visions of dancing sugar plums quite yet. Photosynthesis and nutrient usage are presumably minimized by cooler temperatures and shorter photoperiods, so fertilizer isn't a concern this late in the game. Many superintendents in the region have blown out irrigation at this point, however, and a lack of water in a sand-based root profile throughout a dry winter season can result in winter desiccation.

Water and Winter

Several causes of abiotic winterkill can occur, including ice cover, freezing or crown hydration, and its opposite dessication. Ice cover is normally not thick, or present for a long enough time to be an issue in this transition zone region. Similarly, freezing and crown hydration where ice crystals damage plant cells also isn't a concern very often, unless play is allowed in frozen conditions (see this recent USGA video concerning winter play here). Also in both of these cases, weaker *Poa annua* is much more sensitive to damage than creeping bentgrass. While an important weed issue here, Poa is much more pronounced in northern regions.

Desiccation, on the other hand, doesn't play any favorites and has been observed impacting creeping bentgrass in the region. This condition occurs when a lack of snow cover and low moisture conditions leave turf exposed to drying frigid winds… think Arrowhead in December. Cool season turfgrasses in sand profiles lose moisture quickly in crown tissues and perish. Desiccation is more likely to occur on slopes and new, younger putting green stands. The same can occur on sand-based sports fields but isn't as common, since the cut is higher, and sports fields are flatter and less exposed.

Since crown exposure is key, a heavier sand topdressing prior to winter may provide some extra protection. In this current warm winter environment, also consider continued use of TDRs to monitor soil moisture and correct during these early warm temperature spurts if necessary. Greens that are exposed on high ridges, have severe slopes, or have recently been established may require special attention. If the irrigation is blown out, consider experimenting with taking the nozzles off the sprayer (or even better spray hawk) and applying water under very low pressure. Be prepared that a lot of water (and trips back to the shop to fill up) may be necessary, as just a 0.1 inch of water amounts to over 62 gallons of water per 1000 sq ft.

If winter desiccation has been an issue in the past, consider a late fall/early winter wetting agent application. Dr. Richardson at U of Arkansas has conducted work indicating a positive effect on ultra-dwarf bermudagrass green survival (see the research abstract here), and will be discussing wetting agents at the upcoming HAGCSA virtual conference (see details here). Similar research by Dr. Horgan at the University of Minnesota indicates there may be similar benefits, with late fall-applied wetting agents reducing water repellancy into the next spring.