Dry Fall Could Spell Winter Troubles

Weather

Fall of 2017 won’t be remembered as a good one for establishment of cool season turgrasses. Temperatures ran approximately 2 degrees above normal statewide in Missouri as September, October, and November were all above average. This is not an abnormal pattern since this is the third consecutive fall with above average temperatures, but considerably cooler than last year’s near record fall warmth (2nd highest).

The lack of rainfall, which has continued into the first half of December, has made plant establishment difficult. While October had several scattered rainfall events throughout the month, very little rainfall (0.5 inch or less in some areas) has fallen since October 22. In Missouri and the surrounding region, September and November were well below normal (2 to 3 inches), and only scant traces of precipitation have occurred in the region in December. Fall of 2017 was the 2nd driest in MO in 123 years and the driest fall since 1953.
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Driest Fall since 1953
A. October rains helped, but the deficit in Sept and Nov were large. - Midwest Regional Climate Center
B. 2nd driest Fall in last 123 years - Source: NOAA CPS

Irrigation in December? Could be A Necessary Evil

As shown above in the US drought monitor (http://droughtmonitor.unl.edu) and emphasized in the weather report, much of the region is in the grip of a moderate to severe drought. Combined with the high winds packed with drying cold air, plants (particularly bentgrass putting greens) may be set up for a severe dessication event if left unirrigated. This dry weather may set up a dessication event similar to 2014 (https://turfpath.missouri.edu/reports/2014/update03_25_14.cfm), when the polar vortex hit so severely in January and February. While a lack of snow cover occurred during
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that winter season, the preceding 2013 fall did have significant precipitation. This longer moisture deficit period going into a potentially cold, dry winter is perhaps even more of a concern.

On the agricultural side, the drought impacts have been substantial. Beef producers are feeding hay to cattle due to minimal fall grass growth and no fall hay cuttings. Along with this, farmers may need to reduce these herds due to dwindling hay supplies and some cattle are being lost due to nitrate poisoning incidents from weeds. Fall seeded perennials did not germinate well, and the winter wheat crop has suffered due to the lack of moisture. This last point mirrors turfgrass managers and homeowners’ experience with fall seeding, as germination was very difficult on non-irrigated areas. Below are a few key areas to monitor in regards to this current drought.

*Bentgrass Putting Greens*

Bentgrass putting greens, particularly younger stands are potentially the most susceptible to winter dessication injury from this dry fall period. Drying winds combined with the low moisture holding capacity of sand-based soils can drop crown moisture quickly. Earlier this week we measured volumetric water content (VWC) on the putting greens at the MU research farm with the TDR 300 outfitted with 3 inch rods. Our average from 10 samples across the green was 7.2 for the ‘Penn A1’ green, 9.1 for our NTEP bentgrass green, 15.3 for our ‘Penn A4’ green, and 18.5 for our disease green. The results mirror the age of these greens perfectly from youngest (2 years old with the lowest VWC) to the oldest (18 years old with the highest VWC), and reflects the impact of organic matter accumulation and reduced hydraulic conductivity with age on water retention. This data prompted us to reboot our irrigation system (only drained) and irrigate this week.

Many superintendents blew out irrigation system weeks ago in the normal mid-late November timeframe. Probing or using a TDR to assess water content this week is recommended. If areas are too low, it may be time to reboot the system later this week and water during this weekend (highs in the mid 50s) or during the forecasted warm spell next week when temperatures are safely above freezing. During this time, it’s important not to overwater either, as crown hydration injury rather than dessication can occur. Watering at approximately 0.1 inch should be enough to rehydrate the crown, and hopefully some much needed precipitation or snow later in December or January will arrive for further protection. Sand topdressing at a moderate to heavy rate may also protect crowns and reduce chances for winter dessication. Some superintendents applied wetting agents prior to blowing out the irrigation system which may aid in retaining moisture. Considering the length and severity of this drought, checking even these areas is suggested.

*Bermudagrass Sports Fields/Zoysiagrass Fairways - Traffic*

Well established zoysiagrass fairways and bermudagrass sports fields with heavier loam soils should be at less risk for winter dessication damage since they went into dormancy.
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during October when several rain events did occur. Younger stands, particularly those sprigged in mid-late summer should be monitored and potentially irrigated. The bigger problem may be traffic on these areas. Heavily trafficked areas such as sports fields or golf fairways with heavy cart use will be more susceptible to damage in this cold, dry environment. Even when temperatures are above freezing, consider limiting cart/human traffic until precipitation returns.

Fall Seeding & Lawns

Hardier tall fescue and Kentucky bluegrass lawns should be okay during this current drought without supplemental irrigation, however, expect some attrition from fall seeding efforts in non-irrigated areas. Like wheat and fall seeded perennials on the agricultural side, germination on September seeded tall fescue or other cool season grass may not have occurred until mid-October without supplemental irrigation. With the subsequent dry November and December weather, seedling development was potentially hindered and the plants may not have hardened off prior to our first few frost events. Watering in the next week may help the seedlings that did mature, but in likelihood won’t save those with root systems severely limited by the drought conditions. A dormant or late winter seeding in late February/early March (condition dependent) may be considered to rebuild turf density (click here for more information).

Trees

Last but not least, don’t forget the trees and landscape. In late fall/early winter, soil moisture is important for woody ornamental health, particularly evergreens, which lose water through their needles all winter long, Dry Fashallow rooted species and younger plants. In 2014, ornamentals with winter injury diagnosed in the clinic included arborvitae, blue atlas cedar, pines (particularly white pine), rhododendron, and tulip trees. If easy hose-end irrigation is not available, consider pouring 4-5 5 gallon buckets of water around the drip zone of important landscape species.

Winter Conference Season

The winter conference season is well underway and I hope to see some of you on the road. Great stops already at the Missouri Green Industry Conference, the Mississippi Valley Golf Course Superintendents Shop Tour, and the Midwest Turfgrass Clinic (Midwest Association of Golf Course Superintendents). Thank you all for hosting and program support. Next week is the Common Ground Conference and then on to Missouri Pesticide Applicator Training during January with a final stop at the Golf Industry Show in February. Happy holidays and see you in 2018!