Turfgrass Winterkill Update – 2015
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Winterkill: I always like to tell people that you know what it is when you see it, but you just can’t tell exactly what it is or why it occurred. The first week of May has brought some parts of Virginia the first real evidence of significant winterkill of bermudagrass as golf course superintendents, sports field managers, and sod producers have patiently waited to see if there was any life in areas that were slow to green. Reports on living or dead Bermuda from folks that pulled plugs and brought them inside to monitor greening have been quite mixed to this point. The damage seems to be more concentrated from Richmond to Tidewater, and I am supposing that is because these areas of the state probably didn’t have as much snow cover as the traditionally colder areas of the state did when the low temperature extremes of January arrived. Where bermudagrass is grown in the colder parts of the state, a significant snow pack during the low temperature extremes of February seemed to provide adequate low temperature protection. When I reviewed my temperature data at the Turfgrass Research Center here in Blacksburg during the period where our temps dipped to -2 and -6 F for the nights of the 20th and 21st of February, the uncovered control plots in my winter turf blanket research trial were still in the upper 20s underneath 6+ inches of snow. Another observation on the value of the snow cover is whereas we lost 75% of our NTEP bermudagrass variety trial in 2013-14 (no snow and two nights of subzero temperatures), it appears that the majority of the varieties have survived the winter of 2014-15.

In 2014, predicting where the bermudagrass damage was going to occur was strangely more difficult in that I saw bermudagrass in certain locations that survived (and even thrived) under poorly drained soils and northern facing slopes. However, in 2015 the predictions on where the grass is damaged have been much more consistent: poorly drained soils, north-facing slopes, heavy traffic areas, fairways shaded by the tree lines (Figure 1). Put any of these in combination with each other, and the damage is that much more exaggerated.

Figure 1. There is a stark difference in the winter survival of this bermudagrass fairway between the shade from the tree line and the center of the fairway.
Again, the standard cold tolerant varieties that have traditionally withstood the test of time in Blacksburg variety trials (Latitute 36, Patriot, Northbridge, Midlawn, Yukon, and Riviera) have survived fairly well as mature turfs. However, just about any bermudagrass (cold tolerant or not) that were either harvested and/or established late last year are showing significant winterkill. Brian Walker of Riverside Turf shared two photos of a Patriot bermudagrass production field harvested last fall (Figure 2). Scott Woodward of Woodward Turf in Culpeper confirms the same scenario at his farm. This type of damage strongly suggests a short supply of bermudagrass sod in 2015.

![Figure 2. This fall-harvested Patriot production field in Charles City, VA shows the concerns with a late season harvest of even a superior cold-tolerant variety such as Patriot.]

This type of damage always leads to questions of the turfgrass manager on “what did I do wrong”? In most cases, nothing. Mother Nature constantly sends us friendly reminders of the trials and tribulations of growing grass in the transition zone. One contributing factor has been the summers of both 2013 and 2014. Each were relatively mild summers that I would describe as fairly poor bermudagrass years in terms of prime growing conditions during the summer months (of course, this has been a blessing for those mostly managing cool season grasses). Much of the state has struggled getting that ‘100 days of prime bermuda growing conditions’ that we feel are necessary in the transition zone to really have a healthy bermudagrass stand that is fully prepared to survive a 4-5 month winter dormancy period. However, the damage we have experienced over the past two winters does give us reason to think about possibly altering management strategies and situations, and to at least let your clientele know of the challenges and how you are addressing them.

Two areas that I definitely think can be addressed (WITH the necessary approval and financial support) are poor drainage and modification of shade lines. Anything that can reduce persistently wet soils is going to improve the overall health of any turfgrass. Where possible, move the water away from these persistently wet soils and you will be rewarded with the opportunity to really grow some grass there in the future. The trees vs turf battle is never going to go away and there simply must be some level of
compromise between golfers, the superintendent, and what to expect regarding turfgrass density and persistence in part sun/part shade turfs. There is no better time to ‘educate’ greens committees etc. than right now about how damaging winter shade lines can be for tree-lined bermudagrass fairways. The problem with the shade is not just the duration of the colder temperatures of the winter, but also the reduced thriftiness of the turf in the first place from growing under low light conditions on a regular basis. I understand that trees provide great beauty and function, are a part of the strategy of hole design, and even an important safety component for people that drive the ball like me, but there almost always is some potential for some selective thinning of trees (desirable) and ‘limbing up’ of trees (better than nothing) in order to get more light to the turf. Again, take advantage of the opportunity to discuss this with your clientele first hand on why the problems exist.

Another issue for which you can continue to educate your clientele on for its importance is the effect of persistent, heavy traffic and how it increases the potential of winterkill. This is readily evidenced just about every year for any major entry and exit points into greens, tees, and fairways and it is obvious every spring between the hashes and 30 yard line markers on football fields and around the goal mouths of soccer. Now is a great time to once again remind the users of the turf just what a difference could be made if we could only distribute the traffic better. Signs, ropes etc. all help, but what is really required in traffic management is an appreciation by all that we can make a difference one cart or one player at a time if we simply keep this in mind.

If you have had significant damage, what are you going to do now?
If you return to bermudagrass for sports field or golf turf use, are there more cold tolerant varieties available than what you have used in the past? And remember what was said earlier about short supplies of bermudagrass this year as the damage extended well into the Carolinas in the winter of 2014-15. Sprigging at 800-1000 bushels per Acre rather than what I usually think of as our ‘minimally acceptable standard’ of 500 bushels per Acre can greatly assist in achieving complete coverage of bermudagrass as soon as possible (I would say no more than 8 weeks in an average summer... whatever that is!). If you seed, prep the soil, be prepared to manage the irrigation and weeds, and I would use up to 1 lb of pure live seed per 1000 sq ft of our improved seeded varieties. If you would like to talk to Virginia Tech in more detail about how to utilize lower quality seeded bermudagrasses with the improved seeded varieties as a means of saving money and enhancing the rate of coverage, contact me to discuss the benefits of this approach based on our Virginia Tech research.

One thing I didn’t discuss but it is particularly appropriate for sports field managers (and an absolute necessity for anyone in the golf business moving towards ultradwarf bermudagrass putting greens) is the use of turf blankets for winter protection. For those of you pondering about whether or not a turf blanket might be a good investment, remember that you can use the more translucent turf blankets
(typically the white or lighter colored blankets) to assist you in grow-ins of both warm-season AND cool-season grasses, in addition to winter protection. I attach the following picture (Figure 3) that I received on May 7, 2015 from Mike Skelton of Culpeper Parks and Recreation Department. For three years now, Mike has had great success establishing Riviera bermudagrass under non-irrigated conditions by way of dormant seeding and covering the installation with a turf blanket. This picture shows the results of a March 23 dormant-seeded bermudagrass that also received a ¼ topdressing of compost and a quinclorac treatment for weed control. Mike has brand new bermudagrass turf that is already in need of a mowing BEFORE most of us are even considering seeding bermudagrass.

Figure 3. The turf blankets are being removed on May 7, 2015 at Spillman Park in Culpeper, VA so that the March 23 dormant seeded Riviera bermudagrass turf can be mowed for the first time.

Please let the Virginia Tech Turf Team know if it can assist you in any facet of your turfgrass management programs.

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