



Talking Turf Covers And Winter Injury With Dr. Michael Richardson

By Patrick O'Brien, agronomist, Southeast Region | May 19, 2017



Researchers are studying how different ultradwarf bermudagrass varieties respond to being covered at various low-temperature thresholds.

Dr. Michael Richardson has been a professor of turfgrass management and physiology at the University of Arkansas since 1997. USGA Agronomist Patrick O'Brien recently interviewed Dr. Richardson regarding his USGA-funded research on winter turf covers.

Question: Dr. Richardson, you are conducting a study on using winter turf covers to protect ultradwarf bermudagrass putting greens from winter injury. What type of turf covers are being studied?

Answer: Deciding which covers to study was challenging because there are a number of different covers available for putting green protection. We decided to use permeable, woven black polypropylene covers since they appeared to be widely used in the region. However, there are also some interesting new cover technologies that should be tested in the future. I am especially interested in covers that provide some form of air space between the cover and the turf that might give extra protection to putting greens during very low temperatures.

Question: Are you seeing any differences in winter injury among the ultradwarf bermudagrass varieties in the study?

Answer: There have been some striking differences among the cultivars in our trial. During the winter of 2015-2016, we had mild temperatures and minimal winter injury on our plots. However, even under mild conditions, Champion bermudagrass experienced more winter injury than either TifEagle or MiniVerde® at our location. During the winter of 2016-2017, we had several periods of single-digit temperatures and the differences in survival were more dramatic. However, they were similar to the previous year in that MiniVerde and TifEagle had similar survival, while Champion experienced more significant winter injury.

Question: You tested the effectiveness of installing winter covers at different temperature thresholds. What were those thresholds and have you observed any differences based on this variable?

Answer: In our study, we installed covers based on the predicted low temperatures for the upcoming night. Covers were installed on different plots when low temperatures were forecasted to drop to 25, 22, 18, or 15 degrees Fahrenheit. We also had an uncovered control plot. Due to the mild temperatures in the first year of the trial, there were really no differences in winter injury among the different thresholds and minimal injury on the uncovered plots.

During 2016-2017, several periods of single-digit temperatures were experienced and the uncovered plots were basically dead – there was less than 5-percent survival for any of the cultivars. The covered plots showed no differences in winter survival based on the different threshold temperatures for installing covers. This suggests that winter survival may be similar with less-frequent covering, meaning courses could potentially wait to cover until predicted lows of 20 or 15 degrees Fahrenheit.

Question: Are you doing any research on creating a “[dead air gap](#)” between the turf and the covers? Some golf courses have found this practice helpful for protecting their greens during the coldest winter temperatures.

Answer: We have not, but it is certainly a topic of interest moving forward. There seems to be some benefit to placing a straw layer under putting green covers and there may be other ways to create an air space between the turf and the cover that could enhance protection.

Question: Do any other winter management practices seem to reduce winter injury besides using turf covers?

Answer: We are also investigating the impact of applying wetting agents to ultradwarf bermudagrass greens in early winter because we believe that desiccation may be a contributing factor to winter injury on sand-based putting greens. In the first year of the trial, we saw a nice response to a winter wetting agent application. However, those same treatments have not really had any impact this year. This could reflect differences in soil moisture content between the two years of the study. However, based on this trial and some others that we have conducted, I am recommending that golf courses develop a winter wetting agent program for their greens as an insurance policy against desiccation.

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