



Using pine straw to create an air gap underneath putting green covers can help protect turf on putting greens in cold microclimates.

FIVE TIPS FOR PROTECTING BERMUDAGRASS PUTTING GREENS DURING EXTREME COLD

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A polar high-pressure system entered the Southeast Region Jan. 1-8, 2018, causing record-setting cold weather. In many areas, low temperatures plunged to single digits for several nights and high temperatures remained below 32 degrees. Protecting ultradwarf bermudagrass putting greens with turf covers to reduce plant tissue damage was essential during these extremely cold temperatures.

Jared Nemitz, golf course superintendent at The Peninsula Club in Cornelius, North Carolina, has plenty of experience using turf covers. Over the past five years, Nemitz has used turf covers along with a combination of additional measures to successfully protect ultradwarf bermudagrass putting greens during periods of extremely cold weather. Below are five techniques that have worked for him over the years:

1. Apply wetting agents before the arrival of extremely cold weather to maintain proper soil moisture levels.

It is very important to maintain adequate soil moisture in the upper rootzone of putting greens to prevent desiccation during extremely cold weather. Adequate soil moisture is especially critical for sand-based rootzones which are prone to drying out. Applying wetting agents to putting greens can help ensure adequate and uniform moisture levels that will reduce the risk of turf injury during cold weather. Research at the University of Arkansas supports this practice.

2. Temporarily remove turf covers after four or five days to irrigate putting greens during prolonged cold weather events.

High winds and low humidity often accompany extremely cold weather. During these conditions, the upper rootzone can dry out underneath turf covers. Taking covers off for two to three hours and irrigating putting greens will restore rootzone moisture. Check soil moisture using portable moisture meters and use a combination of sprinklers and hand watering to target mounds and perimeter areas. It is more efficient to remove turf covers before irrigating than trying to irrigate while putting greens are still covered. Removing turf covers for a short time has minimal impact on soil temperatures.

3. Create an air gap under turf covers at the coldest putting green sites. Turf covers alone may not provide enough protection when temperatures drop below 15 degrees Fahrenheit.

Putting greens on north-facing slopes and those with winter shade issues are prone to lower soil temperatures than other putting greens. Placing pine straw on a putting green before installing a turf cover creates an air gap between the turf and the cover that helps keep soil temperatures several degrees warmer than a cover alone. This increase in soil temperature may prevent turf injury.

Nemitz measured putting green soil and canopy temperatures at The Peninsula Club during the extremely cold weather of Jan. 1-8, 2018. A shaded green that was covered and protected by an air gap created with pine straw had higher canopy and soil temperatures than a putting green in full sun that was only covered. For putting greens situated on north-facing slopes, in shaded areas and in other cold microclimates, creating an air gap under turf covers can help ultradwarf bermudagrass survive periods of extremely cold weather.



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4. Manage winter shade.

It is essential to manage winter shade on putting greens. Shade will reduce soil temperatures, increasing the risk of cold temperature injury. Shaded greens are particularly susceptible to winter injury if they are not protected by a cover with an insulating air gap.

5. Use turf covers to protect ultradwarf bermudagrass.

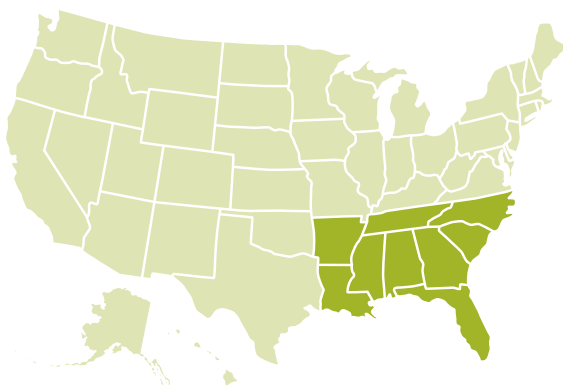
Turf covers work, but extreme cold weather events may require extra precautionary steps to optimize turf protection. Although the cost of turf covers may range from \$15,000 to \$30,000 depending on putting green sizes, they are a dependable insurance policy. Even if covers are seldom necessary at your facility, they can help reduce the risk of turf injury – and the lost revenue associated with it – should extremely cold weather return in the future.

Recent USGA-funded research at the University of Arkansas provides valuable information about using turf covers to protect ultradwarf bermudagrass putting greens. The article, [“Talking Turf Covers and Winter Injury with Dr. Richardson,”](#) and the video, [“Reducing Winter Injury on Ultradwarf Putting Greens with Turf Covers,”](#) summarize important results from this research that can help you protect ultradwarf putting greens during extremely cold weather.

Table 1.
Temperature data from two putting greens during this year’s cold weather shows that an air gap can help maintain soil and canopy temperatures.

Date	Air Temperature		Green (Cover & Pine Straw in Shade)		Green (Cover Only, Full Sun)	
	High	Low	Canopy	Soil	Canopy	Soil
1/3/2018	38°	19°	47°	36°	41°	33°
1/4/2018	35°	18°	45°	38°	35°	32°
1/5/2018	40°	14°	53°	33°	43°	32°
1/6/2018	37°	15°	-	33°	-	32°
1/7/2018	36°	9°	-	33°	-	33°
1/8/2018	43°	23°	51°	34°	42°	33°
Average	37°	16°	49°	35°	40°	33°

* Temperature in Fahrenheit
** Covers deployed 1/1/2018 and removed 1/8/2018



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