



Cold Damage on Turfgrasses

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In winters not-so-recently past, cold weather has damaged Carolinas turfgrasses. In the winter of 1975-1976, and again in 1984-1985, the bermudagrass (a warm-season grass) used on some greens and tees died.

Not as many courses had bermudagrass greens back then, but the harsh winters led such courses to change to bentgrass greens after 1985. Much of the bermudagrass on tees and fairways also died those winters and had to be replanted as sprigs or sod.

Last winter, we saw some damage to new ultradwarf bermudagrass greens and shaded tees. Many of these problem areas didn't have good putting or playing quality until July.

More cold damage occurs on bermudagrass in areas with shade from nearby trees, especially pines that hold needles through the winter. Limbs from large hardwood trees such as oaks also cause shade problems — grass might be killed or, at best, green up more slowly in the spring. The reason is that soil temperatures are colder in shade, and frost or snow remains longer on these surfaces. Bentgrass doesn't grow as well in shade, and more summer stress often develops on these greens because the plants are weaker going into the hot weather.

Clubs have options to reduce shade-related damage. Trees can be removed near greens and tees. Another option is to accept slower-growing turf, or damage, in the spring and early summer. Some courses

have planted zoysiagrass varieties with more tolerance to cold on tees and fairways with winter shade.

Cold damage is more likely to develop on greens with more sand, as sand is drier and colder in winter. Bermudagrass on new greens with high percolation rates (more sand) have had more damage than old "push-up greens" with more soil. Courses considering converting from bentgrass to a new bermudagrass first should evaluate the soil conditions. A low percolation rate (in the range of 6 to 8 inches per hour) is better for bermudagrass. Higher percolation rates (12 to 20 inches per hour) are recommended for bentgrass.

Desiccation (a drying up) can occur and cause damage on both grasses during dry, cold, and windy weather. Your superintendent will have to run the irrigation system at times to help prevent problems with any grass.

Newly constructed tees have been "capped with sand" in recent years to provide better drainage. But the turfgrass usually has more damage from cold. Grass doesn't grow as well on sand with low nutrient and water-holding capacities, and it is weaker going into the winter. I think it's best

to use native soil and build teeing areas with some slope to provide drainage.

Overseeded grasses can add to winter damage problems on bermudagrass. Cool season grasses grow well in the fall and early spring, but spring growth causes shade and competition. This caused some serious problems on bermudagrass this past year. The grasses grew well in the cooler weather of May, but the bermudagrass was thin when the grasses died in hot June weather. It will be best for the bermudagrass if overseeded grass is removed with herbicides in the spring. A current trend at private courses is not to overseed bermudagrass. Resort courses have to overseed to attract golf tourists.

Another concern is when to allow play on greens with frost or frozen soil. Walking on frost, especially on bentgrass or overseeded grass, causes brown "footprints" or large brown areas around the hole several days later. The damage is caused by ice crystals puncturing cells, and leaf tissue dies. Frost usually remains longer on greens with shade. Therefore, removing trees can reduce frost delays. The superintendent can irrigate to help remove frost if the air temperature is above freezing. Running a fan can also help reduce frost accumulation, similar to how peach growers protect their crops.

I don't have good information on damage caused from play on solid frozen greens. However, serious damage can occur when the top layer begins to thaw and the soil below is still frozen. Walking on this turf causes it to move, and roots in the frozen layer are torn from the plants.

I know it's difficult to keep golfers off greens when temperatures are in the 50s or 60s and the soil is still frozen. We expect to play golf throughout the winter in many areas. The most difficult problem for your superintendent is explaining why the grass is not growing well in July because of cold weather that occurred months earlier.

➤ CGA staff agronomist Leon Lucas is available to help CGA member clubs with their turfgrass dilemmas. Contact him at (919) 779-3241 or llucas@carolinasgolf.org.