Preparing Warm-Season Turfgrasses for Winter

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Winter damage on warm-season grasses can be a serious problem for turf managers. Even though warm-season grasses are dormant during the winter, they are still alive and it is important to remember that they are still susceptible to injury from the environment or bad management practices. Here are some of the major causes of winter damage to turfgrass and some ways to minimize their impact on your turfgrass this year.

- **Low temperatures.** While there is nothing you can do about the weather, there are some things that affect turf’s response to cold:

  1. **Genetics.** Some varieties are simply more cold tolerant than others. For example, TifBlair centipedegrass is significantly more cold hardy than most common centipedegrasses. Also, St. Augustinegrass varieties such as Palmetto and Raleigh have superior cold tolerance. Bermudagrass varieties noted for superior cold tolerance include Midiron, Riviera, Latitude36, Yukon and Patriot, although in Alabama winters are rarely severe enough for large-scale cold damage to occur on bermudagrass lawns, athletic fields or fairways.

    The big exception is bermudagrass putting greens. Covering dormant bermudagrass greens when the temperature drops into the low 20s or lower can significantly improve their survival. However, be sure to remove the covers as soon as possible when the temperature warms above freezing, especially on sunny days. Moisture accumulating under covers as the sun hits greens and warms them up can make for ideal conditions for a variety of fungal diseases.

  2. **Potassium.** Researchers have studied the relationship between potassium fertilization and winter survival in turfgrass for many years. The bulk of this research has been done with cool-season grasses, especially bentgrass,
bluegrass and ryegrass. As strange as it seem to Southerners, the cool season grasses do suffer from winter kill in cold climates. The research definitely shows that grasses that are deficient in potassium have worse cold tolerance than grasses with sufficient levels of K. Of the warm-season turfgrasses, bermudagrass and zoysiagrass have been studied the most. Centipede and St. Augustinegrass are thought to behave similarly.

However, there is little evidence that applying massive amounts of potassium beyond sufficiency does any additional good. Routine potash fertilization in the fall may not be needed if a balanced approach to fertilizer is taken all season long. The best way to tell whether K is sufficient is a soil test. Do this before the turf goes dormant. If a turfgrass plant is already dormant, it will not be able to take up potassium fertilizer well, if at all.

3. **Nitrogen.** Winter survival of centipedegrass is extremely sensitive to excessive nitrogen applications. When centipedegrass is fertilized with more than two pounds of N per 1000 ft², it dies back even during mild winters. Be especially careful not to fertilized centipedegrass in the late fall.

Centipedegrass that has been fertilized with large amounts of nitrogen does not survive winter well. This plot received 4 pounds of N per 1000 square feet in the growing season and fared very poorly compared to the other, less-fertilized plots.
In the past decade or so, research has shown that bermudagrass fertilized in the late fall (through October, or November along the coast) with small amounts of N (up to \( \frac{1}{2} \) pound N / 1000 square feet every three weeks) did not have worse cold tolerance than controls, and the extra N helped with fall color retention. So it may be that small amounts of N in the fall on bermudagrass are ok, but I still would not advise dumping large amounts of N onto warm-season turf in the fall.

- **Dessication.** Even while they are dormant, warm-season grasses are susceptible to damage if they dry out excessively during the winter. Low humidity and cold, dry winter winds can damage turf even more than low temperatures. This problem can be especially troubling on slopes that are exposed to prevailing winds or north-facing slopes (these can be one in the same in the winter, which often features northwest winds in our part of the country).

Fortunately, our southeastern winters usually provide enough rain and snow that this is not usually a major problem for us. But especially on newly-established dormant sod, be very careful not to let the turf dry out in winter.

Exposure to wind magnifies the effects of cold, dry weather on turfgrasses. This golf course fairway exhibited severe winter damage on the slope facing the prevailing wind, while the lee slope was not damaged.
- **Overseeding.** Turf that has been overseeded does not survive winter as well as healthy, dormant non-overseeded turf. Overseeding robs the underlying warm season grass of sunlight and nutrients during the last month or two of the growing season and also delays spring greenup and recovery. Though overseeding has some benefits, it is best to view overseeding as a very situational management practice. It’s possible to maintain high quality turf in many situations without overseeding, and now I generally recommend overseeding only in cases where there is a lot of traffic on the dormant turf (for example, baseball, soccer and softball fields and some football fields). Even most golf courses find that they can maintain a high-quality putting surface with dormant bermudagrass greens in the winter. The cosmetic benefits of overseeding greens should be weighed carefully against the management headaches to determine whether it is really worth it.

- **Herbicide use.** Many turf managers use nonselective herbicides such as Roundup or other products containing glyphosate to control winter weeds in dormant turf. This can be a cheap and effective way to deal with a wide variety of weeds. But be careful when doing this. Remember that dormant-appearing grass isn’t always completely dormant, and that any herbicide that falls onto green stems or other green tissue hidden beneath the canopy can and will be absorbed by the grass. Do not over-apply herbicides on dormant turf. One way to get in trouble quickly is to spot spray heavily. Spray only as much as is needed to wet weeds, to minimize runoff that can work down into the grass canopy.