

# Winter Management of Cool Season Turf

By Mary Owen

Cool season turfgrasses begin preparing themselves for winter dormancy as day length shortens and temperatures cool each fall. Many athletic fields still are in play during the preparation period and through the early stages of dormancy. Many fields also must support spring sports activity before the turf has fully recovered from winter stress.

The steps you take now will impact turf survival in winter conditions, how well it tolerates those conditions if it does survive, and how effectively it regains vigor in the spring.

## Assess Problems

Turf that already is weakened in the fall is less likely to survive winter stress. Assess your current conditions and anticipate problems.

Identify areas of thin or weak turf, bare spots and areas of poor drainage, heavy wear or excessive compaction. Note which can be scheduled for improvement during the active play period or at the end of the season and which must wait until spring.

Plot out the sections of each stadium field where structure design restricts air movement, creates shady conditions or promotes the buildup of snow and ice. On open fields, note which areas are most likely to experience cold damage, moisture loss (desiccation), injury from soil movement during alternating freeze and thaw cycles, or damage due to excessive rainfall or snow buildup.

Formulate a maintenance plan to address these problems.



Be aware that snow molds (both pink and gray) thrive during cool, moist conditions when air movement is restricted by snow cover.

## Alleviate Compaction

Avoid compaction when possible. Work with coaches and field-user groups to set up alternative practice fields. If no other fields are available, move practice drills to a different area each day. If you have enough space, line out two "short fields" overlaying the game field but perpendicular to it.

Or, line out practice fields in the same direction as the existing field, but moved 10 to 20 feet to the left or right.

Minimize sideline compaction by shifting players' benches off center. Try a move from the 50-yard line to the 30-yard line one week, to the "70-yard line" the next.

If possible, relieve compaction during the fall. If funds and labor resources are limited, schedule aeration where problems are the worst. If you can't core aerate the entire field, just aerate between the hash marks and along the goal line. If ride-on equipment isn't available, use a smaller walk-behind core aerator. If field-use schedules don't allow the surface disruption of core aeration, use solid tines or, preferably, slicing equipment instead.

Time your last core aeration to coincide with anticipated use schedules and weather conditions. Core aeration during the late fall or early winter may expose the turf around the core holes to excessive desiccation. If late core aeration is the only option, be sure to fill in the holes by dragging the cores or topdressing with an appropriate material.

## Improve Drainage

Standing water and overly wet soils increase turf susceptibility to winter injury. You can reduce poor surface drainage by crowning the field to promote run off and by increasing infiltration rates. Both infiltration (water movement into the soil) and percolation (water movement through the soil) can be improved through aeration and modification of the soil profile with coarse-textured materials (such as sand). Subsoil drainage lines will channel excess water away from the field.

## Anticipate Moisture Needs

Cool-season grasses do need to dry to a certain degree as part of their preparation for dormancy. But overly dry soils can lead to extreme dehydration and the increased likelihood of winter turf injury. It's important to find the correct balance of moisture levels for your specific field conditions.

## Test Turfgrass Varieties

Select turfgrass varieties to match your needs. Check out seed company and sod producer advertisements and literature and stop by their booths at trade shows to pick up information from staff personnel. Talk to other sports turf managers to find out what varieties they use, how they use them, why they selected them, and how they stand up to the stress. Compare performance at turfgrass test sites and ask for recommendations from your extension turfgrass specialist.



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Test promising new varieties or combinations of varieties on specific areas of your practice field or fields for at least a year, following your standard maintenance program, before you try them on your game field. If your moisture conditions fluctuate greatly during a year, or from year to year, test turfgrass varieties on fully irrigated fields and on non-irrigated fields. Also factor in the effects of varying sun and shade patterns and of limited air

movement in an enclosed stadium.

Increase turf survival rates by picking varieties with differing strengths and weaknesses. A combination of varieties can give you heat and cold tolerance, insect and disease tolerance, deep green color, fast germination, aggressive tillering, deep rooting, drought resistance, and more. With a combination of varieties, when one cultivar is vulnerable to attack, other cultivars will fill in the gaps.

### Renew the Turf

Renew areas of weak or thin turf by overseeding during the active growth period. When overseeding large areas, use slice or slit seeders if they are available. If not, broadcast seed prior to a game and rely on the athletes to cleat it in during play.

Pregerminate the seed to speed the on-ground growth process by a few days. Include some pregerminated seed in your standard divot-repair

mix. Dormant seeding is a method of getting seed in place for germination when spring temperature, moisture and light conditions reach the right combination to initiate growth. Often, dormant seed has germinated and is actively growing long before crews can begin field work.

### Maintain Fertility

Use periodic soil tests (and tissue tests as the budget allows) to develop a comprehensive fertilization program. Remember that high or low pH levels may "tie up" nutrients in the soil, making them unavailable for turf use.

Keep sufficient nitrogen (N) levels for steady, sustained growth as long as temperatures allow it and field use requires it, but do provide sufficient time with lower N levels to allow the turfgrasses to "harden off."

Increase potassium (K) levels as necessary to improve plant hardiness for the stress of play and the colder

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weather. Because K (like N) is water soluble and has the potential to move through the soil quickly (leaches), schedule applications to maintain consistently adequate supplies.

Phosphorus (P) moves slowly through the soil. Existing levels may be adequate for established turf but need to be supplemented to support seedling development. Adjust P levels based on the results of a soil test.

### **Adjust Mowing Height**

Reach a workable balance on late-fall and over-winter turf height according to individual field use and traffic patterns. Turfgrasses need to build up carbohydrate reserves to withstand winter stress, and greater leaf surface (a higher height of cut) increases carbohydrate production.

But, the taller turf is more susceptible to winter diseases and to injury from human and equipment traffic

when the turf is frozen and brittle.

### **Protect with Tarps**

Tarps protect the turf from excess moisture and cold, from desiccation, and from snow and ice buildup. They help retain heat in the fall, keeping the turf actively growing longer into the season, and they promote early green-up in the spring.

But, covered turf is more susceptible to winter diseases. In the spring, pay extra attention to early growth of the turf under tarps.

### **Prevent Diseases**

Snow molds (both pink and gray) are the primary winter diseases. They thrive during cool, moist conditions when air movement is restricted by snow cover; tarps; excessive thatch; tall, matted turfgrass top growth; or stadium enclosures.

Reduce disease pressure with improved cultural practices to alleviate the conditions that encourage disease activity. Make preventive fungicide applications as necessary.

### **Plan for Spring**

Review your notes from the pre-season assessment and factor in the probable results of late-fall and winter weather conditions to develop your spring maintenance plans. As always, plan to allocate resources where they will accomplish the most toward meeting your goal: providing safe, playable fields. □

*Mary Owen is an extension turf specialist at the University of Massachusetts; a board member and the Education Committee chair of the national Sports Turf Managers Association; and a board member and the education chair of the New England Sports Turf Managers Association.*

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