

# RECOVERY FOR WINTER-INJURED GREENS

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**S**EVERE WINTER INJURY due to cold temperatures, ice, or desiccation is likely to occur at most golf courses at one time or another despite all the precautions that are taken. Information is available that can be used to help prevent or reduce potential injury, and with luck those practices will be successful. However, year in and year out, injury will occur somewhere and superintendents will be forced into action to repair the damage and appease the often unsympathetic golfers.

The recovery process that has been preached for years has not changed much, and the basics still hold true. Damaged greens must still be cultivated to create a seedbed, and young seedling turf must be kept moist and well fertilized during the establishment process. Soil temperatures still dictate how quickly seed germination

occurs, and the need for patience cannot be overemphasized. However, new equipment and seed technology are now available to help speed the recovery process. Following is a review of the essential recovery strategies and a discussion of how this new technology can improve your results.

A winter recovery program begins first by determining the extent of the damage. This can be analyzed in the field, but an earlier and more accurate assessment can be obtained by bringing plugs indoors from areas where injury is thought to have occurred, where growth then can be forced. Damage is quickly evident as the turf resumes growth. This technique provides a good idea of the extent of the damage.

Good communication is critical once it is determined that damage has occurred. Be open and honest with course officials

about the suspected damage and the recovery actions that will have to be taken. This may include the use of temporary greens for the duration of the recovery period. Open communication is essential at this point to avoid surprises later on.

The extent of the damage and the anticipated playing schedule will dictate whether the recovery must be accomplished using seed or sod. The sodding option has become more appealing since the development of washed sod, which reduces soil layering concerns in the soil profile. Having a good quality sod nursery available on the property also makes this option more practical. However, sodding generally is not advisable unless damage is very extensive and recovery is required by an early date. The sodding work itself is difficult, especially when repairing isolated areas of damage on

*Ice-related injury in a primary hole location area requires intensive recovery work.*



a green. Commercially grown sod likely will produce an inconsistent playing surface due to differences in turf, and this may not be appealing. An alternative is that if one green is severely damaged, the remaining sod on that green can be used to patch damaged areas on other greens. After the green has been stripped of the turf, it then can be regrassed with sod or seed.

### The Seeding Option

Achieving recovery with seed begins with developing a seedbed in the damaged areas. Work should be initiated as soon as the soil is workable. There are many ways to do this, including conventional aerification and slice seeding. Some superintendents combine both techniques or double aerify the greens, depending on the extent of the damage. Positive results have been observed with some of the new cultivation attachments developed for conventional aerification equipment. The attachments consist of closely spaced, small-diameter solid or hollow tines that produce a large number of tightly spaced, ¼- to ½-inch-deep holes or dimples that are ideal for seeding. Creeping bentgrass seed can be broadcast at 1½-2 pounds per 1,000 square feet following the cultivation work. A light topdressing application should follow. Avoid excessively high seeding rates, which can result in seedling competition problems.

Seed germination and establishment rates are dictated by soil temperatures. Fortunately, temperatures sometimes can be artificially elevated to hasten germination. Clear plastic covers can elevate soil temperatures most rapidly and help maintain soil moisture. The plastic covers are installed following the overseeding work and are left on the surface until seedling emergence is observed. Geotextile covers also can be installed to hasten germination, and they are effective for moderating soil temperatures following seedling emergence. They work especially well for protecting the young seedling plants from frost, and they help insulate the soils from cold nighttime temperatures. Be sure to monitor the temperatures closely under the covers and be prepared to remove them on sunny, warm days when excessive heat could injure the young seedlings.

Primed seed also can be used to obtain faster germination when soil temperatures are below optimal ranges. Primed seed can be purchased, or priming can be completed in-house. It is a good idea to combine conventional seed with primed seed. The primed seed should germinate more quickly and serve as a nurse crop for the conventional seed. A low-analysis natural organic fertilizer also can be applied during the seeding to provide nutrients and serve as a darkening agent to help raise surface temperatures.

Obtaining good seed germination during a cool spring is a feat in itself, and all the efforts involved with the seeding can be lost very quickly without close attention. Traffic from golfers and equipment can quickly damage young seedling turf. Temporary greens are therefore a must in cases of severe, widespread damage where hole locations are limited. Allowing play on severely damaged greens will delay the recovery process, often resulting in poor quality surfaces for nearly the entire season and sometimes beyond. Wear injury from mowing equipment can be minimized by replacing grooved rollers with solid rollers and by switching to lighter walk-behind machines set at a ⅜" height. The cutting units should be well adjusted and kept very sharp to obtain a clean cut.

### Cultural Practices

Fertility management also is important during recovery. Water-soluble nitrogen forms should be utilized initially. They can be applied in either granular form or dissolved and applied at light rates through the spray tank. Avoid using certain slow-release synthetic or natural organic products, as the nitrogen will not be readily available until soil temperatures rise. Ammonium nitrate, ammonium sulfate, or urea-based products work well. The use of the soluble nitrogen forms also helps to avoid excessive nutrient levels in the soil resulting from the sudden release of nitrogen from temperature-dependent fertilizers. Use balanced fertilizer products to assure that both phosphorus and potassium are readily available to the recovering plants. Try to apply at least 1-1½ pounds nitrogen per 1,000 square feet monthly during the recovery to promote aggressive growth. Although promoting rapid early spring growth can make the plants more vulnerable to stress and disease problems, this is a risk that must be taken. Preventative fungicide applications will be required, especially if cool, wet conditions persist.

The young seedling plants also must be kept moist, as they are very prone to desiccation on greens that have been extensively modified with sand. Light, frequent irrigation should be practiced to sustain the shallow-rooted plants. Hand watering the damaged areas is the best means of providing the moisture necessary to damaged areas without overwatering the healthy areas of the green.

Probably the most difficult period of the recovery process occurs two or three weeks into the program. At this point, the young seedling turf is beginning to mature but the areas remain thin. Doubts as to the progress of recovery will be heard from golfers. Sodding often becomes an attractive option at this point despite the fact that good germination has occurred and the young



seedling plants are visible. In most cases, the temptation of sodding should be avoided since the young plants will grow quickly, especially as the temperatures warm. Sodding at this point would only eliminate the progress that has been made and probably would not have a significant effect on the final recovery date.

Impatient golfers will demand to have the greens reopened during the latter stages of recovery. Patience is of the utmost importance at this point as the turf may appear to be nearly recovered but often is not. Obtaining turf cover alone does not mean that the surfaces are sound. Opening the greens for everyday play or pursuing aggressive management practices for playability will quickly thin the tender young turf. It might be possible to open the green temporarily for weekend play or special events, but avoid the damaged areas as much as possible. Light topdressing also can be initiated at this point, but care must be taken to avoid abrasion injury. Light vertical mowing or grooming might also be initiated, but do so sparingly to avoid damaging the recovering turf. Recovery should remain the primary objective at this point, with playability taking a back seat. More aggressive manage-



ment practices can be initiated after the turf has fully recovered.

As with any recovery program, patience is critical. This is especially true in spring when growing conditions often are less than favorable. Expect some setbacks during the recovery process as well as some unexpected surprises. Maintaining open lines of communication is critical during the entire process to explain what caused the damage and to set down the ground rules for recovery. Pictures of both the damage and the recovery process are also invaluable. Though they may appear healthy, the damaged areas will undoubtedly enter the summer season in a weakened state. Care must be taken to keep the turf as vigorous as possible and to reduce maintenance intensity for the whole season. The golfers must realize that playing conditions on the damaged greens will be below the standards to which they have become accustomed. Those conditions will be regained, but as with anything good, hard work and patience will be required.

*(Left) Although plastic covers have been used in the past, today geotextile covers are used to help elevate and maintain warmer soil temperatures during the recovery period.*

*(Below) Curtailing traffic on newly seeded areas aids in the recovery process. Keep the golfers off if at all possible!*

