



Three Things All Golfers Should Know About Winterkill

Winterkill is an easy problem to define but difficult to fully understand. Simply put, winterkill occurs when turf dies during winter. However, understanding the mechanisms that cause winterkill, creating effective prevention strategies and formulating effective recovery programs is complex.

What causes winterkill?

Winterkill is a catch-all term describing winter injury to turfgrass that occurs through a variety of mechanisms such as ice suffocation, crown hydration, low-temperature injury and desiccation. Identifying the exact cause of winterkill is difficult because winterkill may be caused by one mechanism or could result from a combination of mechanisms that act simultaneously or occur at multiple times during winter. Additionally, turfgrass species have different tolerances to winter injury. For example, creeping bentgrass is much less susceptible to winter injury than *Poa annua*.

Can winterkill be prevented?

Scientists have not been able to find a silver bullet that prevents winterkill. However, great strides have been made breeding turf varieties that have a better tolerance of winterkill mechanisms. For example, USGA-funded research has resulted in the release of cold-hardy bermudagrasses such as Latitude 36™, Northbridge™ and Patriot.

Golf course superintendents are not able to prevent winterkill, but they can implement a variety of programs that give turfgrass playing surfaces the best chance of surviving winter. Common strategies in northern climates include converting to cold-tolerant turf varieties, implementing proper fall fertilization, raising mowing heights during fall, reducing shade, improving drainage and covering putting greens during winter.

What are the most effective recovery programs?

Winterkill damage can range from minor to severe, and golf course superintendents use a variety of methods to repair the damage. Weak areas of turf may recover with fertilization and traffic restrictions, but dead areas must be re-established with seed or sod. Repairing an area that has been severely damaged by winterkill is an opportunity to make improvements that may help avoid future damage. Correcting shade, drainage or traffic issues will improve turf



conditions during the golf season and winter hardiness. Re-establishing a severely damaged area also provides an opportunity to use cold-tolerant turf varieties that will be less vulnerable to winterkill in the future.

Winterkill is a seasonal visitor that no golf course wants to see. It often arrives quickly, but the impact on playing conditions can last for weeks or months. Golfers can take comfort in the knowledge that golf course superintendents and scientists are working hard to understand and overcome the age-old problem of winterkill.