

Cold Management



BACKGROUND

- Temperature is an important factor in determining the growth rate of turf. In low temperatures, grass growth will slow and eventually become dormant; in very low temperatures the turf will be damaged.
- Exposure to cold temperatures may cause water to freeze within the plant. Ice crystals may form in and around the cells and, in doing so, can cause physical damage to plant cells.
- Water can also be pulled out of individual cells while ice crystals form around the cells. Plant cells will die from desiccation if enough water is lost. This form of freeze damage often occurs during periods of thaw or in later winter, and is commonly referred to as crown hydration injury.
- Suffocation or anoxia can also damage turf that is encased in ice or is under some type of impermeable cover for an extended period.
- Soil microbes and the plants under the ice cover utilize oxygen as they respire and anaerobic condition develops as the oxygen is depleted.

APPROACH

1. Raise cutting height in late summer to increase photosynthesis potential and ability to produce carbohydrates and develop an improved root system.
2. Minimize shade where possible to maximize carbohydrate production. Turf growing in shade also has higher moisture content and a reduced cell thickness.
3. Harden turf coming into winter by appropriate use of fertilizers. Use fertilizers with low nitrogen: high potassium ratios to harden turf.
4. Increase aeration / reduce compaction to encourage better rooting and to help diffuse toxic gas during winter months.
5. Improve surface drainage to minimize prolonged ice cover and freeze injury.
6. Irrigate sparingly in autumn to reduce plant hydration. This will allow plant to tolerate dehydration in cold winters.
7. Select cold tolerant grass species and cultivars.

i-TURF SOLUTIONS

Product type	Why	Scotts solution
Slow / Controlled release nitrogen fertilizers	Encourage more balanced growth to maintain healthier turf in low temperature conditions. Slow release Methylene urea (MU2) nitrogen fertilizers and controlled release fertilizers (Poly-S and PACE) ensure that nitrogen is not released in cold conditions.	Sierraform GT, Sierrablen, Sierrablen Plus, Sportsmaster CRF, Sportsmaster CRF Mini.
Slow release potassium fertilizers	Slow release potassium fertilizer ensures potassium is not leached out of root zone in wet winter months.	Sierraform GT
Carbohydrate and seaweed biostimulant	To supply a direct source of carbohydrates to the plant and to encourage a better root system.	Vitalnova / Greenmaster Blade
Plant Growth Regulator (PGR)	Reduce vertical growth to minimize etiolation so plant can re-direct its energy resources for lateral growth.	Primo MAXX
Cold tolerant grass species and cultivars	Select cultivars that are tolerant to low temperatures to optimize performance in cold conditions.	Lolium perenne: Citation Fore, Marquez, Vantage, Inspire, Quicksilver Poa pratensis : Thermal Blue, Moonlight, Midnight Chewings fescue: Tiffany Festuca arundinacea: Greenkeeper WAF



Growing success