



Research Driven,  
Proven Results™

## TECHNICAL BULLETIN

# PREPARING FOR WINTER STRESS

Every autumn, golf course superintendents in certain climates begin to prepare for the coming winter and try to improve the likelihood of turfgrass survival on greens, tees and fairways.

While the genetics of the particular turfgrass species and the severity of the winter weather have the greatest impact on survival, there are cultural practices that golf course superintendents can employ to help harden the turf for the oncoming cold weather and improve survivability. Spring turf quality will depend in large part on the plant health and hardening of the turf achieved during fall.

One of the factors known to influence winter hardiness is the potassium (K) level in the plant tissue. Research reports and recommendations from several major universities recommend K levels of 3% or more for best winter protection. Potassium functions as an osmotic regulator within the plant to prevent ice crystal formation within sensitive crown tissue.

GRIGG™ Tuff Turf® is a highly efficient potassium source designed to help the plant cope with stress, disease, and to prepare for winter. It also contains silicon for increased cell strength and turgidity, and magnesium for increased chlorophyll production and improved color.

GRIGG research in Oregon and the United Kingdom has shown that sequential applications of GRIGG™ P-K Plus® at 6 fl oz per 1,000 ft<sup>2</sup> on 14 day intervals during fall and winter (where possible) may significantly reduce the incidence of pink snow mold\*. P-K Plus is a foliar 3-7-18 + 14% phosphite that delivers low amounts of nitrogen and high amounts of potassium for foliar absorption.

**For a distributor near you contact:  
GRIGG: 1 888 246 8873 or [www.grigg.co](http://www.grigg.co)**

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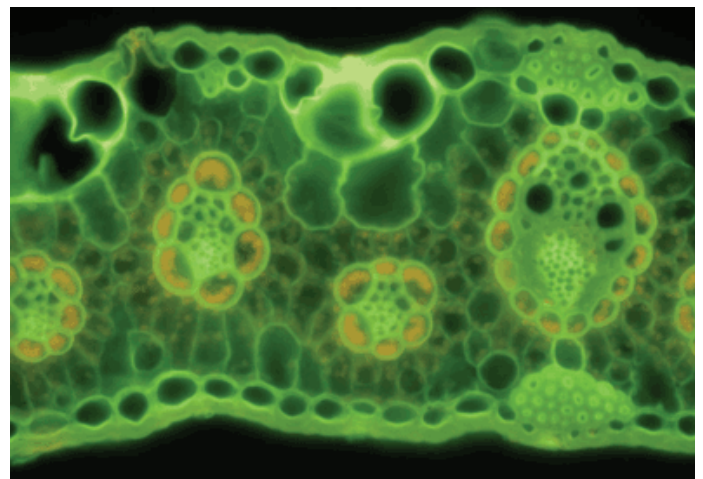
## GRIGG Winter Nutrition Program

Begin applications September 1 and continue until just prior to turfgrass dormancy.

- GRIGG™ Tuff Turf® - 6 fl oz/1,000 ft<sup>2</sup>
- GRIGG™ P-K Plus® - 6 fl oz/1,000 ft<sup>2</sup>
- GRIGG™ Ultraplex® - 3 fl oz/1,000 ft<sup>2</sup>
- GRIGG™ Carboplex® - 6-9 fl oz/1,000 ft<sup>2</sup>

*Also note: Using Carboplex as a foliar applied product at a rate of 6 - 9 fl oz 1,000 ft<sup>2</sup> can boost energy fixation and carbohydrate storage in the plant to achieve and maintain maximum winter hardiness.*

Carboplex combined with Ultraplex and P-K Plus in the autumn is a foliar nutrition program optimized to maintain desired growth and color, boost plant potassium levels, increase carbohydrate storage, and help reduce the incidence of snow mold disease\*.



\*P-K Plus is not a registered fungicide and should be used as one component to an integrated approach to pest management, or Nutritional IPM™