Winter Acclimation

By Jim Skorulski, agronomist, Northeast Region

October 20, 2008

The sun is shining bright on the peak fall foliage as I sit down to write this News Update. The warm sunshine makes it easy to block out the upcoming winter and all the challenges it can bring to a turf manager in the Northeast. The grass is taking advantage of the sunny day to produce and store the carbohydrates that will enable it to survive the cold temperatures and the freeze/ thaw cycles that lie ahead. A prolonged stretch of this sunny, cool, and dry weather will be ideal for the acclimation process. The natural process of cold temperature acclimation is well underway by this point.

Management priorities at this time should focus on maximizing photosynthesis that produces the energy and simple sugars the plant stores in the root and crown tissues. This energy will be used as a means to regulate the freezing point of water within the plant during the winter months. Common sense tells us that turfgrass requires direct sunlight and an adequate amount of chlorophyll-containing leaf tissue to absorb the sun's energy and maximize photosynthesis. It makes sense then that shaded grass plants produce fewer carbohydrates and have a more difficult time surviving extreme winter weather. Grass that is maintained at a very low height of cut also struggles to absorb sufficient light energy to gain cold temperature hardiness. Yes, there are other factors that impact the plant's ability to undergo photosynthesis and acclimate to the cold, but none are greater than the sun and the ability to absorb the light energy it produces.

So what can you do in the few weeks that remain to promote cold temperature acclimation?

- Sharpen up the chain saws and start cutting trees to gain at least eight full hours of sun for the turf. It's never too late!

- Raise the height of cut if you have not already done so, at least above 0.125, and/ or reduce the mowing frequency now that the shoot growth has slowed. This point is especially important on partially shaded sites where sunlight already is limited.
- Avoid fertilizing with higher rates of soluble nitrogen sources. A growth surge is not helpful at this point. High rates of potassium should also be avoided. Instead, spoon-feed with both nitrogen (N) and potassium (K), if necessary, and save the heavier N applications after shoot growth ends later in October or November, depending on your location.
- Maintain the turf on the drier side if Mother Nature allows. Reducing moisture content in the cells is part of the winter acclimation process. Any steps to reduce succulent tissue growth will be beneficial.

The degree of cold temperature hardiness obtained by the grass is ultimately a weather dependent process. So it is our job to put the grass in a position where it can perform during those periods when weather conditions are favorable. Successful winter acclimation alone does not guarantee survival, but poor or incomplete acclimation is a guarantee for many sleepless winter nights.

Northeast Region Agronomists:

David A. Oatis, regional director – doatis@usga.org

James E. Skorulski, senior agronomist – jskorulski@usga.org

Adam Moeller, agronomist – amoeller@usga.org

Elliott Dowling, agronomist – edowling@usga.org

Addison Barden, agronomist – abarden@usga.org

Information on the USGA's Course Consulting Service

Contact the Green Section Staff