

## Winterkill

by David M. Casnoff

Dir. of Turfgrass Research, Northrup King

Winterkill is an all-encompassing term which includes several causes for injury during the cold weather periods: (1) winter desiccation; (2) direct low temperature kill which can occur during alternate periods of freezing and thawing and is a result of the hydration of the cells just prior to freezing periods; (3) low temperature disease causing organisms. In areas where freezing and thawing are a problem, frost heaving may be another factor in causing injury to plants.

During this season's winter, some rather unusual environmental conditions have existed. With the advent of low temperatures, the usual accompaniment of snow was absent. This led to several possibilities as far as injury is concerned. The most likely events are the following:

(1) As temperatures decreased, the top several inches of plant-available water were frozen. This water would not be available for plant use. As winds increased, the evapotranspiration rate of the plants would tend to increase. If the plant was not able to replace the water it lost through root absorption, it would probably die, especially if this "drought" had affected the crowns. These kinds of problems would most likely occur at higher elevations in maintained turfed areas (i.e. exposed hilltops). In these areas where snow cover is non-existent, this kind of injury can be expected.

(2) If the crown tissue of the turfgrass plants are desiccated, serious damage to the turf will occur and will most likely not recover except from nodes of surviving rhizomes and/or stolons. However, in most cases, crown injury does not occur and another form of desiccation termed as "windburn", by Beard, will occur.

(3) "Windburn" usually occurs in winter after snow cover thaws. The grass looks green and healthy right after the thaw. However, with an environment that favors high evapotranspiration rates, the green leaves will turn brown. Windburn and other superficial injuries are not a major problem if the desiccation does not damage critical meristematic tissue (i.e. leaf primordia, crown tissue, etc.) of the plant.

It is my feeling that both types of injuries may occur during this winter season. If in the spring, especially on high ground of your maintained turf areas, large turfgrass areas have not recovered, either after early irrigation or spring rain, severe low temperature kill due to desiccation has most likely occurred. In these cases, replanting of the damaged areas would be recommended.

There are several cultural methods that can be used to prevent or at least lessen these damages. Strategic placement of windbreaks (i.e. trees, snow fence) can be used to protect prone areas by reducing speeds of the prevailing winds. An additional benefit of a windbreak can be additional accumulation of snow on the leeward side of these windbreaks. Other preventive methods may be the use of mulches, topdressing and synthetic covers.

This information is provided to Northrup King's Medalist Turf distributors and their customers in the hope that any turf damage caused by this unusual winter will be minimized and/or diagnosed effectively.



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