



# TURFAX™

of the International Sports Turf Institute, Inc.

Volume 9, Number 4



July–August 2001

The International Newsletter about Current Developments in Turfgrass

## IN THIS ISSUE

- Summer Stresses
- Bermudagrass Infestations in Cool-Season Turf
- Organic Fertilizers—A Risk Factor for Black Turfgrass Ataenius?
- Polyoxin D (Endorse®)—A New Fungicide for Brown Patch and Large Patch Control
- JB Comments: Thatch Versus Stem Biomass
- Research Summary: Fungicide Management Strategies for Dollar Spot and Brown Patch
- Ask Dr. Beard

## Summer Stresses

James B Beard

Summer by definition extends from the June (~22) solstice through the September (~23) equinox in the northern hemisphere. The following discussion emphasizes primarily atmospheric or external stresses imposed directly on turfgrass plants. The major summer environmental stresses of concern on turfgrasses typically are associated with heat or water. Often they occur in combination and are difficult to distinguish. There also are a number of biotic stresses such as diseases, viruses, insects, mites, and nematodes, that occur during the summer period. These will not be addressed in this article.

The major types of summer stress injuries to turfgrasses and their symptoms, causes, and prevention are summarized in the following table. It should be noted that a turf may enter a brown dormancy phase if not irrigated during periods of extreme water stress. **It should be kept in mind that a dormant turf composed of creeping perennial turfgrasses is basically a healthy turf.** Development of

a brown dormant turf is a normal occurrence under severe water stress. It enables the turf to survive, with the shoots regrowing from the meristematic nodes on basal crowns and lateral stems once moisture again becomes available, assuming the drought period has not been excessively long.

**Many problems associated with summer atmospheric stresses can be minimized by turfgrass cultural practices that ensure maximum root development.** This is particularly true of water stress and also of heat stress, since the ability of roots to absorb water from as great a portion of the soil profile as possible is essential in maintaining adequate transpirational cooling. Thus, a review of the cultural practices that are important in maximizing root growth is appropriate as follows:

1. Maintain the soil pH between 6.0 and 7.3.
2. Minimize soil compaction through turf cultivation, as by coring, or by root zone modification to a high-sand mix in the case of putting greens, tees, selected fairway areas, and sports fields.
3. Prevent waterlogged soil conditions that exclude oxygen by ensuring surface drainage through proper contouring and by internal drainage through use of drain lines, slit trenches, catch basins, and root zone modification to a high-sand mix in the case of putting greens, tees, selected fairway areas, and sports fields.
4. Minimize potential problems from pesticides toxic to the root system. Of particular concern are certain preemergence herbicides, which should be used only as needed to control a serious weed problem.
5. Control potentially serious insect, disease, and nematode pests that feed on the roots.
6. Maintain an adequate soil potassium (K) level.
7. Avoid excessive nitrogen (N) fertilization of cool-season turfgrasses that forces shoot growth at the expense of root development.
8. Employ soil and water management practices that minimize the development of saline or sodic soil problems.

Continued on page 7