A PRACTICAL RESEARCH DIGEST FOR TURF MANAGERS

TURFGRASS TRENDS

Volume 8, Issue 10 • October 1999

PHYSIOLOGY

Summer Decline
Can Cool-Season Turfgrasses Take the Heat?

By Richard J. Hull, University of Rhode Island

This past summer has not been an easy time for many turf managers. The unrelenting drought and above normal temperatures took their toll on cool-season turfgrasses in lawns, athletic fields and golf courses. If conventional wisdom is to be believed, we have just seen the beginning of bad summers, as global warming sets in and summers generally become drier and hotter. On the other hand, is this really anything unusual? Cool-season turfgrasses always decline during the summer and greater problems should be expected as we try to push these grasses even further south.

In short, there is a fundamental problem inherent in attempting to maintain green, vigorous turf from cool-season grasses during the hottest months of the year. Some years are worse than others, but the problem is chronic. What is behind the summer decline of turfgrasses? Do we know enough about this problem to offer any hope of solving it? In this article, I will take a shot at answering these questions.

High Temperature Stress

What exactly is high temperature stress? This is not a simple question to answer because, in the field, high temperature is often accompanied by high light and insufficient water. Consequently, the resulting decline in turf quality is rarely caused by one stress alone, but by the interaction of several stresses. The principal factor of summer decline of turfgrasses is primarily heat, augmented by other stresses.

OPTIMUM TEMPERATURES FOR SHOOT AND ROOT GROWTH

Table 1. Optimum temperatures for shoot and root growth of cool- and warm-season turfgrasses.

Grass type	Shoot growth	Root growth
	Degrees F	Degrees F
Cool-season	59-75	50-64
Warm-season	81-95	75-84

FROM DIPAOLA AND BEARD (1992)

IN THIS ISSUE

- **Summer Decline Can Cool-Season Turfgrasses Take the Heat? 1**
  - C-3 and C-4 Difference
  - Root Starvation
  - What a Turf Manager Can Do
- **The Impact of Climate on Turfgrass Pest Activity 10**
  - Temperature and Moisture
  - Energy — Driving Force
  - Pest Population Dynamics
  - Measuring Activity Ranges
  - Degree Day Fluctuations

Visit us at www.landscapegroup.com

AN ADVANSTAR ★ PUBLICATION