A PRACTICAL RESEARCH DIGEST FOR TURF MANAGERS

file

# TURFGRASS TRENDS

*Volume 7, Issue 7 • July 1998*



DISEASE PATHOLOGY

## Predicting Rhizoctonia blight with 'risk models'

*By Michael A. Fidanza, Ph.D.*

Rhizoctonia blight (formerly called "brown patch") was one of the first turfgrass diseases to be identified, described, and investigated at the turn of this century (1,2,4). In cool-season turfgrasses, Rhizoctonia blight is associated with hot and humid weather common during the summer months (Fig. 1, 2,). Therefore, early investigations into Rhizoctonia blight focused on identifying the weather conditions associated with this disease.

In 1930, a University of Massachusetts researcher, L.S. Dickinson, was the first to observe the environmental conditions associated with Rhizoctonia blight (2). He noted that Rhizoctonia blight disease symptoms often appeared on creeping bentgrass when the afternoon air temperature ranged from 80- to-90°F. A researcher with the U.S. Department of Agriculture, A.S. Dahl, followed-up on Dickinson's work by examining air temperatures and Rhizoctonia blight development at the Arlington Turf Gardens (currently the site of the Pentagon building in Arlington, VA). Over five consecutive summers, Dahl observed that the disease occurred on 82% of those days from June through September when the daily minimum air temperature was >70°F (1). Unfortunately, Rhizoctonia blight disease or weather data were not included in his report.

*Fig. 1. A circular ring of mycelium of Rhizoctonia solani infecting perennial ryegrass mowed at fairway height.*

More than 60 years after Dickinson and Dahl published their observations, another researcher at the University of Massachusetts, Dr. Gail Schumann, launched an additional investigation into the environmental conditions associated with Rhizoctonia blight (5). As a result, a weather-based Rhizoctonia blight "risk model" was developed. (Note: the term "model" as defined by Webster's dictionary means "a hypothetical description, often based on analogy, used in analyzing something". With weather-based plant disease prediction methods, the term "model" is a name for a mathematical equation or set of rules which are used to describe the specific environmental con-

IN THIS ISSUE



AN ADVANSTAR ★ PUBLICATION