AN INDEPENDENT NEWSLETTER FOR TURFGRASS MANAGERS

Turf Grass TRENDS

[vol 3 Iss.1]
Issue 13

January 1994

Biological controls

Promising new tools for disease management

by Dr. Eric B. Nelson

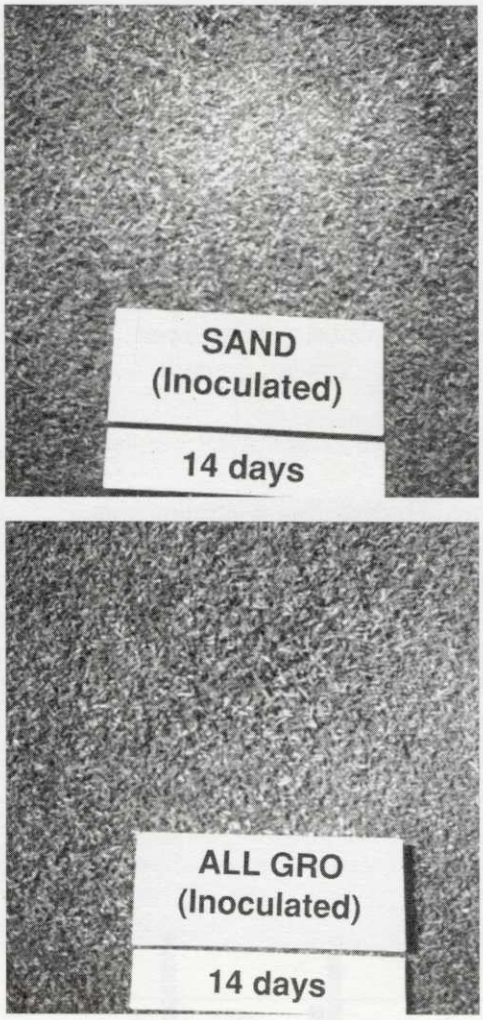
DISEASE MANAGEMENT represents a significant challenge for turfgrass managers. The task is made particularly demanding by the perennial nature of turfgrass plantings, as well as that of the disease-causing organisms. Most, if not all, fungal pathogens of turfgrass are always present in turfgrass plantings.

As a result, the principal factors determining the incidence and severity of turfgrass diseases are environmental factors and plant stresses that influence not only the activity of pathogens, but the susceptibility of the plants. This is particularly true for some root pathogens that reside inside turfgrass plants year round. In many cases, these factors cannot be manipulated adequately to minimize losses from fungal diseases. So, to control fungal root diseases, turfgrass managers rely largely on fungicide applications.

Most of the materials currently used for turfgrass disease control are broad-spectrum systemic fungicides. Problems have arisen from the repeated and prolonged use of these chemicals:

- THE DEVELOPMENT of fungicide-resistant pathogen populations,
- DELETERIOUS EFFECTS on non-target organisms, particularly those involved in carbon and nitrogen cycling,
- ENHANCEMENT of non-target diseases,
- AND THE SELECTION OF FUNGICIDE-degrading microorganisms.

In an effort to reduce this fungicide dependency and to minimize the undesirable biological and environmental effects of excessive fungicide use, alternative management practices are being explored. *–continued on page 2*



▲ Within two weeks the untreated part of a putting green innoculated with Pythium root rot fungi begins showing severe damage. Less damage is apparent in areas treated with All Gro, a commercial brewery waste compost (similar results obtained with Endicott sewage sludge compost).
Photo provided by Mary Thurn, Cornell University

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