

CUTT

Fall 1991 • Volume Two • Number Three • A Publication of Cornell Cooperative Extension

The Development of Microbial Fungicides for Turfgrass Disease Management

In a previous edition of *CUTT* (Vol.1, No.1), I considered some of the general approaches to biological control and the use of materials containing complex mixtures of microorganisms, such as composts and organic fertilizers, for the biological control of turfgrass diseases. In this article, I wish to consider the use of preparations of individual microorganisms as microbial fungicides for turfgrass disease control. Although no microbial fungicides are currently available for turf, products are likely to be labelled in the next few years. ■

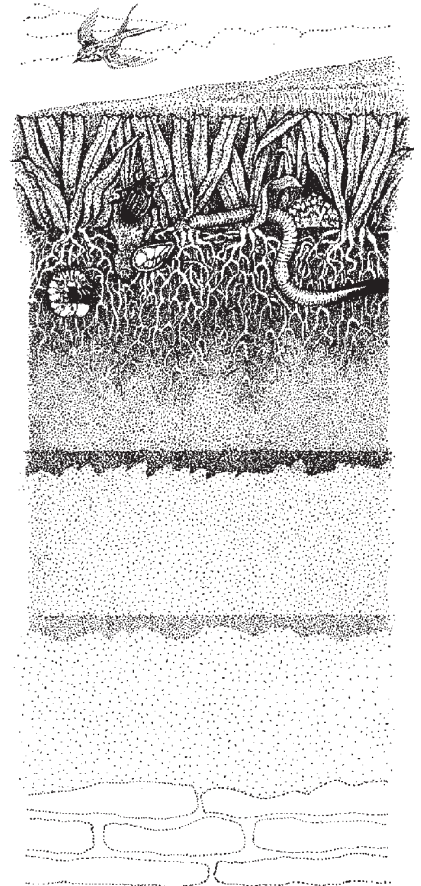
Properties of Microbial Fungicides

Microbial fungicides consist of living preparations of microorganisms that have inhibitory properties toward plant pathogens. These organisms can act in a number of ways to inhibit plant pathogens. They may act as fungal parasites, compete with the pathogen for nutrients or alter the plant such that it is less susceptible to infection. For example, just as many of our medically important antibiotics come from soil microorganisms, similar microorganisms producing similar kinds of antibiotics are also effective in treating plant infections as well. In the development and use of microbial fungicides, we try to take advantage of the beneficial microorganisms commonly found in nature by isolating them from the environment (usually from soils or plant tissues), increasing their populations artificially, culturally or genetically improving their activity in the laboratory,

and then reintroducing them back into the environment as an inoculant.

Unlike traditional synthetic chemical fungicides, microbial fungicides need more careful consideration of various aspects of their storage and application. Of particular importance is the shelf life of microbial fungicides since the organisms present in such products may not be able to remain viable for extended periods of time. One also needs to consider that, for any microbial-based fungicide to be effective, the organism(s) present in such a product must be able to establish itself in turfgrass plantings and must remain active throughout the period when disease pressure is greatest. Additionally, the organisms present in these types of products must be compatible with other agrichemicals used in management systems. For example, while bacterial preparations may generally be tolerant of most other chemical fungicides

continued on page 4



This Times

1. The Development of Microbial Fungicides for Turfgrass Disease Management

Eric Nelson, Dept. of Plant Pathology

2. Short Cutts

3. Pest Watch: Fall Disease and Weed Control

6. Scanning the Journals

7. Insect Pests of Turfgrass in Fall and Winter

Michael G. Villani, Dept. of Entomology - Geneva