

# THE TURF COMPANY

## The Leading Producer of Water Efficient Turf Grass™

### What Are Endophytes\*

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Endophytes are self-perpetuating naturally occurring fungi living symbiotically in certain species of grass. They produce certain natural byproducts that are of significant benefit to their host plant.

Endophytic Fungi was discovered in the 1980's and represent one of the latest and most promising advances in the production of top quality turf grass. Endophytes are a type of fungus that lives within the grass plant, deriving their nutrients from the plant and increasing the plant's chances of survival. The fungus produces certain natural chemicals, especially alkaloids, which are released in the grass plant and circulated in its vascular system. These compounds are toxic to many serious insect pests, including sod webworms, billbugs, armyworms and chinch bugs. There has also been a demonstrated resistance to nematodes.

There are different species of endophytes that infect specific grasses. *Acremonium foliar* is found in perennial ryegrass and *Acremonium coenophialum* infects tall fescue. All endophyte fungi produce a wide range of natural chemicals with alkaloids being the most effective of the natural insecticides.

Dr. Reed Funk at Rutgers University has shown better summer survival and heat tolerance plus reduced weed invasion in ryegrasses with high endophyte counts. Other researchers have observed increased tillers (leaves) and greater root growth in endophyte enhanced tall fescues. A general observation has been that endophyte enhanced turf grass in research plots will make substantial improvements in quality over time.

The advantages of endophyte enhancement will help fulfill public demand for lower chemical and insecticide usage as well as overall savings of maintenance costs, labor and water.

- Excerpts from an article by the Manager of Marketing for Seed Research of Oregon, Inc.