



AscendTM NTC

Nursery and Turf Concentrate

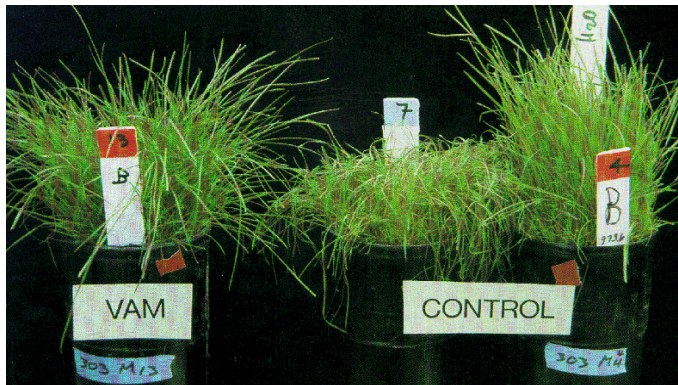
VA-Mycorrhizal Soil and Root Inoculant for Nursery and Turf applications

“For growers with deficient soil ecologies, BioScientific’s *Ascend NTC* is a liquid culture of VA mycorrhizal fungi that promotes growth over fertilizers alone. Unlike fertilizers alone the use of *Ascend* establishes the most elemental component of soil/plant fertility, while providing for a foundation of disease resistance.”

BACKGROUND

Biotechnology can be defined as the controlled use of living organisms or their components for the benefit of mankind. One aspect of biotechnology involves the special relationships formed between certain fungi and plants, called mycorrhizae, which have been shown to dramatically enhance the establishment, growth, development and survival of plants. The term mycorrhiza; means “fungus root” and can be defined as a beneficial symbiotic association between plant roots and specific soil fungi. In the mycorrhizal relationship, the fungus penetrates roots to form an new organ called the mycorrhizae.

The most agronomically important mycorrhizal fungi found in North America are those in the endogonacea family, also referred to as VA Mycorrhizae (VAM). As a “biological fertilizer,” *Ascend* contains viable spores and infective propagules from the VAM: *Glomus intraradices*. Although, there is host specificity between different species, the fungi in the inoculant *Ascend NTC*, will colonize plant roots in the absence of the preferred symbiont. This is particularly valuable in a sterile soil media, and/or where a earlier or rapid colonization benefit is desired.



Ascend NTC treatment of Bent Grass. Treatment (TMT) at far right is conventional fertilizer and normal irrigation. TMT at center is fertilizer and an induced drought. TMT at left is Ascend NTC and drought. The Ascend NTC treatment gives greater or equal performance as inorganic fertilizer with the added benefit of stress (drought) tolerance. (Unv. of Rhode Isl. 1997)

Aren't mycorrhizae already in the soil?

All natural soils contain some level of mycorrhizae, but they are easily destroyed. Many practices can degrade mycorrhizae, such as: Long Fallowing, frequent disking, “cut and fill” land leveling, sterilization, pesticides, and acid or ammonia fertilizers. Once lacking re-introduction is prudent.

Ascend NTC benefits plants by increasing:

- ▣ Nutrient and water uptake.
- ▣ Root health and disease resistance.
- ▣ Tolerance to environmental stresses.

COMMONLY ASKED QUESTIONS:

How does *Ascend NTC* help plants?

Once colonized, the ecto-cellular fungal hyphae extend the surface area of the host root system allowing for the increased uptake of the critical nutrients: Phosphorus, Nitrogen, Zinc, Copper, etc., and Water. While increasing tolerance to drought, salts and pesticides. Also this “fungal net” creates a physical and biochemical barrier to root pathogens.

Which soils most need *Ascend NTC*?

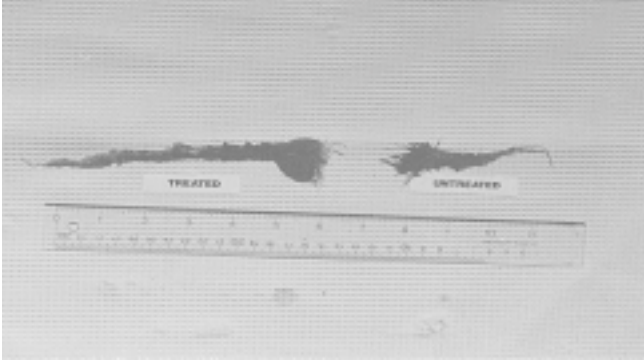
Sterile soil ecologies, whether induced by cultural practices (e.g. fumigation, fallowing, pastureization) or by nature, lack the benefits of mycorrhizae. Also, soils with “immobilized phosphorus” can benefit. Mycorrhizae are of most benefit in poor, light textured, and low organic soils.

How does one know they have a deficient soil ecology?

Sub-optimum productivity, slow, uneven growth or Phosphate/Zinc deficiencies are the most common, however in some cases the plant will stop growth after the cotyledon stage, which is common to fumigated, sand base and cool/wet soils.

How can mycorrhizae be introduced into the soil?

Cultural systems that use minimum tillage, and "pro-biotic" inputs can encourage the development of natural mycorrhizae. However, accurately timed/placed applications of *Ascend NTC* will ensure that the plant has the greatest opportunity for optimum development.



Bent Grass green plug, treated with Ascend

RATES AND TIMINGS:

RATES:

Refer to label for plant/use specific recommendations. Label rates are generally around 15 gallons per acre per growing season. High placement accuracy will allow lower rates while low placement accuracy will necessitate higher rates.

TIMINGS:

As *Ascend NTC* is only of benefit to plant roots; placement accuracy will increase the effectiveness of any application. Place *Ascend NTC* in close proximity to newly developing roots and early in the plants development.

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“The rule rather than the exception...”