BARTLETT TREE RESEARCH LABORATORIES
CHARLOTTE, NC
Technical Report

Mycorrhizal Inoculation of Residential Trees

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The health of a tree's root system is an important factor in the well being of the entire plant. Many actions can improve root health such as mulching, fertilizing and managing soil moisture. Another important factor is the management of mycorrhizae. This is a symbiotic relation between a fungus and a plant root system, which exists on nearly all trees and shrubs.

Mycorrhizal fungi stimulate root growth and increase the absorptive root area by sending long hyphal strands into the soil. Some mycorrhizal fungi form a protective barrier or mantle around fine roots. The mantle and hyphal strands increase water absorption during drought, enhance nutrient uptake and provide a barrier to root disease organisms.

Mycorrhizae should be used alone or in combination with Bartlett Boost to stimulate root growth under the following conditions:

- where natural mycorrhizae are lacking
- trees have not responded to fertilization
- trees in areas, which lack irrigation
- sensitive areas such as near water
- trees in confined space
- in “all natural” or “organic” programs
- trees with *Phytophthora*. root rot

Experimental differences in the root growth of northern red oak when treated with:

Boost®

Pisolithus tinctorius

Non-treated

Roots were removed from 56.5 cubic inch root ingrowth cages six month after inoculation.

There are many different mycorrhizal fungi, some will only form a symbiosis with a one-plant species, and others will infect many species. Mycorrhizal fungi also vary in their tolerance to harsh environmental conditions. An outstanding fungi, which has a broad host range and is tolerant of tough sites is *Pisolithus tinctorius,* commonly called Pt. It is one of the active ingredient in the product *MycorTree™ Tree Saver Injectable*.

Pisolithus tinctorius will form a mycorrhizal relationship with many conifers and hardwood trees. The other four mycorrhizal fungi in *MycorTree™ Tree Saver Injectable* are *Entrephospora columbiana, Glomus etunicatum, Glomus clarum* and *Glomus* sp. This combination of fungi will form mycorrhizal relations with virtually all other woody plants except Rhododendron, Azalea, Mountain Laurel and Pieris.

In landscape situations, *Tree Saver* is injected into the soil in a water slurry or is mixed with Bartlett Boost® fertilizer. Soil injection of these products alone or in combination significantly increase root growth, in low fertility soils, as compared to the non-treated control. The greatest effects of the treatment, after one growing season, are when Bartlett Boost® and *MycorTree™ Tree Saver Injectable* are combined.

Mycorrhizae should be used alone to encourage root growth with minimal top growth such as with trees in confined spaces. It may also be used individually in "all natural" or "organic" programs.

In other applications *MycorTree™ Tree Saver Injectable* should be mixed with Bartlett Boost® to gain maximum root growth benefits.