

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. Mycorrhizae are a symbiotic relation between a fungus and a 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 are best applied in combination with Bartlett Boost fertilizer to stimulate root growth under the following conditions:

- where natural mycorrhizae are lacking
- when trees have not responded to fertilization
- trees in areas which lack irrigation
- trees in confined space
- in “all natural” or “organic” programs

There are many different mycorrhizal fungi. Some will only form a symbiosis with one plant species while others will colonize many species. Mycorrhizal fungi vary in their tolerance to harsh environmental conditions. An outstanding fungus, which has a broad host range and is tolerant of tough sites, is *Pisolithus tinctorius*, commonly called Pt (Figure 1). It is one of the active ingredients in the product applied by the Bartlett Tree Expert Company.

Figure 1: 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 growth cages six months after inoculation.

Pisolithus tinctorius will form a mycorrhizal relationship with many conifers and hardwood trees. The other mycorrhizal fungi genera applied in the Bartlett mix include *Entrophospora* and *Glomus*. This combination of fungi will form mycorrhizal relations with virtually all other woody plants except Rhododendron, azalea, Mountain laurel and Pieris.

In landscape situations, mycorrhizal inoculum is injected into the soil in a water slurry. Soil injection of these products can significantly increase root growth in low fertility soils compared to the non-treated control. The greatest effects of the treatment, after one growing season, are when Bartlett Boost® and mycorrhizal inoculum are combined.



Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.