

# RESEARCH LABORATORY TECHNICAL REPORT



## BOOST® Fertilization Of Trees and Shrubs

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BOOST® fertilization can be used to achieve the client's landscape goals. This may include overcoming nutrient deficiencies that are responsible for off-color plants, promoting growth, or simply maintaining tree health (Figures 1 and 2).

The line of BOOST® fertilizers was developed by the Bartlett Tree Research Laboratories to meet the specific needs of trees and shrubs in landscape plantings. Since there are variations in the nutrient requirements among plant species, BOOST® is aimed at the typical species requirements in specific geographic areas. Every year, the Bartlett Lab evaluates over 10,000 soil samples for nutrient analysis. These results are routinely analyzed to determine soil chemistry trends within local areas. Using this data, specific nutrient blends are developed to address the concerns highlighted through sampling.

While BOOST® formulations vary by geographic area, they all have some similar properties. They contain a slow release form of nitrogen (N) with at least half of the nitrogen in a water insoluble (WIN) form. This allows for a long period of nitrogen release, more closely simulating nitrogen availability found in nature, and also conforms to the industry guidelines enacted to protect the environment. The nitrogen is released as naturally occurring soil microbes act on the fertilizer. Nitrogen is an essential component of chlorophyll, and is an important component for tree structure and metabolism.

**Figure 1: Shrubs on the left are severely nutrient deficient. The same species on the right was fertilized with Bartlett BOOST®**



Phosphorus (P) may be excluded in a BOOST® formulation due to high levels of naturally occurring phosphorus, or in areas that are sensitive to the application of phosphorus. Sensitive areas include many watersheds that are associated with municipal drinking water or other areas near freshwater lakes. Phosphorus is essential for photosynthesis and energy transfer within plants.

Potassium (K) is included in all BOOST® formulations. Potassium is important in the activation of enzymes within the plant, especially those involved with chlorophyll synthesis, and is essential for regulating water use.

Secondary and micro-nutrients including magnesium (Mg), iron (Fe), manganese (Mn) and zinc (Zn) are included in most BOOST® formulations in accordance with soil sample results. Micronutrients have many functions in the plant including formation of chlorophyll.

## Fertilizer Application

BOOST® fertilizer is suspended in water and injected into the soil using high pressure and a specially designed soil injector. This method of application installs the fertilizer in close proximity to tree and shrub roots so that it is readily available for uptake and also reduces the risk of fertilizer runoff.

BOOST® application rates are based on nitrogen content and are consistent with the American National Standards Institute (ANSI) A300 standards for tree care. Rates can vary from two to six pounds of nitrogen per 1000 square feet (1-3 kg/100m<sup>2</sup>). To maintain tree and shrub health, a two or three pound (1-1.5 kg/m<sup>2</sup>) rate is applied. This rate is based on the amount of nitrogen that is typically lost on an annual basis to leaf removal and other nitrogen losses. For severely deficient trees and shrubs, and in cases where the goal is to promote growth, the higher six pound (3 kg/100m<sup>2</sup>) rate is applied.

BOOST® can be applied any time of the year when the soil is not frozen or too dry. The slow release nitrogen component of BOOST® resists release until soil conditions are favorable for root growth and nutrient uptake. All fertilizers work best when they are watered in with rain or irrigation.

**Figure 2: Trees on the left were fertilized with Bartlett BOOST®. Trees on the right were not fertilized**



For best results with fertilization, collecting soil nutrient samples from the shrub bed or beneath a tree is highly recommended. The results of the nutrient analysis are used to develop a unique nutrient prescription that can be applied using Bartlett's fertilization program.



**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.**