



The Bartlett Root Invigoration Program

The Bartlett Root Invigoration Program is a newly developed treatment regime intended to promote root growth. The program has been successful on declining trees and large transplants. When properly applied, these treatments can increase fine root density up to five times. This leads to higher levels of water and nutrient uptake resulting in an overall improvement in tree health.

How does Root Invigoration promote root growth?

Root growth occurs when soil conditions are favorable. Often in urban areas soil conditions deteriorate due to turf management practices, soil compaction, lack of organic matter in the soil, lack of nutrients and low levels of mycorrhizae. Root invigoration incorporates organic matter, fertilizer, and mycorrhizal fungi while reducing soil compaction and aerating the soil. These factors all promote of root growth.

What will be done?

There are several steps involved in setting up and implementing the Bartlett Root Invigoration Program:

- **Site evaluation, tree evaluation and soil sampling.** The landscape and affected trees are examined to make certain that they are suitable candidates for the service. Not all declining trees will respond to this treatment. Soil analysis provides information on the current nutrient, pH and organic matter levels as well as soil penetrability/density.
- **Program recommendations.** Either Partial or Complete Root Invigoration Program may be recommended depending on results of the diagnostic tests, tree condition and your landscape goals. A Partial Root Invigoration (Figure 1) includes soil conditioning only around the trunk of the tree. A Complete Root Invigoration (Figure 2) conditions the soil around the trunk and in segments throughout the critical root zone.
- **Irrigation.** Irrigate the treatment area heavily two or three days prior to the scheduled treatment if less than an inch of rainfall fell during the previous week. This allows for a more effective and less dusty treatment. No irrigation should be applied the day prior to treatment. If there is standing water in the landscape or if the soil is dry or frozen, treatment can not be made.
- **Fertilizer Application.** Bartlett's unique *Soil Rx Prescription Fertilization* matches fertilizer to your soil and tree needs and provides the greatest benefits with the least environmental impact.
- **Soil Conditioning.** On the day of treatment a crew of one or two will arrive with a large air compressor and the materials that will be incorporated into the soil. They will cultivate the soil to a depth of six to eight inches using a tool designed to excavate the soil without disturbing the roots. Following this operation organic matter, fertilizer and/or mycorrhizal fungi will be incorporated into the treatment zone based on soil test results.
- **Mulching.** The work area will be covered with mulch at the end of the process. Maintain the mulch level at a depth of 2 to 4 inches. If it is not desirable to mulch the area, it can be seeded in grass or other ground cover. However, turf will inhibit tree root development and is much less beneficial to the tree than mulch.
- **Root Diseases.** If root disease is suspected of playing a role in the tree decline, a root sample will be collected for additional diagnostic testing. Treatment recommendations will be provided at a later date, if required.

What results can be anticipated?

Every tree is a unique biological specimen, so the results of this treatment are also unique. Typically a declining tree will have a much denser and greener crown by the next growing season or with the next flush of growth. Immediately after Root Invigoration you may notice that water penetrates more rapidly into the treated soil, this is due to the increased soil porosity.

Declining trees may need additional treatments including cleaning dead branches, borer treatments and tree risk assessments, especially root evaluation. Check with your Bartlett Arborist for details on additional treatments.

How can you assist in the treatment and recovery of the tree?

- **Irrigation** prior to treatment is essential in providing an effective treatment if drought conditions exist. Irrigation after treatment will provide the moisture required for root growth. Irrigation once a week during drought periods is usually sufficient.
- **Monitor Soil Moisture.** Moisture levels are easily monitored with tensiometers or other soil moisture monitoring devices. You should notice that water is now quickly absorbed into the mulch and soil.
- **Weed Management.** If weeds start growing in the mulch they should be pulled or treated with a glyphosate (*Roundup*) herbicide. Pre-emergent herbicides should not be applied for two months following treatment. After that period, they can be used very effectively in preventing weed growth in mulched areas.
- **Integrated Pest Management.** The Bartlett *Monitor* Integrated Pest Management Program will have an expert on your property on a regularly scheduled basis to examine all of your trees and shrubs and treat pest before they become a serious problem.
- **Monitor the Tree.** If you notice any problems with the tree call your Bartlett Arborist immediately.

Figure 1.
Partial Root Invigoration

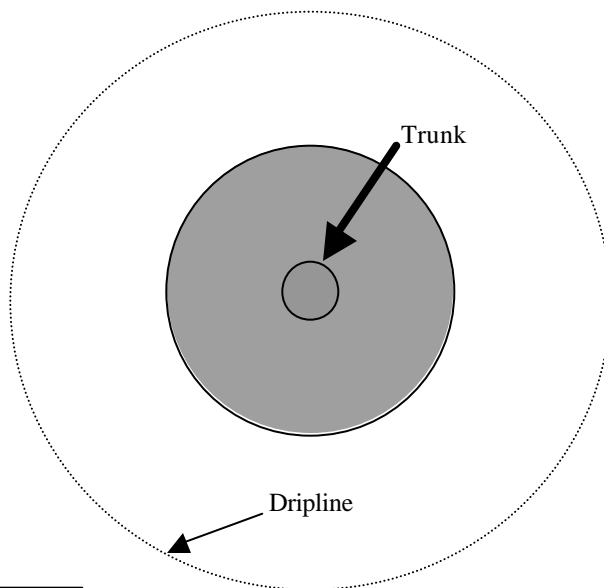
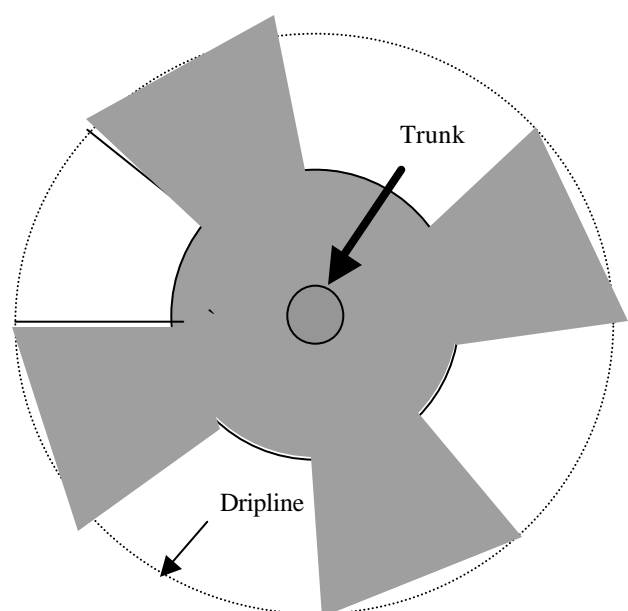


Figure 2.
Complete Root Invigoration



Area of Soil Conditioning