



BARTLETT TREE

RESEARCH LABORATORIES

CHARLOTTE, NC



Technical Report



Bartlett's Five Point Drought Recovery Program in Texas

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Periods of drought have become increasingly common in different geographic areas of the United States, particularly Texas. Lack of water greatly reduces the plant's ability to manufacture sugar, which weakens the tree and limits future growth. Moisture stress also increases the tree's susceptibility to harmful insect and disease pests that would not ordinarily affect healthy plants.



Long-term drought eventually leads to branch dieback and tree decline



Drought symptoms on live oak foliage

Bartlett's Five Point Drought Recovery Program will help offset the effects of drought. The program consists of the following services:

- *Irrigation
- *Mulching
- *Soil and Nutrient Management
- *Pruning
- *MoniTor[®] IPM Program

Irrigation: Thoroughly irrigating landscape plants during the late summer and fall months, before the onset of winter, is critical. Water stress inhibits the manufacture of key plant growth regulators that control dormancy. This may increase the chance of winter injury.



Woody plants need approximately one inch of water per week from a combination of rainfall and irrigation

Irrigate dry soil beneath trees and shrubs to a depth of 12 inches during the fall months. Drip irrigation systems or soaker hoses are best because they irrigate only the plant root zone, reduce runoff and decrease water loss to evaporation.

Landscape plants also need ample moisture in the spring during the critical periods of budbreak and shoot development. Without rainfall, plants require the addition of approximately 750 gallons of water per 1000 sq. ft. of soil surface beneath the crown during each week of the growing season. Tensiometers are useful for determining irrigation needs when monitored regularly.

Mulching: Mulching trees and shrubs with organic materials, such as wood or bark chips, provides many plant health benefits. Mulch conserves soil moisture, insulates soil to reduce winter injury and improves the physical condition of soil. Apply mulches to

a depth of 2-4 inches around landscape plants, avoiding contact with the stem.

Soils and Nutrient Management: Plants weakened by moisture stress and nutrient deficiencies should be fertilized in fall or spring following the drought when soils are recharged by rainfall. Avoid fertilization during droughts because it provides little benefit when water is the limiting growth factor. Soil analysis is recommended to identify nutrient requirements.

Bartlett offers a variety of fertilizers and soil amendments that can treat any nutrient deficiency. Bartlett's Soil Rx Prescription Fertilization Program provides specific soil treatments based on soil nutrient analysis,



Apply mulch 2-4 " deep and to the dripline if possible

plant species, condition and client goals. Unnecessary nutrients are not applied. Bartlett's Prescription Program also evaluates soil pH, organic matter levels and other critical soil characteristics.

Bartlett *BOOST*[®] Texas was developed

specifically for woody landscape plants based on years of soil analyses from the region's landscapes. *BOOST*[®] Texas releases vital nutrients gradually over the entire season. *BOOST*[®] Texas is mixed in water and injected into the root zone of plants. Besides providing water, this application method may help alleviate soil compaction in some soils.

Additions of commercially available mycorrhizal fungi to soil may also benefit drought stricken plants, especially mature trees. Mycorrhizae inoculants stimulate root performance and improve the absorption efficiency of those roots. Mycorrhizae inoculants can be mixed and applied with some liquid fertilizers.

Bartlett's Root Rx program (Root Invigoration) alleviates compaction around established trees. With this program, compacted soil is broken up, and nutrients and organic matter are mixed in utilizing the Airspade, a special tool that mixes the soil while causing minimal disturbance to the root system. This process increases water infiltration, soil moisture levels and the nutrient-holding capacity of the soil, as well as adding nutrients and improving soil structure.



The Root Invigoration (Root Rx) Program being applied to a declining tree

Pruning: Clean to remove dead, damaged and dying branches and to reduce pest problems. Selectively thin plants with

exceptionally dense branching habits. This reduces the demands for water and nutrients. Thinning must be done judiciously because excessive pruning can weaken the plant.

***MoniTor*[®] Integrated Pest Management (IPM):** Moisture stressed plants are more susceptible to insect borers, bark beetles and root, stem and foliage diseases. Cool-season mites are a particular concern on conifers such as arborvitae, spruce and pine. Bartlett's *MoniTor*[®] IPM Program ensures early detection and treatment of pest problems before significant injury to the plant occurs. A trained *MoniTor*[®] technician periodically inspects plants for pests and other factors that adversely affect plant health. Treatments are applied as necessary to keep pests below damaging levels and to maintain plant health.



Professional inspection is the key to early detection and treatment of pests.