

# Microinjection

## *preps trees for fall*



*With microinjection, antibiotics, fungicides, insecticides and mineral nutrients are placed directly into a tree with no contact with the environment.*

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**M**icroinjection is a contained, delivery system that presents the applicator with an environmentally friendly alternative to spray applications.

#### **Why fall is a good time**

Many tree health problems can be effectively treated in the fall. As trees in temperate climates and subtropical climates go into dormancy many plant pathogens and insect pests continue to be active.

In some cases, fall treatments lower pest and pathogen populations and give trees protection against health problems in the following spring. In addition, the root growth without shoot growth, that occurs in the fall, facilitates treatments of nutrient

## **Specific tree health problems**

The following tree health problems can be treated in the fall by microinjection:

**1. Leaf scorch diseases of hardwood trees**—Bacteria, which live in the xylem, cause leaf scorch diseases on a number of hardwood hosts including elm, maple, mulberry, oak and sycamore. The antibiotic treatments do not eradicate the bacteria, and treatments have to be repeated within every 1 to 2 years.

**2. Adelgids on coniferous hosts**—Adelgids are close cousins to aphids, but their health impact on coniferous hosts is often more severe. The hemlock woolly adelgid can kill an infested eastern hemlock (*Tsuga canadensis*) in one year. Microinjection capsules are placed onto the hemlock trees in early fall.

**3. Anthracnose diseases of hardwood trees**—The fungi which cause anthracnose diseases in the spring and summer on many species of trees including, ash, dogwood, maple, oak and sycamore, are also active during the warm periods in the fall. Fall microinjection of fungicides can provide protection for recently formed twigs and buds and may help to improve the overall appearance of the trees in the spring.

**4. Nutrient abnormalities on all trees**—Mineral nutrient deficiencies cause health problems, such as chlorosis, on many species of trees. Many of these mineral deficiencies, such as iron deficiency and manganese deficiency, can be corrected by microinjection during the fall season

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abnormalities at this time.

Microinjection is a type of trunk injection. Small amounts (approximately 0.1 ounce) of therapeutic chemicals, contained in sealed capsules, are injected into shallow trunk wounds around the base of a tree. Injected chemicals are distributed systemically by sap movement within the tree to the branches, leaves and even roots within a few hours. Microinjection treatments can be applied to tree health problems in the fall and early winter. **LM**

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## Treat root causes with fungi

Landscapers can repopulate soils and promote healthy root growth through application of mycorrhizal fungi, beneficial bacteria and root growth-promoting organic products.



► Beneficial bacteria in the rhizosphere solubilize mineral elements, such as phosphorus, for uptake by plant roots. Others fix nitrogen from the air, produce plant growth regulators that stimulate root growth, and others deter root diseases.

► Mycorrhizal fungi colonize the fine absorbing roots of the plant. The fungi extend hyphal strands (feeding tubes) far into the soil, which improves absorption of water and essential elements.

► Introduced mycorrhizal fungi and soil bacteria increase water and nutrient absorption from soil; increase resistance against soil-borne root pathogenic fungi, such as *Phytophthora spp.*; and increase plant survival, particularly during drought periods and on adverse planting sites. These microorganisms do not stimulate tree growth—they eliminate inhibited growth, which makes them true preventative plant health care tools.

*by Dr. Donald H. Marx, Plant Health Care, Inc.*

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